

## **Influence Factor Analysis of Consumer Decision in Using Special Tariff Policy on Regional Rail in Indonesia (Case Study : Sawunggalih Regional Train)**

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### **KEYWORDS:**

Characteristics, KA

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### **ABSTRACT**

Indonesian railway transportation service companies are constantly striving to improve service and facility optimization while increasing train passenger numbers. The purpose of this study is to examine the impact of special fare tickets on train user decisions in order to boost passenger traffic and strengthen railways' role in the regional economy. This study examines price, time (length), and certainty opportunities as influences on the decision to acquire special fare tickets for public transportation trains. The study took a quantitative approach, with the questionnaire asking about Ability to Pay (ATP) and Willingness to Pay (WTP). Furthermore, the data was examined using multiple linear regressions to identify the impact of variables on consumer behavior. Overall, 54% of respondents can buy rail tickets at official pricing, including regular and special fares. 44% of respondents always purchase special price train tickets for long journeys and always take trains. Therefore, the resulting regression model is as follows:  $Y=3.115 - 0.49X_1 + 0.042X_2$ . The price variable shows a negative influence (-0.49), indicating that the greater the ticket price, the less likely someone will purchase a special fare train ticket. In contrast, the time variable has a positive effect, with a value of + 0.043, indicating that the longer the time given, the more likely someone will opt to buy.

## **INTRODUCTION**

People rely heavily on transportation facilities. Transportation makes it simple to solve any distance and time-related concerns (Hassanpour et al., 2021; Meyer, 2016). In Indonesia, railway transit has become the backbone of community movement, particularly on the islands of Java and Sumatra, where the railway network has long existed and continues to be modernized. Among the different means of transportation accessible, trains play a vital role in linking diverse places, particularly for the movement of products and passengers in big quantities, over great distances, and at relatively short notice (Chandra & Zuliestiana, 2021).

With Indonesia's enormous population, train transportation is extremely important, as is the increased use of public transportation, as many people are interested in using it. Given the significance of this form of transportation in supporting the Community's economic and social activities (Utari & Nihayah, 2016). Trains are utilized to transport both within and outside the city. As the community's mobility increases, so does the demand for fast, safe, and economical

transportation services.

PT Kereta Api Indonesia (Persero), an Indonesian rail transportation service provider, is constantly innovating and developing its infrastructure and services (Frizni & Adnan, 2024; Rahmawan & Rodiyah, 2024; Yudhanto & Nurjaman, 2022). However, over the last few years, PT Kereta Api Indonesia has worked tirelessly to enhance its offerings. These include dynamic tariff setting, exclusive pricing and promotions, class-based pricing schemes, digitization, and simple ticket access (Susanti & Wahyuni, 2017). Next, travel schedules, train movement plans, operational management, and infrastructure maintenance are all examples of innovative ways to enhance the management of train operations. One such method is the creation of a special tariff scheme, which allows for the determination of more competitive rates (Adiman et al., 2023).

Furthermore, contends that the primary reason luring individuals to use public transportation is fare, which is a fundamental component of the system that influences the financial health of public transportation providers. One factor that could affect a consumer's decision to make a particular purchase is the cost of the tickets. We can gain a better knowledge of how market demand, government policy, and economic conditions impact train operator fares by comprehending the dynamics that influence train ticket prices (Ricardianto et al., 2023).

For the same reason as in the previous paragraph, which is that a competitive price for tickets makes them appealing to buyers, customers will choose to purchase tickets and make use of the services if the cost is reasonable and accessible. When calculating the cost of non-subsidized rail transportation tariffs, PT KAI (Persero) is permitted to set the ticket price and is required to consider the surrounding circumstances and the ability to draw in customers with the price of the ticket (Ministry of Transportation No. 17, 2018).

Tickets for special fare trains, often known as "go show" tickets, are bought in person at the train station the day of departure, usually a couple of hours before the train leaves. The phrase refers to buying tickets without making a reservation beforehand, as opposed to buying tickets online or in person days or weeks in advance (PT Kereta Api Indonesia, 2021).

