

THE EFFECT OF PRODUCT QUALITY, SERVICE AND TARIFFS ON BILL PAYMENT COMPLIANCE THROUGH CUSTOMER SATISFACTION LEVEL IN THE HOUSEHOLD CATEGORY AT PT AIR BATAM HILIR

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Abstract

This study examines the effect of product quality, service, and tariff on bill payment compliance among household customers using customer satisfaction as an intervening variable. The sample in this study was 100 household customers, with data collection using a questionnaire instrument with a Likert scale. The analysis was conducted using Partial Least Square (PLS) with Structural Equation Model (SEM) modeling to test direct and indirect effects. The results of the study indicate that product quality, service, and tariff each have a significant positive effect on payment compliance and customer satisfaction. The results also prove that product quality, service, and tariff have a significant positive effect on bill payment compliance through customer satisfaction. Based on this study, it is known that bill payment compliance can increase when customers are satisfied with the quality of products, services, and tariffs. On the other hand, it is known that to increase payment compliance, it can be achieved by improving the quality of products, services, and current tariffs. This increase will have an impact on increasing customer satisfaction, indicating the fact that customers will feel satisfied and this satisfaction is conveyed by customers in the form of loyalty if there are dimensions of product quality, service, and tariffs in it.

Keywords: *Bill Payment Compliance, Customer Satisfaction, Product Quality, Service, Tariffs, Clean Water.*

INTRODUCTION

PT Air Batam Hilir (PT ABHi) is a company that manages and distributes drinking water and is responsible for providing clean water in Batam City in terms of distribution. This company is under the coordination of the Batam Business Agency through the Directorate of Drinking Water Management Systems, Environmental Facilities. In terms of service for customers and prospective customers, PT ABHi provides 4 Customer Service Offices (KPP) located in Begkong (KPP Bengkong), Batu Aji (KPP Batu Aji), Batam Center (KPP HO). In organizing the distribution of drinking water in Batam City by applying the tariffs determined by BP Batam, PT ABHi needs to pay attention to operational capabilities and continue to improve services to achieve customer satisfaction. The Batam City Government's (BP Batam) drinking water tariffs divide customers into 23 categories, with household customers divided into categories 2B, 2C, and 2D. The tariffs are progressive based on cubic meter usage, encouraging efficient water use. This approach not only supports water conservation but also contributes to revenue for the city. PT ABHi promotes responsible consumption patterns. Transparency and accountability in tariff setting have also been demonstrated through the open publication of tariff information to the public. This also indicates that the 4P analysis (price, product, place, and promotion), part of marketing theory, has been applied to maintain a balance between market demand, quality, and long-term business sustainability. On the other hand, customers also need to be responsible for fulfilling their obligations, such as paying their monthly water bills. With the ease of payment access provided, which can be made through retail outlets, online, or offline at designated tax offices (KPP), this obligation should be easily met.

Table 1.
Unpaid Household Customer Bills Based on
Total Unpaid Bills in 2023

NO	Periode Tagihan	Tagihan Tidak Terbayar		Tagihan Kategori Rumah Tangga Tidak Terbayar		% Kategori Rumah Tangga Tidak Terbayar	
		Pelanggan	Rp	Pelanggan	Rp	Pelanggan	Rp
1	Jan-23	24.372	3.260.985.675	21.811	1.819.011.935	89,5%	55,8%
2	Feb-23	22.029	2.806.804.900	19.735	1.577.701.480	89,6%	56,2%
3	Mar-23	26.279	3.371.025.260	23.369	1.821.575.860	88,9%	54,0%
4	Apr-23	25.524	3.044.480.510	23.005	1.823.886.435	90,1%	59,9%
5	May-23	24.927	3.215.030.260	22.349	1.830.824.260	89,7%	56,9%
6	Jun-23	23.667	2.912.614.445	21.224	1.718.950.810	89,7%	59,0%
7	Jul-23	25.137	3.207.471.810	22.561	1.849.377.520	89,8%	57,7%
8	Aug-23	24.808	3.230.171.545	22.246	1.884.453.695	89,7%	58,3%
9	Sep-23	23.909	3.176.491.150	21.516	1.825.076.010	90,0%	57,5%
10	Oct-23	23.890	3.258.014.850	21.493	1.853.616.855	90,0%	56,9%
11	Nov-23	24.406	3.363.976.205	21.991	1.906.669.185	90,1%	56,7%
12	Dec-23	25.799	2.797.181.770	23.300	1.706.362.010	90,3%	61,0%
Rat-rata 2023		24.562	3.137.020.698	22.050	1.801.458.838	89,8%	57,5%

