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The Influences of Product Quality, Service Quality and Price Perception on Coal Customer Satisfaction of PT Sriwijaya Bara Priharum

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Abstract:- This research aims to analyze and evaluate the influences of product quality, service quality, and price perception on PT Sriwijaya Bara Priharum Coal customer satisfaction. The population in this research were 7 companies that had conducted coal trading transactions with PT Sriwijaya Bara Priharum in Indonesia with 35 respondents. The data analysis technique used is multiple linear regression analysis using SPSS 25. The results showed that all variable X (product quality, service quality and price perception) partially had a positive and significant effect on variable Y (customer satisfaction) and all variables X (product quality, service quality, and price perception simultaneously have a positive and significant effect on the variable y (customer satisfaction). The results of this research can be considered by companies to determine policies that can be taken to improve customer satisfaction.

Keywords:- *Product Quality, Service Quality, Price Perception, Customer Satisfaction.*

I. INTRODUCTION

Coal is an alternative energy choice that is currently widely used by industries in the world. Coal is one of the minerals that has the potential to be used further besides oil and gas. Indonesia is one of the world's largest producers and exporters of coal. Most of the national coal production is exported abroad such as China, Japan, India, Taiwan and others. However, the amount of coal exports is not directly proportional to the amount of domestic coal consumption. The government issues policies related to the Domestic Market Obligation to regulate the amount of coal that must be allocated to domestic interests.

PT. Sriwijaya Bara Priharum is one of the companies engaged in coal mining. In addition, this company has marketed its coal production to various industries, both domestically and abroad to meet the needs of the use of coal as fuel. Meeting the production targets that have been approved in the RKAB (Annual Work Plan and Budget) issued by the Department of Energy and Mineral Resources of South Sumatra Province is a challenge for companies that have just started production to avoid sanctions in the form of reducing production quotas in the following year.

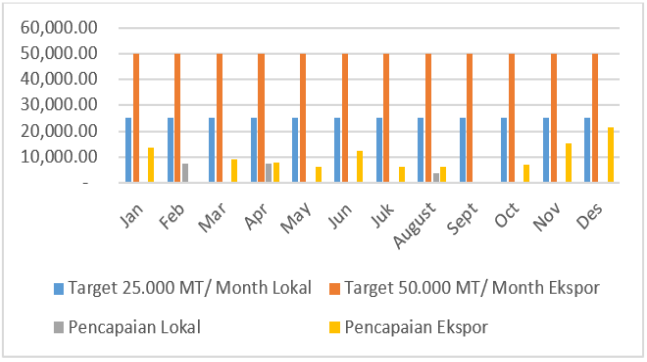

Fig 1:- Target vs. Actual Sales in 2018
Source: PT Sriwijaya Bara Priharum

Although coal production and sales in Indonesia slowed down in 2014 - 2015, its experienced an increase in 2016 - 2018, although these conditions were not very significant. The biggest coal producing regions in Indonesia are Kalimantan and Sumatra. Coal production on the island of Sumatra is dominated by the Province of South Sumatra, then followed by the Provinces of Jambi and Bengkulu.

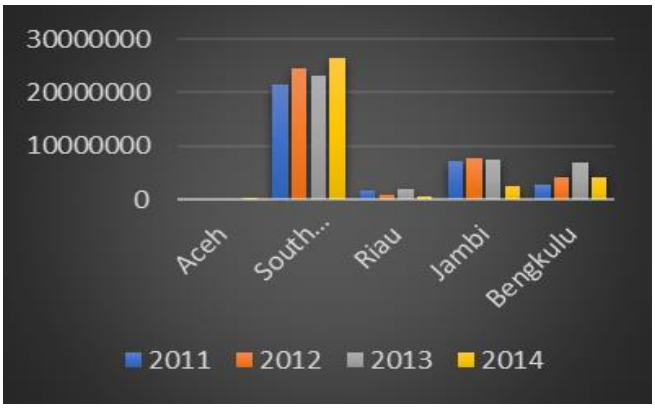

Fig 2:- Sumatra Coal Production in 2011 - 2014
Source: Indonesia Minerals and Coal Information 2015

