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THE IMPACT OF PRICE FACTORS, TRIP DURATION, AND PASSENGER COMFORT ON PASSENGER DENSITY ON PSO TRAINS WITH A CASE STUDY OF PSO TRAINS ON THE ISLAND OF JAVA

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Abstract: PT. KAI is the only State-Owned Enterprise tasked with providing rail transportation services in order to facilitate the flow of mass movement of people and/goods for national development in Indonesia. The aim of this research is to find out how much impact the Price level, Trip Duration and comfort on PSO trains have on Passenger Density. This research uses quantitative methods. Where sample data will be obtained using the questionnaire method and then processed using SPSS software. The results of this research show that the impact of Price, Trip Duration and Passenger Comfort has a positive and significant relationship with Passenger Density.

Keywords: *PSO train, convenience, service sector, Transportation, Trip*

1. Introduction

Passenger Comfort is a crucial factor in assessing the quality of train services. In the context of PSO train services, the comfort aspect not only refers to the physical conditions on board the train but also includes psychological and social dimensions that impact passengers' perceptions of their journey. Factors significantly influencing Passenger Comfort are ticket Prices, Trip Duration, and Passenger Density. (ERLIYANTI, 2019)

It is essential to recognize that Passenger Comfort is not only limited to physical aspects but also includes psychological and social dimensions. Factors such as ticket Price, Trip Duration, and Passenger Density can impact passengers' perceptions of comfort. PSO trains, such as the Airlangga, which connects Jakarta with Surabaya, strategically connect two main economic centers in Indonesia. However, the number of passengers and traffic density growth can impact travel quality and comfort. (Putra, 2022)

Research regarding the impact of these factors on Passenger Comfort on PSO train services, especially the case study of the PSO Train in Jakarta, has high relevance in efforts to improve service quality and user satisfaction. With a deeper understanding of the impact of these factors, service providers and authorities can make strategic adjustments to improve passengers' travel experience. (Alta et al., 2020)

2. Literature review

2.1 Public Service Theory

According to Mochtar Mas'oed (2007), public service is an effort to provide satisfaction and justice for the community. He emphasized the importance of managing public services that are transparent, accountable, efficient, and responsive to community needs. The theory highlights the importance of public accountability in maintaining government integrity and improving service quality.

According to Ryaas Rasyid (2021), public services must focus on the interests of society and have a results orientation. He proposed a "strategic management of

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public services" approach that involves community participation in service planning and evaluation. The theory underscores the importance of listening to and involving the public in decision-making.

From the perspective of the three experts above, it can be concluded that public services in Indonesia need to be based on the principles of accountability, participation, results, ethics, and justice. Accountability in managing and administering public services is an essential element that maintains transparency and public trust. Community participation in the service planning and evaluation process helps create solutions that align with community needs and aspirations.

2.2 Transport Policy Theory

Hadi Sumarno (2021) states that transportation strategically facilitates economic, social, and regional development. With a good transportation system, accessibility between regions will increase, allowing for equitable economic growth.

According to Djoko Setijowarno (2018), transportation policy emphasizes the importance of developing a transportation system that considers economic, social, and environmental aspects in the long term. Sustainable transportation development must accommodate community needs without damaging the environment.

From the three transportation policy theories developed by Indonesian experts above, it can be concluded that transportation has a strategic role in encouraging economic and social growth. Building an adequate transportation system will help improve connectivity, open accessibility to remote areas, and support a more equitable distribution of resources. Also, the development of the transportation system must pay attention to the balance between economic, social, and environmental interests. Sustainable transportation development must avoid negative impacts on the environment and consider the long-term needs of society.

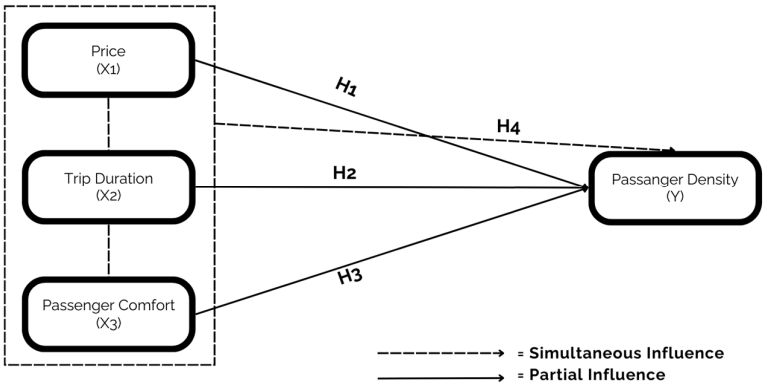

Figure 1 Research Model

3. Research method

This research will use quantitative descriptive methods. This method uses statistical techniques to analyze data and test research hypotheses. The period of this research starts from the date of granting the study permit with a period of approximately 2 (two) months,

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one month of data collection, and one month of data processing, including presentation in the form of a thesis and an ongoing guidance process. This research was conducted in the station area on the island of Java targeting prospective PSO train passengers. This research will involve prospective PSO train passengers aged 18-45 years and residing on the island of Java. This research took a sample of 100 people as respondents who would be given a questionnaire to fill out and then the researcher processed the questionnaire results using SPSS version 25 software.