Source: PT Air Batam Hilir Data 2023

Table 2.
Unpaid Household Customer Bills Based on
Total Unpaid Bills in 2024

NO	Periode Tagihan	Tagihan Tidak Terbayar		Tagihan Kategori Rumah Tangga Tidak Terbayar		% Kategori Rumah Tangga Tidak Terbayar	
		Pelanggan	Rp	Pelanggan	Rp	Pelanggan	Rp
1	Jan-24	25.204	3.231.850.670	22.687	1.998.535.720	90,0%	61,8%
2	Feb-24	28.417	3.725.861.080	25.573	2.076.846.080	90,0%	55,7%
3	Mar-24	27.430	3.676.748.675	24.801	1.860.239.770	90,4%	50,6%
4	Apr-24	25.465	3.185.330.565	23.086	2.058.467.915	90,7%	64,6%
5	May-24	26.814	3.519.895.865	24.182	2.130.344.460	90,2%	60,5%
6	Jun-24	25.401	3.484.615.685	23.080	2.198.290.020	90,9%	63,1%
7	Jul-24	26.214	3.526.526.255	23.757	2.225.580.940	90,6%	63,1%
8	Aug-24	27.176	3.834.754.900	24.560	2.356.049.020	90,4%	61,4%
9	Sep-24	26.367	3.647.717.040	23.865	2.248.145.855	90,5%	61,6%
10	Oct-24	29.956	4.104.917.250	27.108	2.479.820.995	90,5%	60,4%
11	Nov-24	28.029	3.782.894.240	25.279	2.365.011.125	90,2%	62,5%
12	Dec-24	28.805	3.537.644.110	26.033	2.434.925.375	90,4%	68,8%
Rat-rata 2024		27.107	3.604.896.361	24.501	2.202.688.106	90,4%	61,2%

Source: PT Air Batam Hilir Data 2024

Based on the average number of customers and the number of bills not paid on time in 2023, it is known that 89% of them are household customers as explained in table 1 above. Table 2 also shows that 90% of the total customers who did not make payments on time in 2024 were household customers. This shows the fact that of all customer categories as stated in 1.1, household customers are the most dominant customer category in terms of late monthly bill payments. Based on the total nominal amount not paid on time, household customers contribute 55% to 68% of the bill amount.

THEORITICAL REVIEW

Grand Theory

This research uses marketing theory as a grand theory. According to Kotler and Keller (2012), marketing is the process of creating value for customers and building strong relationships with the goal of capturing value from customers in return. In this context, customer satisfaction is the primary goal to be achieved through the provision of quality products and services and is a parameter for gaining customer loyalty.

Middle Theory

Middle theory This research is based on customer satisfaction theory. According to Kotler and Keller (2012), satisfaction is a person's feeling of pleasure or disappointment resulting from comparing perceived performance to their expectations. Therefore, customer satisfaction is a target that must be achieved in a planned business process.

Payment Compliance

Customer compliance in paying bills reflects a positive attitude toward the company. This can be influenced by satisfaction with product quality, service, and rates. Customer compliance in the context of public services refers to the extent to which customers consciously and consistently fulfill their payment obligations. According to Mulyadi (2018), customer compliance can be measured by the timeliness of payments, the frequency of delays, awareness of paying without being reminded, and willingness to comply with tariff provisions. Nurul Aini (2020) adds that compliance occurs when customers voluntarily fulfill their billing obligations without external pressure. It can be concluded that customer compliance is a conscious and voluntary action that reflects an individual's willingness to fulfill payment obligations as a form of responsibility to the service provider. Compliance is influenced not only by formal rules but also by psychological factors such as perceptions of fairness, trust in the institution, and prevailing social norms.