In the coal sale and purchase transaction there are several things that are of concern in the consumer's decision to buy coal, namely calories (GAR or ADB), levels of Ash (Ash), and total moisture (water content). Although there are other indicators in coal analysis, these 3 aspects are the most common to consider before buying coal. PT Sriwijaya Bara Priharum coal calorie is around 4400 - 4600 kcal / kg ARB or included in the category of calorie medium which is commonly used in cement plants and power plants. Total

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moisture is the total amount of water contained in coal in the form of inherent and adherent in the condition when the coal is taken for example or in the condition when the coal is received. The average total moisture content in coal produced by PT Sriwijaya Bara Priharum is 33.02%. Ash content, which is non-combustible material after burning the sample. Ash is sourced from minerals in coal, the more minerals contained in coal, the higher ash content will be and vice versa. The results of the ash content used to measure the quality of coal and the efficiency of the cleaning process, the lower ash contained in coal, then the better quality of it. The average ash content produced by PT Sriwijaya Bara Priharum is 5.92%.

The obstacle that often occurs when the results of the coal analysis are not in accordance with the contract that has been agreed upon, it is necessary to calculate the price adjustment that automatically affects the price of the coal. The certainty of coal supply is also a special concern for coal companies. Several times the activities of transporting coal from PIT to the port had to be stopped due to roadblocks from the affected communities.The problem of coal exploration in South Sumatra is not only limited to public complaints about coal transportation that disrupt public roads but also affects the delivery of coal to the port. This has an impact on the quality of services provided by PT Sriwijaya Bara Priharum.

The price of coal is very dependent on quality, the better of quality, then higher price that it received. That is why the quality of existing coal must always be maintained so that there are no differences in the quality of the contract agreed with the buyer. For those who want to buy and sell coal and will determine the price of coal must refer to the Regulation of the Minister of Energy and Mineral Resources Number 17 of 2010 concerning Procedures for Determination of Benchmark Prices for Mineral and Coal Sales. The price of coal will be determined by the Energy and Mineral Resources applicable for a certain period and determined based on the regulations of the directorate general.The HBA value becomes a reference for coal prices on the equivalent calorific value of coal 6,322 kcal / kg Gross as Received (GAR), water content (total moisture) 8%, sulfur content 0.8% as received (ar), and ash content (ash) 15 % ar. In the case of coal sales carried out on a specified term (term), coal prices refer to the average of the 3 last Coal Benchmark Prices in the month in which the coal price is agreed, with a multiplier factor of 50% for the Coal Benchmark Price last month, 30% for Coal Benchmark Price one month before and 20% for Benchmark Coal Price two months earlier. For the regulation of coal sale and purchase for domestic electricity consumption, the government determines coal prices for 6,322 calories is USD 70 per ton or refers to the HBA if the HBA is below USD 70.

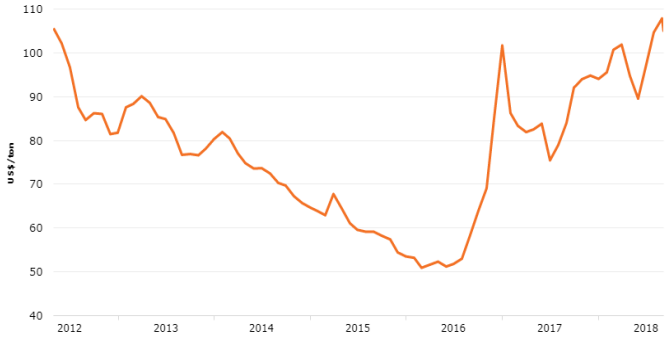

Fig 3:- HBA Indonesia (April 2012 - September 2018)
Source: Katadata (2018)

The price of coal in 2012 - 2016 declined because China as the world's largest coal producer increased coal production in the country significantly enough to reduce the amount of global coal exports, including Indonesia. This was also triggered by the world economic slowdown. Other factors contributing to the slowing demand for coal from China are several new policies aimed at limiting coal imports, including a coal import tax that has only implemented 6% import tax on thermal coal and also new quality controls.

Presurvey whose conducted by researchers to 30 coal consumers of PT Sriwijaya Bara Priharum in May 2019, where most consumers are still not satisfied with product quality, as many as 40% of respondents. As many as 37% of respondents were not satisfied with the quality of service and 23% of respondents were not satisfied with the price given by PT Sriwijaya Bara Priharum, as for the survey data contained in Table 1 below.