A train called the Sawunggalih Train, which runs between Kutoarjo and Pasar Senen in Cirebon and Jakarta, has been made available by PT Kereta Api Indonesia (Persero) Operation Area (DAOP) 3 Cirebon. This crucial highway links the capital cities, particularly Cirebon, with regions in West and Central Java. This study intends to investigate how the price, time (length), and opportunity of this special tariff ticket affect consumers' decisions to choose Sawunggalih train as their mode of transportation in light of the special tariff applied to the Sawunggalih train service (PT Kereta Api Indonesia, 2023).

This study will also look at other variables including comfort, load factor, travel time and speed, and service availability that can influence consumer decisions. The outcomes of other earlier investigations that are required as references and research documents are also cited in this study. The operational effectiveness and ticket costs of the Sawunggalih Train are the research object, and the research results serve as an essential comparison for this purpose.

Meirio Yuda et al. (2018) conducted performance and tariff research with the goal of assessing the level of suitability of Dhoho train services with regard to passenger satisfaction as well as the appropriateness of the actual and scheduled operational performance of the train. In order to determine operational performance—such as train delays, excellent services, and tariff suitability analysis on the Dhodo Rapih train, when the ATP value is less than WTP—this information is necessary.

The goal of the study is to evaluate the relationship between service quality and customer satisfaction and loyalty for Sri Lelawangsa Train services. Able to demonstrate the impact of

service quality on client loyalty. Research was done by Nenepath et al., (2016) to ascertain the efficacy and efficiency of kamandaka train services as well as how they may better serve the community. The findings indicate that in order to improve train operation efficiency and profitability, the Kamandaka train should shorten its departure schedule at the BEP stop. On the Tegal-Slawi route, rail type 54 will replace rail type P.38. Double rails added in order to avoid delays.

Conduct research Firdausi & Putra (2022) to examine the variables influencing passengers' decisions between busses and trains when traveling from Surabaya to Yogyakarta. Demonstrating that the train is the preferred mode of transportation for women traveling from Surabaya to Yogyakarta because they feel safe and there is a noticeable time difference. The cost of the trip also plays a significant role in their decision regarding mode of transportation. This indicates that, in general, the primary factor influencing the majority of passengers' decision about the kind of rail transportation method is the cost of travel. The assessment of Pangkalpinang City's public transportation rates according to willingness to pay (WTP) and capacity to pay (ATP) is covered in research (Safitri, 2016).

The study underlined how crucial it is to enhance public transportation services and gain a deeper comprehension of community needs and preferences in order to promote public transportation use. According to the study, low public interest in using public transportation in Pangkalpinang City is not primarily caused by fare increases. This implies that people's decisions are influenced by other, more important considerations (Syahputra et al., 2023). Research is being done on operational performance and bus services in order to assess the several aspects that passengers take into account when selecting a service, including amenities, ticket costs, punctuality, comfort, security, and passenger safety. This study then demonstrates the PO buses' performance. Although Haryanto buses operate at peak efficiency when it comes to carrying passengers, there is always space for improvement when it comes to amenities and services.

In order to maximize the utilization of the Argo Cheribon Train, research on performance and service evaluation was carried out by Hariani & Azmi (2023) with the goal of determining the quality of services that require improvement. The service quality analysis parameter, which is determined using the Customer Satisfaction Index (CSI) approach, is what sets this research apart. The study's findings indicate that while a number of factors, including load factor, travel time performance, and travel speed, fall short of expectations, passengers aboard trains are generally very satisfied.

Subsequently, studies on the fare structure policy and its impacts were carried out by Hariani et al., (2020) with the intention of examining the ways in which the implemented fare structure may impact the quantity of subsidies offered. Differential fare plans that are more successful in raising revenue and cutting subsidies are anticipated based on the features of passenger movements. Overall, this study offers insightful information about how fare policies might be modified to enhance the effectiveness, fairness, and sustainability of Jakarta's public transportation system. The introduction of distance-based fares, which are anticipated to boost overall revenue and lessen dependency on subsidies, is one of the main recommendations.

It is necessary to conduct research to analyze the effect of special tariff prices on satisfaction and its impact on repurchase interest of Sawunggalih train consumers in order to increase interest, revenue, and the number of Sawunggalih Train passengers. Based on the problem description and the urgency of the issue, the research is expected to help public transport service providers make more efficient tariff policies to increase the number of passengers and revenue.