Customer satisfaction

Customer satisfaction is an emotional response to the experience of consuming a product or service (Tjiptono, 2015). Thus, satisfaction is formed when customer expectations are met or exceeded by actual performance. According to Kotler and Keller (2012): "Satisfaction is a person's feeling of pleasure or disappointment that arises after comparing the perception of product/service performance with their expectations." Good service will improve customer perceptions of the company and create satisfaction. Based on this definition, it can be described that customers will have expectations regarding the product to be provided and producers need to capture these expectations into reality. Customer compliance is a conscious and voluntary action that reflects an individual's willingness to fulfill payment obligations as a form of responsibility to the service provider. Compliance is influenced not only by formal rules but also by psychological factors such as perceptions of fairness, trust in the institution, and prevailing social norms.

Product Quality

Product quality is defined as the degree to which a product's characteristics meet consumer desires and needs (Tjiptono, 2008). In the context of a drinking water company such as PT Air Batam Hilir, product quality includes clarity, pressure, and consistency of water supply. Product quality is defined as the overall characteristics and attributes of a product that are capable of meeting consumer needs. According to Kotler and Armstrong (2012), product quality is the ability of a product to perform its functions reliably and consistently. Overall, product quality reflects the extent to which a product is able to perform its functions consistently according to customer expectations. This quality is determined by a combination of technical characteristics and subjective customer perceptions, which ultimately influence user satisfaction and loyalty.

Service

Service is an activity aimed at meeting the needs of others, whether in the form of goods or services. According to Parasuraman in Lupiyoadi (2013), service quality is the extent to which expectations differ from the actual service received. Indicators include reliability, responsiveness, assurance, empathy, and tangibles. There are five main dimensions of service quality:

- a. Reliability
- b. Responsiveness
- c. Assurance

- d. Empathy
- e. Tangibles (physical evidence)

If service meets or exceeds customer expectations, they will be satisfied, which will lead to loyalty and other positive behaviors, including paying bills on time. Service is fundamentally an intangible process yet crucial in shaping the customer experience. Service quality encompasses both technical and emotional aspects, and must be delivered consistently and professionally to meet expectations and build customer trust.

Rates

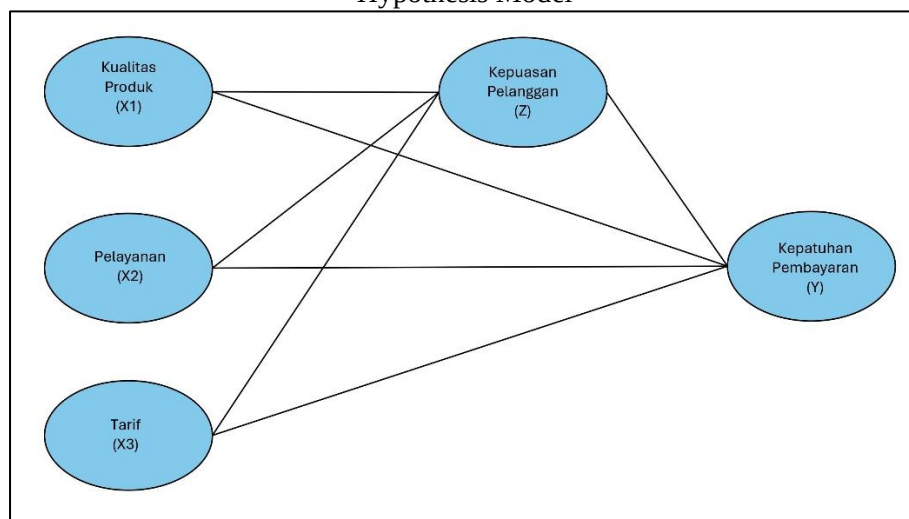
Tariffs are the monetary exchange rates paid by customers for goods or services consumed. According to Kotler and Armstrong (2009), tariffs are the amount of money paid for goods and services, or the value exchanged by consumers to obtain benefits. Thus, tariffs are the price charged to each customer. Kotler and Keller (2016) define price as the amount of money charged for a certain amount of benefits from a product or service. Tariff setting must consider the balance between quality and benefits received by consumers, consumer purchasing power, and competitiveness in the market. When it comes to tariffs, customers will always consider the quality and service they receive for their costs. Kertajaya (2006) emphasized the importance of matching tariffs to the benefits and quality received by customers as an indicator of satisfaction. If the tariff charged is perceived as fair (fair price) and commensurate with the benefits received (value for money), customers will more easily feel satisfied and appreciate the service they receive.