3.1 Operational Definition

Variable	Indicator	Statement
Price (Adam Smith, 2022)	**Price match with service**	My ticket Price was commensurate with the facilities and services I received.
		The ticket Price I pay reflects the value I get from train travel.
	Price accessibility	Train ticket Prices are affordable for me.
		The Price of train tickets is a barrier to using train services.
	Rate of Increase in Ticket Sales and total passenger	I have taken advantage of promotional programs or ticket discounts on my previous trips.
	Discount Utilization Rate	My experience in using this promotional or ticket discount program is very satisfying.
	Average rate	Train ticket rates need to be compared with other modes of transportation to assess whether the rates are competitive.
		There are variations in fares based on train class or additional facilities provided.
	Tariff structure	The government provides subsidies for ticket rates to support public accessibility.
		Determining ticket rates involves reviewing operational costs, demand analysis, and socio-economic considerations.
	Discount policy	Discount policies must be available for specific groups such as students, college students, or families.
Trip Duration (Jhon Doe, 2022)	**Average speed**	The travel time from point A to point B is still being determined.
		The train reaches the average speed from the starting station to the destination station.
		There is a difference in travel time during peak hours and off-peak hours.

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	Waiting time	Passengers must wait for the train at the station before departure.
	External factors	There are changes to travel times due to extreme weather conditions.
Passenger Comfort (Sri Utami, 2016)	**surveillance system**	I felt safe during this train journey.
		I saw that there were security officers or surveillance systems on the train.
	Quality of facilities	The air inside the train felt quite good, and the temperature was also comfortable.
	Seating arrangement	I felt like I had enough space to sit comfortably on this train.
		The seats on these trains are comfortable, and the cushioning and support are adequate.
	Physical comfort	I felt relieved in my seat. The air quality inside the train was good.
	Cleanliness and condition of facilities	opinion, the level of cleanliness on the train is that public facilities such as toilets are well maintained.
	Staff service	The train staff were amiable and provided clear and helpful information.
	Availability of facilities	I found the facilities I needed, such as power outlets and WiFi. The availability of toilets is very adequate.

4. Results and discussion

4.1 Respondent Profile

According to the characteristics, respondents were divided based on gender, age, occupation, class type, and frequency of train use in a year.

1. Gender

The following is data on the characteristics of respondents who use PSO trains based on gender.

Table 4.1 respondent data by gender

Gender		
gender	amount	percentage
man	62	62%
woman	38	38%
total	100	100%

From table 4.1 it shows that a total of 100 respondents, based on respondents who chose more men than women, namely 62 respondents, or 62%, were men,

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and 38 respondents, or 38%, were women. Based on the data above, it can be concluded that most respondents are male.

Age

The following is data on the characteristics of respondents who use PSO trains based on age.

Table 4.2 Respondent data by age

respondent's age		
age	number of respondents	percentage
17 – 25 Years	32	35%
26 – 35 Years	39	41%
36 - >45 Years	29	24%
Total	100	100%

Table 4.2 shows that out of a total of 100 respondents, respondents aged 17-25 years amounted to 32 respondents with a percentage of 35%, aged 26-35 years amounted to 39 respondents with a ratio of 41%, and aged 36->45 years amounted to 29 respondents with a rate 24%. Based on the data above, it can be concluded that most of the respondents were aged 26-35 years.

4.1.1 Work

The following is data on the characteristics of respondents who use PSO trains based on occupation.

Table 4.3 Respondent data based on occupation

respondent's occupation		
work	number of respondents	percentage
Student	48	48%
Private sector employee	38	38%
Civil servants	8	8%
And others	6	6%
Total	100	100%

Table 4.3 shows that out of a total of 100 respondents. Respondents who work as students 48 respondents with a percentage of 48%, private employees are 38 respondents with a share of 38%, civil servants are eight respondents with a ratio of 8%, and others are six respondents with a rate of 6%. Based on the data above, it can be concluded that some of the respondents were students.

4.1.2 Frequency of train use

The following is data on the characteristics of respondents who use PSO trains based on occupation.