## RESEARCH METHOD

The author employed a quantitative methodology in this study, utilizing a questionnaire that was based on the Willingness to Pay (WTP) and Ability to Pay (ATP) techniques. The data is then processed using multiple regression analysis, F and T tests, and the SPSS and Excel tools. For further information as depicted in the image 1.

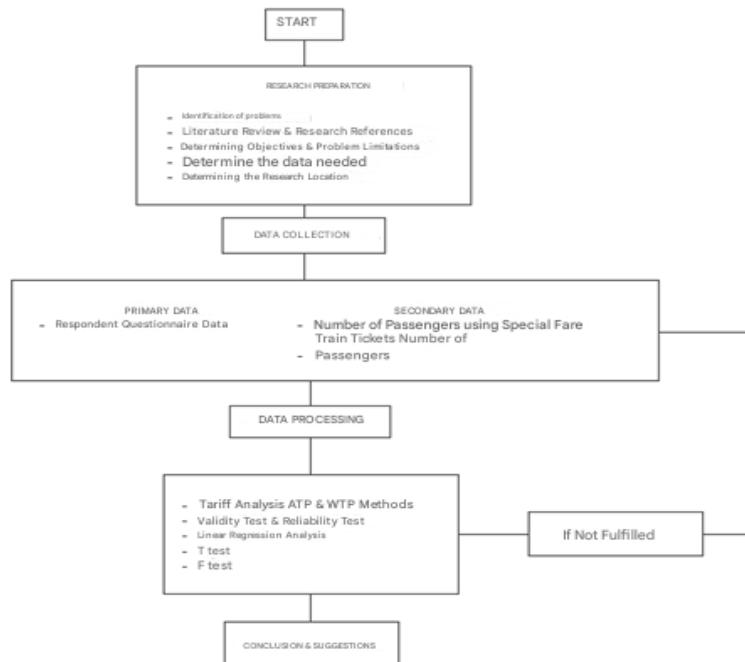


Figure 1. Research Flow Chart

### Determination of the Influence of Research Variables

This variable is required to serve as the foundation for the study's questionnaire. In this study, independent and dependent variables are taken into account as factors that may affect travelers' decision to select particular ticket prices.

The study's independent variable will be determined, and it will be used as a hypothesized variable with the sign X. Whereas the class of the train on the land route from Cirebon to Jakarta using Indonesian trains is what determines the dependent variable in this study. This variable, which contains special fare train tickets on a number of trains, is assigned the symbol Y. The selection of rail ticket kinds is influenced by the independent variable elements listed below.

Table 1. Influence Variables & Question Attributes

	Variable	Symbol	Question Attributes
1	Price	X1.1	Special fare ticket price offered to be (80%) IDR 160,000
		X1.2	Special fare ticket price offered to be (70%) IDR 140,000
		X1.3	Special fare ticket price offered to be (60%) IDR 120,000
		X1.4	Special fare ticket price offered to be (55%) IDR 110,000
		X1.5	Special fare ticket price offered will be (50%) IDR 100,000.
2	Time	X2.1	Time (duration) to purchase special fare tickets to 3 hours 30 minutes before departure
		X2.2	Time (duration) to purchase special fare tickets to 3 hours before departure
		X2.3	Time (duration) to purchase special fare tickets to 2 hours 30 minutes before departure
		X2.4	Time (duration) to purchase special fare tickets to 2 hours before departure
		X2.5	Time (duration) to purchase special fare tickets to 1 hour 30 minutes before departure
		X2.6	Time (duration) to purchase special fare tickets to 1 hour before departure
3	Availability Opportunities	X3.1	Special fare ticket availability increased to (50%) 240 seats from 480 seats
		X3.2	Special fare ticket availability increased to (45%) 240 seats from 480 seats

		X3.3 Special fare ticket availability increased to (40%) 240 seats from 480 seats
		X3.4 Special fare ticket availability increased to (35%) 240 seats from 480 seats
		X3.5 Special fare ticket availability increased to (30%) 240 seats from 480 seats
		X3.6 Special fare ticket availability increased to (25%) 240 seats from 480 seats
4	Consumer Decision	Y From all aspects of Price, Time and Limited opportunities, still choose to use special fare tickets