Research Hypothesis

The hypothesis formulated in this research is as follows;

- a. Product quality has a direct impact on PT Air Batam Hilir Customer Bill Payment Compliance.
- b. Service has a direct impact on PT Air Batam Hilir Customer Bill Payment Compliance.
- c. Tariffs have a direct impact on PT Air Batam Hilir Customer Bill Payment Compliance.
- d. Customer Satisfaction has a direct impact on Customer Bill Payment Compliance of PT Air Batam Hilir.
- e. Product quality influences customer bill payment compliance at PT Air Batam Hilir through customer satisfaction.
- f. Product Quality Service influences Customer Bill Payment Compliance at PT Air Batam Hilir through Customer Satisfaction.
- g. Tariffs influence customer bill payment compliance at PT Air Batam Hilir through customer satisfaction.
- h. Product quality has a direct impact on customer satisfaction at PT Air Batam Hilir.
- i. Service has a direct impact on Customer Satisfaction at PT Air Batam Hilir.
- j. Tariffs have a direct impact on Customer Satisfaction at PT Air Batam Hilir.

Figure 1
Hypothesis Model



RESEARCH METHODS

Population and Sample

The population in this study was 285,851 PT Air Batam Hilir household customers. Sampling was conducted by calculating the sample size based on the total population using the Slovin formula with a 10% margin of error, as follows:

$$n = 285,851 / (1 + (285,851 * 0.1^2))$$

$$n = 285,851 / (1 + (285,851 * 0.01))$$

$$n = 285,851 / (1 + 2,858.51)$$

$$n = 285,851 / 2,859.51$$

$$n = 99.97 (100)$$

This method is used because in this study, the sample size is adjusted to the analysis model used, namely the Structural Equation Model (SEM).

Method of collecting data

The data collection technique used variable measurement using a questionnaire instrument. Each respondent was given five questionnaires to measure the variables under study. Data were collected using the questionnaire method, which involved providing respondents with a list of questions or questionnaires.

Variable Measurement Scale

The author's research used a Likert scale to measure variables. The Likert scale is used to measure the attitudes, opinions, and perceptions of an individual or group of people regarding social phenomena. In this research, the social phenomena have been specifically defined by the researcher. Using the Likert scale, the variables to be measured are broken down into variable indicators.

Data analysis

Data analysis was performed using the Partial Least Squares (PLS) research model. This analysis technique is a second-generation multivariate analysis using structural equation modeling (SEM). The SEM-PLS analysis method consists of two stages:

1. Measurement Model Analysis (Outer Model)
2. Structural Model Analysis (Inner Model)

RESULTS AND DISCUSSION

Measurement Model (Outer Model)

Table 3.
Analysis of Variable Reliability Through Cronbach Alpha Values,
Composite Reliability and AVE

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Kepatuhan pembayaran	0.844	0.850	0.848	0.786
Kepuasan Pelanggan	0.972	0.973	0.975	0.767
Kualitas produk	0.956	0.960	0.963	0.742
Pelayanan	0.968	0.970	0.972	0.741
Tarif	0.967	0.968	0.971	0.736

Source;Primary data processed with Smart PLS, year 2025

The results of the reliability analysis for each research variable show that all variables have Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE) values above the average, so it can be concluded that the indicators in this variable have strong internal consistency and good convergent validity.

