

Analysis of mechanical competency, service prices and customer satisfaction at CV. Karya Nirmala Auto Care

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Article Info

Article history:

Received Oct 02, 2023

Revised Oct 14, 2023

Accepted Oct 20, 2023

Published Oct 30, 2023

Keywords:

mechanical competence
service price
satisfaction

ABSTRACT

High-intensity use of personal transportation equipment will result in damages, which will disrupt daily performance; therefore, vehicle maintenance and repairs need to be carried out regularly and periodically. The problem that often occurs is that service prices are expensive, and yet the results are unsatisfactory. The reason behind this can be inadequate mechanical skills or competence. This research tested the relationship between mechanical competence and service prices on customer satisfaction at CV. Karya Nirmala Auto Care Jl. Pandeglang-Rangkas Gang H Kabal, Kabayan, Pandeglang Regency, Banten. This research uses quantitative methods, service price data, and mechanic competency at the Karya Nirmala Auto Care workshop. Data was collected using interviews and questionnaires. The data analysis used was multiple correlation, and the results showed a strong relationship between mechanical competence and service prices on customer satisfaction.

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INTRODUCTION

Korlantas Polri recorded that the number of active motorized vehicles population in Indonesia until February 9, 2023, reached 153,400,392 units. Before this, on December 31, 2022, 152,510,000 units were recorded (Fetra, 2023). It shows an increase of around 890,392 units, and it is possible that in 2024, it will continue to increase. The increase in the number of vehicles is influenced by the increasing number of users and the increasing need for vehicles due to the development of online service providers (Suthanaya & Winaya, 2023; Ferreira et al., 2021). It cannot be denied because it relates to the community's economy.

The increase in the number of vehicles also makes a positive contribution to vehicle maintenance and repair services, and, of course, it will increase the number of customers and income. However, the most important factors for increasing the number of customers are based on customer service, the quality of reliable and experienced mechanics, and competitive prices (Shokouhyar et al., 2020). In conditions of increasingly tight competition, the main thing that workshops must pay

attention to is the quality of service to customers to survive, compete, and dominate market share (Ali et al., 2021). The workshop must know what things are considered necessary by customers and try to produce the best possible performance so that it can satisfy customers (Fetra et al., 2023).

A mechanic's performance is supported by knowledge and experience in vehicle servicing. The more knowledge you gain and the longer you have flying hours, the more proficient you will be (Fahrenkopf et al., 2020). It can be said that the mechanic is competent and professional in his field. Not to forget, the thing that influences market competition is price. With competitive prices and satisfactory quality of work, customers will still come (Alzoubi et al., 2020). On the other hand, if the price is high but the work results are not satisfactory, the customer will run away and move to another workshop, impacting the workshop's going bankrupt. In connection with this research, the relationship between mechanical competence and service prices will be tested concerning customer satisfaction at CV. Karya Nirmala Auto Care.

Karya Nirmala Auto Care Workshop is located on Jl. Pandeglang-Rangkas Gang H Kabal, Kabayan, Pandeglang Regency, Banten. It provides many services such as car maintenance, tune-up, body repair, sporing balancing, overhaul, spare parts, painting, oil change, car AC, accessories, and variations at affordable prices. The prices or service costs at Karya Nirmala Auto Care include the understeer package (includes costs for dismantling, tierod, ball joints, excluding spare parts) starting from IDR 300,000 (excluding the replacement of spare parts), air filter package (guaranteed thousands of kilometers) IDR 300,000 – IDR 550,000, brake system package (brakes including checking and draining) IDR 100,000, electronic power steering (EPS) package IDR 750,00, oil power steering package (excluding reconditioning of leaking or scratched Asrex) IDR 1,000,000, tune-up package (carbon clean, calibration excluding spare parts or materials) starting from IDR 150,000 excluding replacement of spare parts, cooling system module IDR 1,000,000 and oil change package (flushing, excluding oil and oil filter) IDR 50,000, where the price package depends on the type of vehicle. Karya Nirmala Auto Care also has a strategic location, making it easier for customers to carry out car repairs and maintenance. The business location covers an area of around 1000 m². It is supported by five workers with trustworthy skills, allowing customers to freely entrust their vehicles to be repaired and maintained by the management of Karya Nirmala Auto Care.

THEORETICAL FRAMEWORK

Analysis

According to Departemen Pendidikan Nasional (2012), analysis is an investigation of an event to find out the actual situation (causes, problems). According to Komaruddin (2010), analysis is a thinking activity that decomposes a whole into components so that you can recognize the signs of the components, their relationships with each other, and their respective functions in an integrated whole.