### Rate Analysis Based on Ability to Pay & Willingness to Pay

The ability to pay (ATP) analysis seeks to determine the amount of tariff ability that will be considered in the study. The ATP analysis methodology is based on the allocation of transportation expenses and total money received. Several factors influence the value of ability to pay, including the following:

1. Income per month
2. Transportation needs
3. Type of Activity
4. Percentage of cost for transportation
5. Intensity of travel
6. Total expenditure on transportation
7. Total expenditure per month

Based on these parameters, a model can be created to be utilized as a method for determining the value of ATP. In this study, the factors employed as an approach in the ATP analysis include total revenue per month, percentage of transportation expenditures, and frequency of passenger travels in one month, resulting in the following ATP analysis model. This model is purposefully designed or created for the sake of this investigation;

$$ATP = \frac{\text{average monthly income}}{\text{frequency of using transportation per month}} \times \text{ideal standard transportation cost}$$

The average monthly income refers to the overall income earned by individuals (respondents) in a single month. This income comprises all kinds of income such as salaries, business profits, and other sources of revenue, with a nominal monthly income of Rp. 3,000,000. This ideal benchmark is typically expressed as a percentage of monthly revenue that should go toward transportation expenses. Based on survey data, the average monthly transportation expenditures are 10%. Refer to the frequency with which respondents use train transportation modes in a given month. As a result, the data gathered from the survey results is only collected once a month. This frequency has a significant impact on the entire costs of transportation, as the more frequently a person uses transportation, the higher the costs that must be incurred.

## RESULT AND DISCUSSION

### Operational Performance Analysis

#### *Passenger Condition & Capacity*

The seating aboard the Sawunggalih train is built for passenger comfort. The backrest may be adjusted, the legroom is enough, and the seat cushion is comfortable. The Sawunggalih train has a passenger capacity of 100 seats in executive class across 2 carriages and 480 seats in premium economy across six cars. It can be calculated for one series of Sawunggalih trains with a total passenger capacity of 580 seats. According to (Ministry of Transportation No. 63, 2019) for

the minimum service criteria for people transportation by rail, all seats, both executive class and premium economy class, have a number and a description of the total capacity in one carriage.



**Figure 2. Executive Class Seating**



**Figure 3. Premium Economy Class Seating**

a. Frequency

The Sawunggalih train fleet operated on two routes: one from Kutoarjo Station (KTA) to Pasar Senen Station (PSE) and one from Pasar Senen Station (PSE) to Kutoarjo Station (KTA)

b. Headway



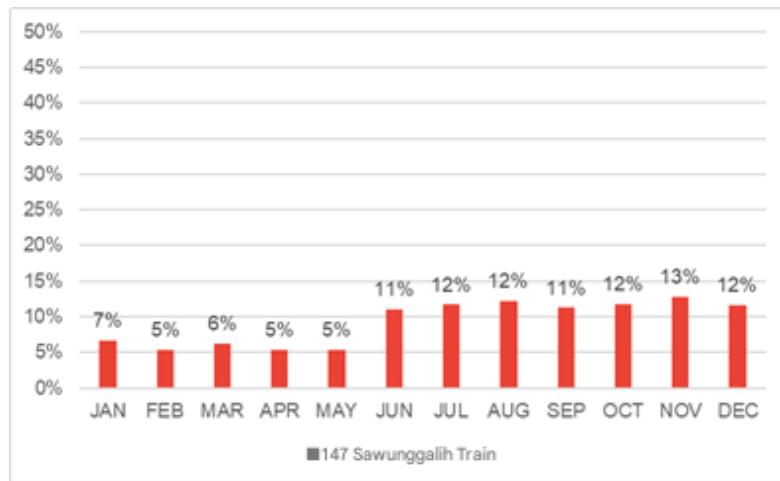
**Figure 4. Headway KA Sawunggalih**

Source : PT KAI 2024

1. In the survey conducted for the Cirebon (CN) to Pasar Senen (PSE) route using the

Sawunggalih train, the train also experienced delays on the Jatinegara Station entrance track to Pasar Senen Station due to the line change with the KRL, with this Sawunggalih Train experiencing a 2-minute delay from the time scheduled by PT KAI.