Variable	Problem Details	Amount	Percentage
Product Quality	1) Product does not meet the specifications 2) Product Perfomance 3) New Product	12	40%
Service Quality	1) Assurance of supply guarantee 2) Accuracy of submission of the Document	11	37%
Harga	1) Price comformity with Product Quality 2) Competitiveness Price 3) Price match with benefits	7	23%

Table 1:- Prasurvey Results
Source: Author processed (2018)

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Based on the background of the problem, so then the authors conducted research on *"The Influences of Product Quality, Service Quality and Price Perception on Coal Customer Satisfaction of PT Sriwijaya Bara Priharum".*

II. LITERATURE REVIEW

A. Product Quality

Kotler and Armstrong (2010: 27) defined that product quality is the ability of a product to carry out its functions including: reliability, durability, accuracy, ease of operation, and product improvement, as well as other valuable attributes. Meanwhile, according to Garvin and Timpe in Amrullah (2016: 102) quality is the advantage possessed by the product. According to David Garvin in Fandy Tjiptono (2016: 134) product quality has eight dimensions: performance, features, reliability, conformance to specifications, durability, serviceability, esthetics, and perceived quality. From these dimensions, the researcher draws several factors that are relevant to this research, including: Performance, Reliability and Conformance to Specification. The reason why only these 3 dimensions taken for this research is that the object under this research is coal which is not dependent on aesthetics, cannot be repaired, the product also includes products that cannot be stored for long time because they can burn themselves or the quality of the coal changes due to exposure to dust, water, etc., and also do not depend on product reputation because the quality of coal can only be proven from the results of the analysis

B. Service Quality

According to Wykocft in Sriyanto and Kuncoro (2015: 4) stated that service quality is the expected level of excellence and control over itself to meet the user needs. Collier in Amrullah (2016: 103) has another view of quality of these services, which is more emphasis on the word of "customer, service, quality and rank or level". According to Parasuraman in Fandy Tjiptono (2016: 137) there are five main dimensions in service quality: reliability, responsiveness, assurance, empathy, and tangibility. From these dimensions, the researcher draws several factors that are relevant to this research, including: Responsiveness, and Assurance. The reason why only these 2 dimensions taken for this research is not a company engaged in services. The company is engaged in coal mining which covers exploration, production, sales and rehabititation of the post mining environment. So the dimensions of empathy service quality and physical evidence are irrelevant to make this research dimension, because the buyer does not have to come to the seller's office and no emotional ties are needed.

C. Price Perception

Swasta in Rares and Jorie (2015: 594) defines that the price is the amount of money needed to get a combination of goods and services. While E. Jerome McCarthy in Anggriawan and Brahmayanti (2016: 17) said that " The Price is what it is charged for something". According to Kotler and Armstrong (2012: 314) explained that there are four measures of characterize prices, namely: price affordability, suitability of prices with quality, suitability of prices with benefits, and prices according to ability or purchasing power. From these dimensions, the researcher draws several factors that are relevant to this research, including: price according to ability or price competitiveness, price conformity with product quality, price match with benefits. The reason why only these 3 dimensions taken for this research is because of the object under this research is the product is not a consumer goods product, but a supporting product so that the price affordability dimension is irrelevant in this case. From these dimensions, the researcher draws several factors that are relevant to this study, including: Responsiveness and Assurance. The reason why only 2 dimensions taken for this research is that the object under this research is not a company engaged in services. The company is engaged in coal mining which covers exploration, production, sales and rehabilitation of the post mining environment. So the dimensions of empathy service quality and physical evidence are irrelevant to make this research dimension, because the buyer does not have to come to the seller's office and no emotional ties are needed.

D. Customer Satisfaction

According to Kotler and Keller (2015: 138) customer satisfaction is someone's happy or disappointed feelings that arise due to comparing the perceived performance of products against their expectations. Meanwhile, according to Zeithaml (2013) Customer satisfaction is an assessment that the features of products and services, or services itself, to provide the highest level of fulfillment of the customer expectations for certain products or services. Hawkins and Lonney in Tjiptono (2013: 45) explained that the dimensions of forming customer satisfaction which consists of: conformity of expectations, repurchase interest, and willingness to recommend.