According to Umar & Husein (2012), analysis is a work process consisting of a series of work stages before the research is documented through the report writing stage. According to Prastowo and

Julianti (2015), analysis is defined as breaking down a subject into its various parts and studying the parts themselves and the relationships between parts to obtain a correct understanding and understanding of the overall meaning. Based on the quote above, analysis is an activity that contains several activities such as parsing, distinguishing, and sorting things to be classified and regrouped according to specific criteria, then looking for connections and interpreting their meaning. In other words, analysis is a collection of interrelated activities, activities, and processes to solve problems or break down components into more detail, combine them again, and then draw conclusions.

Competency

According to Wibowo (2007), competence is the ability to carry out a job or task based on skills and knowledge and is supported by the work attitude required by the job. Thus, competency shows skills or knowledge that are characterized by professionalism in a particular field as the most important thing, as superior in a particular field, with the indicators being:

- a. Knowledge related to work includes 1). Know and understand knowledge in their respective fields. 2). Knowledge of new regulations, procedures, and techniques in government institutions.
- b. Individual skills include: 1). Ability to communicate well in writing. 2). Ability to communicate orally.
- c. Individual attitudes, including: 1). Can communicate and be creative at work. 2). High work enthusiasm.

Price

Price according to Kotler & Armstrong (2012) is the amount of money exchanged for a product or service. According to Dharmmesta & Irawan (2008) price is the amount of money (plus several products if possible) needed to get a combination of products and services. Low prices or affordable prices are a trigger for improving marketing performance (Ferdinand & Augusty, 2012). Price is often used as an indicator of value when this indicator is related to the perceived benefits of a good or service. It can be concluded that at a certain price level, if the perceived benefits of consumers increase, then the value will also increase (Tjiptono & Fandy, 2011).

Price has two leading roles in buyers' decision-making (Tjiptono & Fandy, 2013), namely:

- a. The role of price allocation is the function of price in helping buyers decide how to obtain the highest expected benefit or utility based on their purchasing power. Thus, prices can help buyers decide how to allocate their purchasing power to various goods and services. Buyers compare the prices of various available alternatives and then decide on the desired allocation of funds.
- b. The informational role of prices, namely the function of prices in informing consumers about product factors, such as quality. It is beneficial when buyers have difficulty objectively assessing product factors or benefits. The perception that often prevails is that high prices reflect good quality.

Kotler and Armstrong (2012) stated that there are six primary efforts that a company can achieve through prices, namely survival, maximizing short-term profits, maximizing short-term income, superiority in the market, and superiority in product quality. Based on the experts' opinions above, price is the money needed to combine products and services.

Satisfaction

Customer satisfaction is the level of consumer feelings after comparing what he received and his expectations (Umar & Husein, 2012). A customer, if satisfied with the value provided by a product or service, will likely remain a customer for a long time. According to Kotler & Armstrong (2012), consumer satisfaction is a person's happiness or disappointment that arises after comparing the performance (results) of the product in question against the expected performance. Satisfying consumer needs is the desire of every company. In addition to being an important factor for a company's survival, satisfying consumer needs can increase excellence in competition. Consumers who are satisfied with products and services tend to repurchase and reuse services when the same need arises again. This means that satisfaction is a critical factor for consumers when making repeat purchases, and it is the most significant portion of the company's sales volume.

Framework

Research was conducted to determine the effect of mechanical competence and service prices on customer satisfaction. The framework for thinking in this research is described in the following scheme: Figure 1.

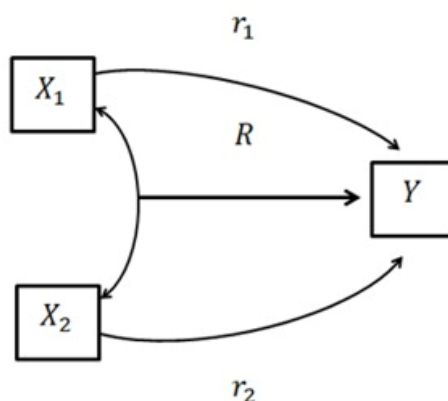


Figure 1. Framework of Thought

Information:

- r_1 : Partial relationship between mechanical competency variable (X_1) and customer satisfaction (Y) at Karya Nirmala Auto Care.
- r_2 : Partial relationship between the service price (X_2) and customer satisfaction (Y) variables at Karya Nirmala Auto Care.
- R : Relationship between mechanical competency (X_1) and service price (X_2) simultaneously with customer satisfaction (Y) variables at Karya Nirmala Auto Care.