## 2. Load Factor



**Figure 5. Sawunggalih Train Passenger Load Factor**

Source : PT KAI 2024

3. The survey results show that the average peak occupancy rate in 2023 is 9%. This signifies that the average value is less than 90%, which will be utilized in the calculation and determination of the highest transportation tariff of 90% (Ministry of Transportation No. 63, 2019).

## 4. Travel Speed

**Table 2. Traveling Speed of Sawunggalih Train**

Destination	Train Number	Station	Speed km/h	Maximum Speed km/h
KTA – PSE Sawunggalih (147)	Cirebon	CN	0	120
	Terisi	CN – TIS	90	120
	Haurgeulis	TIS – HGL	90	120
	Bekasi	HGL – BKS	90	120
	Jatinegara	BKS – JNG	70	120
	Pasar Senen	JNG – PSE	70	120
Average Speed km/jam			68	120

Source : PT KAI, 2024

It can be concluded that, although trains can reach speeds of 90 km/h at any given moment, the overall average traveling speed is rather low, most likely due to stops or slowdowns at some stations.

## Evaluation of Train Operational Performance

When carrying out performance, it is required to evaluate to improve or assess whether the performance is adequate or meets the aim that has been set. The following are the results of the performance evaluation that was carried out in order to improve the performance of rail transportation optimally and based on needs. The reference indicators/standards in this study are Minister of Transportation Regulation No. 63 of 2019, Minister of Transportation Regulation No. 17 of 2018, and Minister of Transportation Regulation No. 121 of 2017.

**Table 3. Sawunggalih Train Performance Analysis Results**

Model	Ministerial Regulation Standard	Analysis Result	Description
1 Load Factor	90%	9%	Does not meet the standard
2 Travel Time	2 h 56 minutes	2 h 58 minutes	Meets Standard
3 Travel Speed	max. 120 km/h	68 km/h	Meets Standard

### Sample Determination

In 2023, the Sawunggalih Train will carry 20,000 passengers per year between Cirebon and Jakarta. In this study, the amount of samples required is for training service users. According to Soegiyono (2015), the number of population samples may be estimated using the slovin formula, hence the number of samples required is

$$:n = \frac{N}{1+N x (e^2)} = \frac{20.000}{1+20.000 x (0,1^2)} = 100 \text{ sample}$$

However, the number of responses to this questionnaire exceeded the minimum number of respondents to be used as research samples, resulting in a total of 103 persons.

### Respondent Characteristics

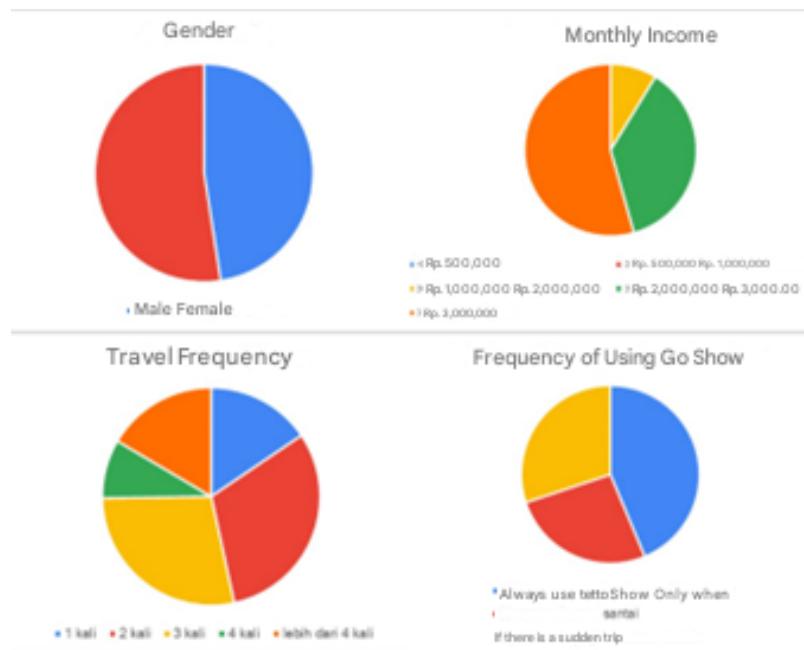


Figure 6. Respondent Characteristics

#### Gender

The findings of a random study of 103 passengers who took the Sawunggalih train from Cirebon Station to Pasar Senen Station revealed that good transportation services influence optimal outcomes. The majority of female respondents choose the train because they believe it is safer.