Table 4.
Discriminant Validity

	Kepatuhan	Kepuasan	Kualitas	Pelayanan	Tarif
Kepatuhan	0.621				
Kepuasan	0.590	0.876			
Kualitas	0.591	0.731	0.861		
Pelayanan	0.559	0.869	0.660	0.861	
Tarif	0.687	0.827	0.724	0.714	0.858

Source;Primary data processed with Smart PLS, year 2025

All variables based on the Discriminant Validity table have a correlation value <0.90 which proves that the correlation value of all and between each variable is declared valid.

Structural Model Analysis (Inner Model)

Table 5.
Direct Effect Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Kualitas -> Kepatuhan	0.189	0.195	0.105	4.794	0.003
Pelayanan > Kepatuhan	0.183	0.179	0.170	5.072	0.000
Tarif -> Kepatuhan	0.560	0.564	0.145	3.872	0.000
Kepuasan> Kepatuhan	0.170	0.162	0.217	7.785	0.000
Kualitas -> Kepuasan	0.116	0.114	0.063	4.834	0.007
Pelayanan > Kepuasan	0.535	0.530	0.069	7.731	0.000
Tarif -> Kepuasan	0.361	0.370	0.067	5.406	0.000

Source;Primary data processed with Smart PLS, year 2025

The test results as shown in the Direct Effect Test Results table show that:

1. The results in Table 4 above show that the original sample values for each of the product quality, service, tariff, and customer satisfaction variables on Bill Payment Compliance are positive. The t-statistic and p-value for each of the product quality, service, tariff, and customer satisfaction variables on Bill Payment Compliance also show results where the t-statistic is >1.96 (t-table significant 5%) and the p-value is <0.05. Thus, it can be stated that each of the product quality, service, tariff, and customer satisfaction has a positive and significant effect on Bill Payment Compliance. Thus, Hypotheses 1, 2, 3, and 4 in this study can be accepted. The positive relationship

shown in each of the product quality, service, tariff, and customer satisfaction variables on Bill Payment Compliance indicates that perceptions of service quality, service, and tariff directly influence consumer intentions and actions in terms of bill payments. The practical implications of these findings are very important for the management of PT Air Batam Hilir so that compliance in terms of payments can be improved. From a managerial perspective, these results provide a strategic direction for PT Air Batam Hilir to continue to improve standards in terms of quality and service to gain greater loyalty from customers. This will also open up opportunities for PT Air Batam Hilir to implement tariff increases.

2. The results in Table 4 above also show that the original sample value of each product quality, service, and tariff variable on customer satisfaction is positive. The t-statistic and p-value values for each product quality, service, and tariff variable on customer satisfaction also show results where the t-statistic is >1.96 (t-table significant 5%) and the p-value is <0.05 . Thus, it can be stated that each product quality, service, and tariff have a positive and significant effect on customer satisfaction. Thus, Hypotheses 8, 9, and 10 in this study can be accepted. The analysis results illustrate that customer satisfaction can be achieved with the sustainability of PT Air Batam Hilir on product quality, service, and tariff. The positive and significant direct effect is sufficient to indicate that the price, product, place, and promotion factors which are the basic theory in this study are linear with the achievement of customer satisfaction if these factors are managed well and correctly.