Research Hypothesis

The hypothesis in this research is as follows:

- a. Mechanical competence is suspected to influence customer satisfaction (Y) at Karya Nirmala Auto Care.
- b. Service prices are suspected to influence customer satisfaction (Y) at Karya Nirmala Auto Care.
- c. It is suspected that mechanical competence and service prices influence customer satisfaction (Y) at Karya Nirmala Auto Care.

METHOD

Research Methods

The scope of this research is limited to the influence of mechanical competence and service prices on customer satisfaction at Karya Nirmala Auto Care. The stages of the method used are qualitative methods used to determine respondents. The Likert scale quantitative method with multiple correlation analysis techniques was used for data processing.

Qualitative Method

The Qualitative Method is a structured description of a list of questions (questionnaire) supported by theories, then arranged in the form of a tabulation model and summarized. Qualitative methods in this research were used to test the suitability of respondents who would be used in the research.

Quantitative Method

Quantitative methods are used in statistical calculations expressed as numbers or qualitative data scored using a Likert scale. According to Sugiyono (2005), the Likert scale is a method that measures the attitudes, opinions, and perceptions of a person or group of people about social phenomena by expressing satisfaction or dissatisfaction with a particular subject, object, or event. With this scale, respondents are asked to respond to each question by selecting one of the available answers. The answer to each indicator and instrument item using a Likert scale has a predetermined score.

Multiple Correlation

Multiple correlation is a number that shows the direction and strength of the relationship between two variables together or more with other variables (Sugiyono, 2005).

RESULTS AND DISCUSSION

In this study there are four correlations, namely:

1. Correlation Between Mechanical Competence (X₁) and Price (X₂) variables

$$r_{x_1x_2} = \frac{\sum x_1x_2}{\sqrt{(\sum \bar{x}_1^2)(\sum \bar{x}_2^2)}} \quad (1)$$

2. Correlation Between Mechanical Competence (X₁) and Customer Satisfaction (Y) variables

$$r_{x_1y} = \frac{\sum x_1y}{\sqrt{(\sum x_1^2)(\sum y^2)}} \tag{2}$$

3. Correlation Between Price Variables (X₂) and Customer Satisfaction (Y) variables

$$r_{x_2y} = \frac{\sum x_2y}{\sqrt{(\sum x_2^2)(\sum y^2)}} \tag{3}$$

4. Correlation Between Mechanical Competence (X₁) and Price (X₂) variables together with Customer Satisfaction (Y) variables

$$R_{Y,x_1x_2} = \sqrt{\frac{(r_{x_1y})^2 + (r_{x_2y})^2 - 2(r_{x_1y})(r_{x_2y})(r_{x_1x_2})}{1 - (r_{x_1x_2})^2}} \tag{4}$$

Table 1. Relationship Level Coefficient

Number	Coefficient Interval	Relationship Level
1	0.00 – 0.199	Very low
2	0.20 – 0.399	Low
3	0.40 – 0.599	Currently
4	0.60 – 0.799	Strong
5	0.80 – 1.000	Very Strong

Table 2. Correlation Between Mechanical Competency (X₁) and Price (X₂) variables

No	Mechanical	Price	$(x_{i1} - \bar{x}_{i1})$	$(x_{i2} - \bar{x}_{i2})$	\bar{x}_1^2	\bar{x}_2^2	x_1x_2
	Competency	Variables					
	(x_{i1})	(x_{i2})					
1	36	24	4.5	4.5	20.25	20.25	20.25
2	35	23	3.5	3.5	12.25	12.25	12.25
3	34	22	2.5	2.5	6.25	6.25	6.25
4	33	21	1.5	1.5	2.25	2.25	2.25
5	32	20	0.5	0.5	0.25	0.25	0.25
6	31	19	-0.5	-0.5	0.25	0.25	0.25
7	30	18	-1.5	-1.5	2.25	2.25	2.25
8	29	17	-2.5	-2.5	6.25	6.26	6.25
9	28	16	-3.5	-3.5	12.25	12.25	12.25
10	27	15	-4.5	-4.5	20.25	20.25	20.25
	$\sum x_{i1}$	$\sum x_{i2}$			$\sum \bar{x}_1^2$	$\sum \bar{x}_2^2$	$\sum x_1x_2$
	= 315	= 195			= 82.5	= 82.5	= 82.5
	$\bar{x}_{i1} = 31.5$	$\bar{x}_{i2} = 19.5$					

$$r_{x_1x_2} = \frac{\sum x_1x_2}{\sqrt{(\sum \bar{x}_1^2)(\sum \bar{x}_2^2)}} = \frac{82.5}{\sqrt{(82.5)(82.5)}} = \frac{82.5}{\sqrt{6806}} = \frac{82.5}{82.5} = 1$$

The correlation between Mechanical Competence (X₁) and the Price (X₂) variable is 1, so the relationship is very strong.