#### Monthly Income

According to the findings of a survey of 103 people who took the Sawunggalih Train from Cirebon Station to Jakarta Station, 54% of those polled earned more than Rp. 3,000,000 per month and hoped that cheaper modes of transportation could be adjusted to match their monthly income.

#### Frequency of Using the Train

The survey findings of 103 people who took the Sawunggalih train from Cirebon Station to Jakarta Station revealed that the majority of the 32 people went large distances by rail public transportation more than twice a month.

#### ***Frequency of Using Special Fare Train Tickets***

The survey findings of 103 persons who utilize the Sawunggalih train from Cirebon Station to Jakarta Station demonstrate that the majority of the 45 people frequently travel by rail and always purchase special price train tickets.

### **Data Testing**

#### ***Validity Test***

Analyzing table 5 shows that all question items or variables have  $r_{count} < r_{table}$ . However, with  $r_{table} 0.1937$ , all questions or variables have values above  $r_{table}$  and are considered valid. Overall, the study instruments have a high level of validity. The majority of the question items successfully assess the ideas or variables to be measured.

#### ***Reliability Test***

The Cronbach's Alpha value of 0.843, which is more than 0.6, indicates that the research method employed in this study is very dependable. This demonstrates the tool's ability to reliably measure the same structure. In other words, if the experiment is repeated using the same instrument, the findings will be comparable.

#### ***F test***

In this study, the F test was employed to determine whether the independent factors had a significant effect on the dependent variable as a whole. In this study, the significant level is 5% or 0.05. If the value is  $<0.05$ , the independent factors have a significant influence on the dependent variable. However, if the significant value exceeds 0.05, there is no meaningful influence. According to the interpretation of the F test, the significance level is 0.001.

The null hypothesis is rejected, as the significance value is 0.001, which is less than 0.05. This suggests that the regression model as a whole is effective at describing fluctuations in the dependent variable Consumer Decision (Y). In other words, at least one of the independent factors, Price, Time, or Opportunity (X1, X2, or X3), has a significant effect on Consumer Decisions (Y).

#### ***T test***

In this study, the T test was employed to determine whether the independent variables had a significant effect on the dependent variable separately. In this study, the significant level is 5% or 0.05. If the value is  $<0.05$ , the independent factors have a significant influence on the dependent variable. However, if the significant value exceeds 0.05, there is no meaningful influence. According to the interpretation of the T test, the following findings are obtained:

##### **a. Price**

The Price variable has a significance value of 0.008, indicating that it is less than 0.05. Therefore, the null hypothesis is accepted. Therefore, the price variable influences the urge to purchase special fare train tickets.

##### **b. Time**

The Time variable has a significance value of 0.007, indicating that the value is less than 0.05. Therefore, the null hypothesis is accepted. Therefore, the time variable influences the urge to purchase train fare tickets with special fare train tickets.

##### **c. Significance**

The significance value of the Opportunity variable is 0.329, which can be interpreted as greater than 0.05, indicating that the Opportunity variable has no partial influence on purchase decisions for special fare train tickets.

### ATP (Ability To Pay) and WTP (Willingness To Pay) analyses

ATP (Ability To Pay) and WTP (Willingness To Pay) analyses were performed on Sawunggalih Train passengers. Data is derived from the findings of questionnaires sent and completed by 103 random respondents who use the Sawunggalih Train. The study reveals the ability and desire to pay Sawunggalih Train passengers.