Table 6.
Direct Test Results (Indirect Effect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Kualitas -> Kepuasan -> Kepatuhan	0.020	0.018	0.029	3.692	0.000
Pelayanan -> Kepuasan -> Kepatuhan	0.091	0.086	0.116	3.781	0.000
Tarif -> Kepuasan -> Kepatuhan	0.061	0.062	0.085	3.720	0.000

Source;Primary data processed with Smart PLS, year 2025

The test results as shown in the Indirect Effect Test Results table above show that:

1. The original sample value in the indirect influence test between Product Quality, Service and tariffs intervening by the level of customer satisfaction has a positive value on Bill Payment Compliance. The t-statistic value also shows that Product Quality, Service and tariffs intervening by the level of customer satisfaction have results where the t-statistic > 1.96 (t table significant 5%), and p-value <0.05 , which means that Product Quality, Service and tariffs have a positive and significant effect on Bill Payment Compliance intervening by Customer Satisfaction so that Hypotheses 5, 6 and 7 in this study are accepted. Customer satisfaction is proven to be a psychological mechanism that bridges the relationship between product quality, service and tariffs to loyalty that will be given by customers in the form of payment compliance. This finding provides important implications for the management of PT Air Batam Hilir in formulating strategies to improve customer compliance, where the main focus is not only on providing sanctions or payment reminders, but also on improving service quality.

CONCLUSION

1. Product quality has a positive and significant impact on both payment compliance and customer satisfaction. This indicates that the higher the quality of clean water received by customers, as measured by clarity, pressure stability, and distribution reliability, the greater the willingness of household customers to comply with bill payments. Good product quality will foster customer satisfaction through the high benefits they receive from the water they receive.

2. Service has a positive and significant influence on Bill Payment Compliance and Customer Satisfaction. This demonstrates that fast, responsive, courteous, and professional service has proven to create a positive customer experience, leading to a sense of satisfaction with the service received. Furthermore, improved product quality will also be accompanied by an increase in customer payment effectiveness for each monthly bill.
3. Tariffs have a positive and significant effect on Customer bill payment compliance and customer satisfaction are inextricably linked to the dimensions of quality and service. When tariffs are increased, customer satisfaction increases, and these increases in tariffs also translate into increased bill payment compliance. This demonstrates that when quality and service are present, tariff increases are not a problem and, in fact, contribute to increased satisfaction and compliance with PT Air Batam Hilir's drinking water management.
4. Customer satisfaction has a positive and significant impact on bill payment compliance. This indicates that customer satisfaction is a key factor in gaining customer loyalty through timely payment compliance. PT Air Batam Hilir needs to thoroughly understand the benefits customers expect from their water bill to foster customer satisfaction.
5. Product quality, service, and rates each have a positive and significant impact on payment compliance through customer satisfaction. Therefore, it can be concluded that customer satisfaction, combined with product quality, service, and rates, will contribute to increased customer compliance in bill payments.

SUGGESTION

1. With the mutual linkage of product quality and service to tariffs to achieve customer satisfaction and compliance, PT Air Batam Hilir needs to always conduct evaluations to ensure that the quality of clean water distributed and the quality of the pipes that serve as distribution media are always in good condition.
2. Developing service area segmentation allows the Company to further refine its mitigation and mapping of any issues facing its household customers throughout Batam City. The addition of service area segmentation will make assessment and planning for problem mitigation more measurable and targeted.
3. PT Air Batam Hilir is advised to continually evaluate the relationship between the tariffs charged and the quality of the products and services currently provided. This evaluation will provide PT Air Batam Hilir with an understanding of the extent to which the current tariffs represent the benefits of the quality and service provided to customers.
4. Conducting regular customer satisfaction surveys followed by implementing the survey results into operational improvements will provide a portrait for PT Air Batam Hilir regarding the condition of its household customers.
5. The implementation of real-time technology can be a solution for PT Air Batam Hilir to maintain and improve the quality of its products. Using real-time technology supported by sophisticated instruments will enhance the company's operational monitoring accuracy. Optimal monitoring activities are expected to result in improved quality.
6. PT Air Batam Hilir can conduct regular training for customer service staff to strengthen communication and empathy skills, making interactions with customers more systematic and satisfying. Furthermore, education can be provided to customers to facilitate knowledge transfer between service staff and customers, minimizing potential service disputes.

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