E. Conceptual Framework

Based on the study of the theory above, the authors formulate the framework of thought as follows:

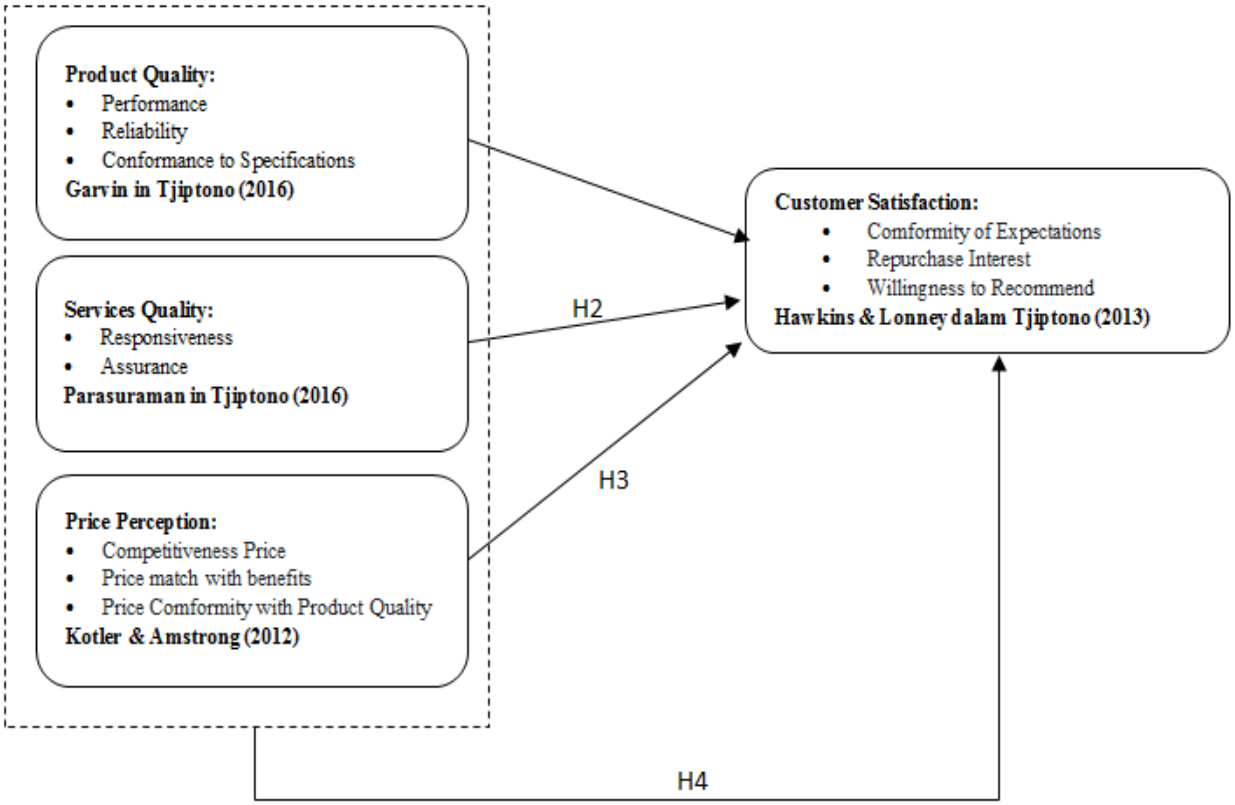

Fig 4:- Conceptual Framework
Source: Theoretical Review

F. Hypothesis

Based on the background of the problem, literature review and the mindset above, the hypotheses in this research are:

H1: Product quality affects customer satisfaction.
H2: Service Quality affects customer satisfaction.
H3: Price perception affects customer satisfaction
H4: Product Quality, Service Quality, and Price Perception simultaneously influence customer satisfaction.

III. METHODOLOGY

This type of research is quantitative verification research with explanatory survey research methods conducted to examine the coal consumer population with a particular sample. Quantitative data analysis using statistics with multiple linear regression so that the hypothesis testing has the influence of independent variables that have been determined The variables in this research consisted of product quality (X1), service quality (X2), price perception (X3), and customer decisions (Y). The population in this research is the business companies in Indonesia whose use coal from PT Sriwijaya Bara Priharum as fuel with total of 7 companies, so the number of respondents in each of these businesses is 5 respondents for each business so that the total respondents in this research amounted to 35 respondents.