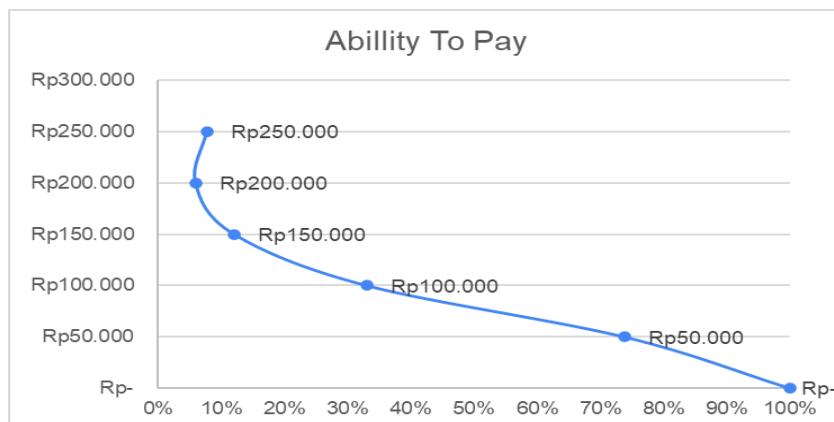


Figure 6. Ability To Pay KA Sawunggalih

This graph shows that there is a negative correlation between price and the percentage of respondents willing to pay. Respondents are less inclined to pay higher prices. This is a key factor to consider when pricing a product or service, as setting a high price can lower the number of consumers eager to buy. However, a considerable decline in ridership is only noticeable when the ATP hits Rp150,000 or more. The response analysis results suggest that the average ATP is IDR 150,000, with a minimum of IDR 0 and a high of IDR 250,000, indicating that 30% of people can afford the special rate ticket.

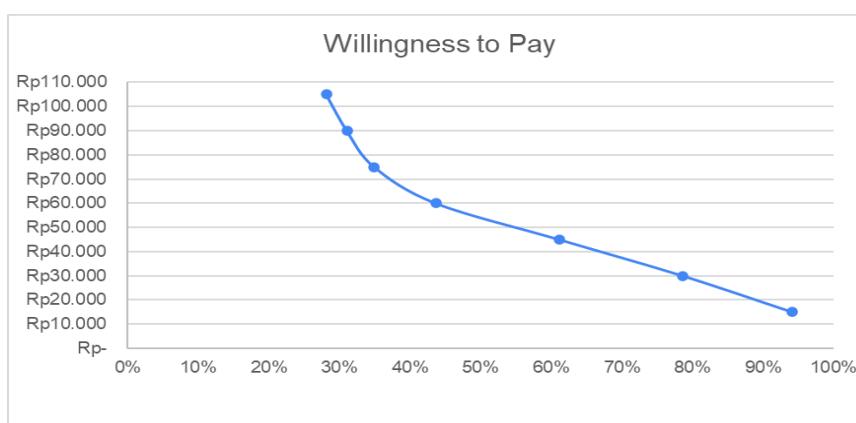


Figure 7. Willingness to Pay KA Sawunggalih

The Sawunggalih rail passenger analysis revealed individuals who are highly price sensitive. The majority of consumers (90% of the total number of respondents) are willing to pay in the relatively low price range / minimum WTP with a nominal value of Rp. 15,000, while 28% are willing to pay in the relatively high price range / maximum WTP with a nominal value of Rp.105,000. This special fare ticket price rise appears to have a substantial market share in the price-sensitive consumer sector. Although the ticket is likely to increase by approximately Rp. 105,000 from the official fare, 28% of respondents were satisfied with the service given by the Sawunggalih train. However, some people want to continue utilizing the Sawunggalih train.

## Multiple Linear Regression Analysis

Table 4. Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta	t		
(Constant)	3.115	.330			9.432	.001
1 Price	-.049	.018	-.272	-2.703	.008	
1 Time	.043	.015	.323	2.779	.007	
d. Significance	.018	.018	.118	.980	.329	

Source : Output SPSS, 2024

Furthermore, the analytical results can be used to build a regression model. The final regression model is as follows:

$$Y = 3,115 - 0,049X_1 + 0,043X_2$$

The price variable has a negative affect with a value of -0.049, indicating that the greater the price, the less likely someone will choose to purchase a special fare train ticket. The time variable has a positive affect with a value of +0.043. The more time given, the more probable someone may decide to purchase a special fare train ticket.

The following is based on questionnaire data supplied and completed by 103 random respondents who use the Sawunggalih Train; the results of the analysis reveal the factors that lead Sawunggalih Train passengers to utilize special rate train tickets.