Table 3. Correlation Between Mechanical Competency (X_1) and Customer Satisfaction (Y)

No	Mechanical Competency (x_i)	Satisfaction Variables (y_i)	($x_i - \bar{x}_{i1}$)	($y_i - \bar{y}_i$)	x_1^2	y^2	x_1y		
1	36	28	4.5	4.5	20.25	20.25	20.25		
2	35	27	3.5	3.5	12.25	12.25	12.25		
3	34	26	2.5	2.5	6.25	6.25	6.25		
4	33	25	1.5	1.5	2.25	2.25	2.25		
5	32	24	0.5	0.5	0.25	0.25	0.25		
6	31	23	-0.5	-0.5	0.25	0.25	0.25		
7	30	22	-1.5	-1.5	2.25	2.25	2.25		
8	29	21	-2.5	-2.5	6.25	6.26	6.25		
9	28	20	-3.5	-3.5	12.25	12.25	12.25		
10	27	19	-4.5	-4.5	20.25	20.25	20.25		
$\sum x_{i1}$		$\sum y_i$		$\sum x_1^2$		$\sum y^2$		$\sum x_1y$	
= 315		= 235		= 82.5		= 82.5		= 82.5	
$\bar{x}_{i1} = 31.5$		$\bar{y}_i = 23.5$							

$$r_{x_1y} = \frac{\sum x_1y}{\sqrt{(\sum x_1^2)(\sum y^2)}} = \frac{82.5}{\sqrt{(82.5)(82.5)}} = \frac{82.5}{\sqrt{6806}} = \frac{82.5}{82.5} = 1$$

The correlation between Mechanical Competence (X_1) and Customer Satisfaction (Y) is 1, so the relationship is very strong.

Table 4. Correlation Between Price Variables (X_2) and Customer Satisfaction (Y)

No	Price Variables (x_{i2})	Satisfaction Variables (y_i)	($x_{i2} - \bar{x}_{i2}$)	($y_i - \bar{y}_i$)	x_2^2	y^2	x_2y		
1	24	28	4.5	4.5	20.25	20.25	20.25		
2	23	27	3.5	3.5	12.25	12.25	12.25		
3	22	26	2.5	2.5	6.25	6.25	6.25		
4	21	25	1.5	1.5	2.25	2.25	2.25		
5	20	24	0.5	0.5	0.25	0.25	0.25		
6	19	23	-0.5	-0.5	0.25	0.25	0.25		
7	18	22	-1.5	-1.5	2.25	2.25	2.25		
8	17	21	-2.5	-2.5	6.25	6.26	6.25		
9	16	20	-3.5	-3.5	12.25	12.25	12.25		
10	15	19	-4.5	-4.5	20.25	20.25	20.25		
$\sum x_{i2}$		$\sum y_i$		$\sum x_2^2$		$\sum y^2$		$\sum x_2y$	
= 195		= 235		= 82.5		= 82.5		= 82.5	
$\bar{x}_{i2} = 19.5$		$\bar{y}_i = 23.5$							

$$r_{x_2y} = \frac{\sum x_2y}{\sqrt{(\sum x_2^2)(\sum y^2)}} = \frac{82.5}{\sqrt{(82.5)(82.5)}} = \frac{82.5}{\sqrt{6806}} = \frac{82.5}{82.5} = 1$$

The correlation between the price variable (X₂) and customer satisfaction (Y) is 1, so the relationship is very strong.

Calculating the Correlation Between Mechanical Competence (X₁) and Price (X₂) simultaneously with Customer Satisfaction (Y) variables.

$$R_{Y,x_1x_2} = \frac{\sqrt{(r_{x_1y})^2 + (r_{x_2y})^2 - 2(r_{x_1y})(r_{x_2y})(r_{x_1x_2})}}{1 - (r_{x_1x_2})^2} = \frac{\sqrt{(1)^2 + (1)^2 - 2(1)(1)(1)}}{1 - (1)^2} = \frac{\sqrt{2 - 2}}{1 - 1} = 1$$

The correlation between Mechanical Competence (X₁) and the Price (X₂) together with Customer Satisfaction (Y) variables is 1, so the relationship is very strong.

CONCLUSION

After the performing the analysis, it is found that:

1. There is a very strong relationship between Mechanical Competence (X₁) and Price (X₂) variables.
2. There is a very strong relationship between Mechanical Competence (X₁) and Customer Satisfaction (Y).
3. There is a very strong relationship between the Price (X₂) and Customer Satisfaction (Y) variables.
4. There is a very strong relationship between Mechanical Competence (X₁) and Price Variables (X₂) simultaneously with Customer Satisfaction (Y).

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