IV. RESULT

A. Characteristics of Respondents

Characteristics of respondents by sex, the most respondents were 29 mens (82.86%), and 6 women (17.14%). Characteristics of respondents based on age, who have ages between 26 to 35 years as many as 20 people (57.14%), age less than 25 years as many as 3 people (8.57%), who have ages between 36 to 45 years, as many as 8 people (22.86%), and those who have more than 45 years of age as many as 4 people (11.43%). Based on the latest education, there are as many as the last S1 (Bachelor Degree) education amounted as 24 people (68.57%), diploma education as many as 6 people (17.14%), who have post-graduate education as many as 4 people (11.43%), and who have high school education as many as 1 person (2.86%). Based on positions in the company, the staff level is 15 people (42.86%), the manager level is 10 people (28.57%), the general manager level is 7 people (20%), and the director level is 3 people (8.57%).

B. Validity and Reliability Test

The results of the validity test of all items of questionnaire statement on product quality variables (X1), service quality (X2) price perception (X3) and customer satisfaction (Y) have r count value > r table (0.344) at the level $\alpha = 0.05$, so it can be concluded that all statement items are declared valid.

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Num.	r_{count} X_1	r_{table}	Info	r_{count} X_2	r_{table}	Info	r_{count} X_3	r_{table}	Info	r_{count} Y	r_{table}	Info
1	.858**	0.334	Valid	.721**	0.334	Valid	.843**	0.334	Valid	.853**	0.334	Valid
2	.864**	0.334	Valid	.696**	0.334	Valid	.796**	0.334	Valid	.801**	0.334	Valid
3	.876**	0.334	Valid	.755**	0.334	Valid	.627**	0.334	Valid	.658**	0.334	Valid
4	.721**	0.334	Valid	.668**	0.334	Valid	.686**	0.334	Valid	.787**	0.334	Valid
5	.850**	0.334	Valid				.825**	0.334	Valid	.626**	0.334	Valid
6	.779**	0.334	Valid							.801**	0.334	Valid
7										.689**	0.334	Valid

Table 3:- Validity Test
Source: Analysis Results Using SPSS version 25

The reliability test results can be seen that Product Quality (X1), Service Quality (X2), Price Perception (X3), and Customer Satisfaction (Y), Cronbach's Alpha values are 0.803, 0.781, 0.795 and 0.784 and all of the above 0.6. Thus the product quality variables (X1), service quality (X2), price perception (X3), and customer satisfaction (Y), are declared reliable.

Variable	***Cronbach's Alpha***	**Information**
Product Quality	0.803	**Reliable**
Service Quality	0.781	**Reliable**
Price Perception	0.795	**Reliable**
Customer Satisfaction	0.784	**Reliable**

Table 4:- Reliability Test
Source: Analysis Results Using SPSS version 25

C. Normality Test

The normality assumption shown in Figure 5 is the data on the histogram graph follows the normal line, and the data distribution on the normal P-plot graph is located around the diagonal line. Thus, can be concluded that the data tested has a normal data distribution.

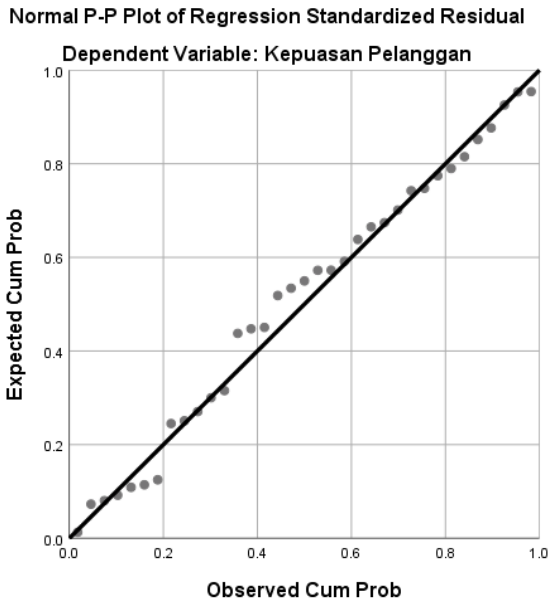

Fig 5:- Normality Test
Source: Analysis Results Using SPSS version 25

D. Multicollinearity Test

VIF test results show that the VIF value of each variable is less than 10. This can be concluded that the tested data does not occur multicollinearity.