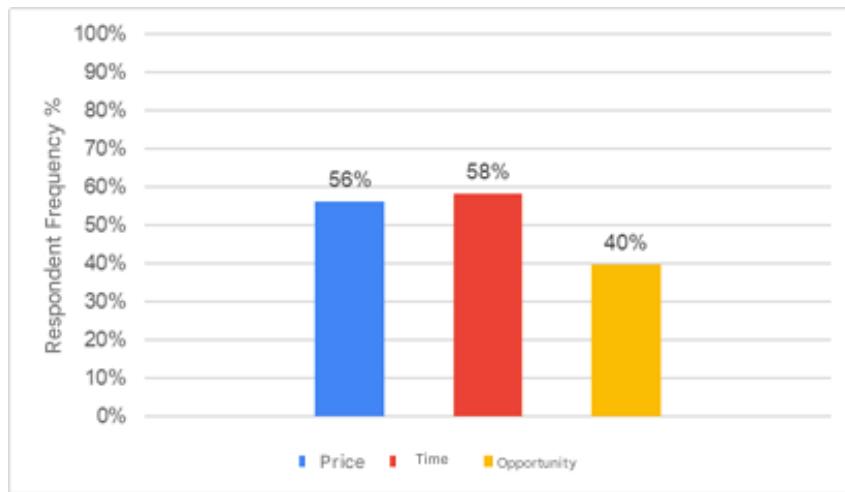


Figure 8. Indicator Effect

The examination of the graph above yielded a price component of 56% of the number of respondents choosing to purchase special fare train tickets due to the lower cost element. This demonstrates that pricing is one of the most important factors for most travelers when deciding on the type of ticket. The percentage of respondents who purchased special rate train tickets due to time constraints amounted to 58% of all respondents. The purchasing policy two hours before departure is very effective, and many people take advantage of this short-term ticket purchase option. Meanwhile, the percentage of responders who are confident about receiving tickets remains rather low. The findings of this factor's analysis of the graph above show that additional efforts are required to assure the availability of tickets for passengers who wish to take advantage of special pricing.

Based on the findings of the influence factor study for special fare train tickets, PT KAI should continue to analyze special fare ticket sales data and market responses to price changes, as well as socialize the flexibility of special fare ticket prices. This is to ensure that potential passengers receive timely information and make informed purchasing decisions. The following are some recommendations that can be made:

#### ***Maintain Affordable Price Strategy***

To remain competitive and attract customers, periodically assess the pricing structure. Then, continue to provide unique rates or specials to attract customers, particularly those in specific market sectors such as students or parents.

#### ***Optimize Purchasing Policy***

Consider extending the purchasing time before departure to provide consumers more flexibility, particularly those who routinely purchase special fare tickets for busy routes. Increase buy access to make the ticket purchasing procedure easier, and assist customers using the KAI Access application, website, and extra counters. Also, make announcements through multiple communication channels to alert clients about ticket availability and current promotions.

#### ***Consumen Trust Level***

Provide Information Transparency to guarantee that customers have constant and easy access to information about ticket availability, departure times, and fare changes. Improve the reservation system to make the ticket purchasing process safer and easier. Guaranteed ticket availability: Provide clients with certainty about ticket availability, such as a specific quota for early bookings. Personalize services according to consumer preferences, such as providing seat, food, and beverage options. Implement loyalty programs to reward loyal customers.

## **CONCLUSION**

Overall, Sawunggalih train operations show good performance in terms of travel time and speed. However, further research is needed to identify factors that cause travel delays. Track conditions, train traffic density, and other technical issues need to be explored to optimize journey time performance in the future. Respondent analysis shows that the average ability to pay (ATP) is IDR 150,000, with a lower limit of IDR 0 and an upper limit of IDR 250,000, of which 30% of respondents can afford discounted train tickets. Most consumers (90%) are willing to pay more at a relatively low price range with a nominal value of Rp 15,000, while 28% are willing to pay higher with a nominal value of Rp 105,000.

Based on the results of multiple linear regression analysis, it can be concluded that price has a negative effect of -0.049, which indicates that the higher the price, the lower the likelihood of someone buying a discounted train ticket. Conversely, time has a positive influence of +0.043, which means that the longer the time offered, the more likely someone is to buy a train ticket with a special fare. With 54% of respondents having an income above Rp. 3,000,000, both regular and special fares allow consumers to purchase tickets at official prices. PT KAI is advised to continue monitoring go-show ticket sales statistics and market response to price changes, as well as expanding promotions related to go-show ticket price flexibility and special offers through various channels, such as social media and the KAI Access application, so that passengers get timely information to make informed purchasing decisions.

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