Coefficients[a]		
Model	**Collinearity Statistics**	
	Tolerance	**VIF**
(Constant)		
Product Quality	0.283	3.529
Service Quality	0.292	3.430
Price Perception	0.292	3.429

Table 5:- Multicolinearity Test
Source: Analysis Results Using SPSS version 25

E. Heteroscedasticity Test

The test results using the Scatter Plot show that there are no clear patterns such as points widened above and below the number 0 on the Y axis, so the points spread randomly, and do not form certain patterns. It can be concluded that the tested data are free from heteroscedasticity symptoms.

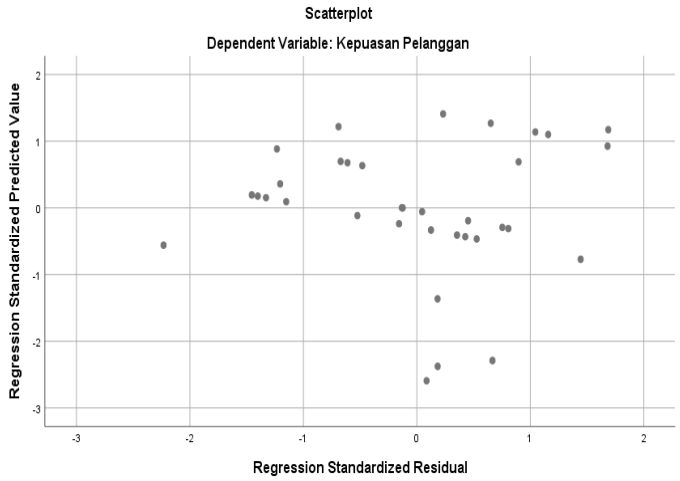

Fig 6:- Heteroscedasticity Test
Source: Analysis Results Using SPSS version 25

F. Hypothesis Test

This analysis produces a structure type equation that explains the relationship between product quality, service quality, and price perception variables on customer satisfaction. This test is performed using the coefficient of determination, t test and F test.The results of this test are explained in Table 6 below.

Coefficients[a]				
	Unstandardized Coefficients			
Model	B	Std. Error	t	Sig.
(Constant)	1.142	0.169	6.745	0.000
Product Quality	0.325	0.070	4.631	0.000
Service Quality	0.266	0.098	2.713	0.011
Price Perception	0.215	0.079	2.710	0.011
F			102.121	.000[b]
Adjusted R^2 Square			0.899	

Table 6:- Hypothesis Test Results
Source: Results of Analysis Using SPSS version 25

From table 6 above it can be seen that all t count values of product quality, service quality, and price perception are greater than t_{table} (2.04), it can be concluded that both product quality, service quality, and price perception variables has affect of customer satisfaction and Sig value of the independent variable < 0.05 which means significant, meaning H1, H2, and H3 are accepted. The regression equation is as follows:

$$Y = 1.142 + 0.325\ X1 + 0.266\ X2 + 0.215\ X3 + e$$

On the results of the F test and R2 test showed that the value of F_{count} 102.121> F_{table} (2.91) and Sig. 0,000, because the results of the Sig. 0,000 < Sig. 0.05 then the hypothesis (H4) is accepted stating that product quality, service quality, and price perception simultaneously affect customer satisfaction by 89.9% while the remaining 10.1% is influenced by other factors outside this research.

G. Correlation between Dimensions

The results of the correlation between dimensions in this research can be seen in table 7 below.

Correlations				
Variable	**Dimensi**	**Customer Satisfaction (Y)**		
		Y.1 Compliance with Expectations	**Y.2 Interest in Repurchase**	**Y.3 Willingness to Recommend**
Product Quality (X1)	X1.1 Performance	.760**	.638**	.742**
	X1.2 Reliability	.641**	.719**	.730**
	X1.3 Conformance to Specifications	**.884****	.717**	.766**
Service Quality (X2)	X2.1 Responsiveness	.678**	.382*	.608**
	X2.2 Assurance	.659**	**.826****	.698**
Price Perception (X3)	X3.1 Price according to ability	.677**	0.296	.758**
	X3.2 Price Comformity with Quality	.663**	**.786****	.732**
	X3.3 Price match with the benefits	.733**	.476**	.691**

Table 7:- Correlations Between Dimensions
Source: Results of Analysis Using SPSS version 25

Based on Table 7 above, the interpretation of the correlation matrix is as follows:

- *Product Quality Variable (X1) to Customer Satisfaction Variable (Y)*

Based on table 4.16 above, it is known that the greatest correlation value between the dimensions in the Product Quality variable (X1) and the Customer Satisfaction variable (Y) is dimension X1.3 Conformance to Specifications with dimension Y.1 Compliance with Expectations, 0.884, and entered into the category of a very strong relationship level. This explains that dimension X1.3 Conformance to Specifications in the Product Quality variable is indispensable for any increase in Customer Satisfaction (Y) especially in dimension Y.1 Compliance with Expectations.

- *Service Quality Variable (X2) to Customer Satisfaction Variable (Y)*

Based on table 4.16 above it is known that the greatest correlation value between the dimensions in the variable Service quality (X2) to the Customer Satisfaction variable (Y) is dimension X2.2 Assurance with the dimension Y.2 Repurchase Interest is 0.826, and it falls into the category very strong relationship level. This explains that the X2.2 dimension of Assurance in the variable Quality of service is indispensable for any increase in Customer Satisfaction (Y) especially in the Y.2 dimension of Repurchase Interest.

- *Price Perception Variable (X3) to Customer Satisfaction Variable (Y)*

Based on table 4.16 above, it is known that the greatest correlation value between the dimensions in the Price Perception variable (X3) to the Customer Satisfaction variable (Y) is the X3.2 dimension Price comformity with Quality with the Y.2 dimension. Repurchase Interest is 0.786, and into the category of a strong relationship level. This explains that the X3.2 dimension of Price comformity with Quality in the Product Quality variable is indispensable for any increase in Customer Satisfaction (Y) especially in the dimension Y.2 Repurchase Interest

V. CONCLUSIONS AND SUGGESTIONS

A. Conclusions

Based on the results of the analysis, the authors conclude as follows:

- Product quality has a positive and significant effect on customer satisfaction of PT Sriwijaya Bara Priharum. This means that the quality of coal received by consumers in accordance with the agreed contract will increase customer satisfaction. Some supervision and effort is needed to maintain the quality of coal.
- Service Quality has a positive and significant effect on customer satisfaction PT. Sriwijaya Bara Priharum. This could be means that the better quality of service provided to customers will increase customer satisfaction at PT Sriwijaya Bara Priharum. By being able to provide precise and accurate information and guarantee the certainty of supply capabilities.
- Price perception has a positive and significant effect on customer satisfaction of PT Sriwijaya Bara Priharum. It means that the better price perception will increase customer satisfaction of PT Sriwijaya Bara Priharum. The company can provide prices in accordance with the quality of coal who was sold based on the conditions stated in the contract.
- Product quality, service quality, and price perception simultaneously have a significant effect on customer satisfaction of PT Sriwijaya Bara Priharum. It means that the better product quality, service quality, and price perception will increase customer satisfaction of PT Sriwijaya Bara Priharum.

B. Suggestions

Based on the results of this research, it is suggested to the management of PT Sriwijaya Bara Priharum to prioritize managerial steps in order to increase customer satisfaction as follows:

- Based on the correlation between dimensions, the dimensions of conformity with specifications on product quality variables with the dimensions of conformity with expectations on customer satisfaction variables have the highest correlation, so it is advisable for management to supervise the handling of coal coming out of PIT, such as supervision conducted at the loading port stockpile starting from the stacking process to the loading process to the ship.
- Based on the correlation between dimensions, the guarantee dimension of the service quality variable with the repurchase interest dimension to the customer satisfaction variable has the highest correlation, so it is recommended for management to provide certainty of the ability of supply to the customer and speed up the process of submitting sales documents, such as providing information from well in advance of the schedule shipping, when there is a policy from the local government related to a coal cross ban, so that the buyers can look for supply options or the company can help find coal sources from other parties, the documentation process is carried out in parallel and the analysis results from the surveyors are directly given to the customer.
- Based on the correlation between dimensions, the price dimension corresponds in the quality of the variable perceived price with the dimension of repurchase interest to the variable customer satisfaction has the highest correlation, so it is recommended to management to ensure the quality of coal in accordance with the price given, such as each sale and purchase transaction is given a penalty policy if coal quality does not match the specifications agreed in the contract. So that the current price will be based on the quality of the coal received.
- To support the improvement of knowledge and improve this research aswell, it is recommended for next future researchers to be able to use additional Y variables that describe customer satisfaction and their implications for customer loyalty and also could conduct research by taking several locations with similar business types and then comparing each of that location.

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