Table 4.4 Respondent data based on the frequency of train use

frequency of train use		
frequency	number of respondents	percentage
One time	25	25%
Two times	31	31%
Three times	16	16%
> 3 times	28	28%
Total	100	100%

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Table 4.4 shows that out of a total of 100 respondents. Respondents with the frequency of using the train once were 25 respondents with a percentage of 25%, twice as many as 31 respondents with a ratio of 31%, three times as many as 16 respondents with a rate of 16%, and > three times as many as 28 respondents with a percentage of 28%. Based on the data above, it can be concluded that the average frequency of train use is two times.

4.1.3 Class Type

The following is data on the characteristics of respondents who use PSO trains based on occupation.

Table 4.5 Respondent data by class

class type		
class	amount	percentage
Economy	78	78%
Business	8	8%
Executive	14	14%
Total	100	100%

Table 4.3 shows that out of a total of 100 respondents. There were 78 respondents using economy class trains with a percentage of 78%, eight respondents for business trains with a rate of 8%, and 14 respondents for executive trains with 14%. Based on the data above, it can be concluded that some respondents use economy-class trains.

4.2 Instrument Testing

4.2.1 Validity test

According to Ghozali (2018), validity can be defined as the ability of measuring tools or research instruments to measure variables or constructs that should be measured precisely, accurately, and consistently. In other words, validity testing aims to ensure that the tools used in research are genuinely measured and what they should count and provide valid results.

In this research, the author distributed questionnaires to 100 respondents. The research data was collected, processed, and presented in the appendix. The results of this validity test measure whether a questionnaire is valid or not.

If a questionnaire is considered valid or valid, the statements may reveal something the questionnaire is supposed to measure. Significance testing is performed by comparing the calculated r-value (corrected item-total correlation) with the r-value in the table for degrees of freedom (df) = n – 2 (n is the number sample). With a sample size (n) of 100 with a significance level of 5%, the r table in the study is (n-2) = (100-2) = 98, so the r table = 0.195. The entry or statement is valid if the computed r is larger than the array r and has a positive correlation. In other words, things or ideas have a positive correlation.

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a. Price (X1)

Table 4.6 Price Validity Test (X1)

Price Validity Test (X1)			
question	r_{count}	r_{table}	information
question 1	0.343	0.195	VALID
question 2	0.228	0.195	VALID
question 3	0.375	0.195	VALID
question 4	0.518	0.195	VALID
question 5	0.469	0.195	VALID
question 6	0.304	0.195	VALID
question 7	0.381	0.195	VALID
question 8	0.477	0.195	VALID
question 9	0.281	0.195	VALID
question 10	0.442	0.195	VALID

According to Table 4.6, the results of the Price variable validity test (X1), all statements are declared valid because each *is corrected Item* -Total *Correlation* or $r_{count} > r_{table}$ and at a significance level <0.05. The r_{table} 0.195 is obtained from the statistical r table where the value df=N (number of respondents)-2.

The author uses a 1-way significance level for the 0.05 significance level test. Based on the Price validity test table (X1), it shows that each questionnaire item 1 to 10 is VALID because the r_{count} starts from the lowest to the highest, namely 0.228 to 0.518 > r_{table}, namely 0.195.

b. Trip Duration (X2)

Table 4.7 Validity Test of Trip Duration (X2)

Trip Duration Validity Test (X2)			
question	r_{count}	r_{table}	information
question 1	0.312	0.195	VALID
question 2	0.258	0.195	VALID
question 3	0.360	0.195	VALID
question 4	0.422	0.195	VALID
question 5	0.541	0.195	VALID
question 6	0.448	0.195	VALID
question 7	0.541	0.195	VALID
question 8	0.533	0.195	VALID
question 9	0.478	0.195	VALID
question 10	0.478	0.195	VALID

According to Table 4.7, the validity test results for the Trip Duration variable (X2), all statements are declared valid because each is *Corrected Item* -Total *Correlation* or $r_{count} > r_{table}$ and at a significance level <0.05. The r_{table} 0.195 is obtained from the statistical r table where the value df=N (number of respondents)-2.

The author uses a 1-way significance level for the 0.05 significance level test. Based on the Trip Duration validity test table (X2), it shows that each questionnaire item 1 to 10 is VALID because the $_{calculated\ r}$ starts from the lowest to the highest, namely 0.258 to 0.541 > r_{table}, namely 0.195.

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Advances in Transportation and Logistics Research
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Passenger Comfort (X3)

Table 4.8 Passenger Comfort Validity Test (X3)

Passenger Comfort Validity Test (X3)			
question	r_{count}	r_{table}	information
question 1	0.502	0.195	VALID
question 2	0.526	0.195	VALID
question 3	0.480	0.195	VALID
question 4	0.394	0.195	VALID
question 5	0.491	0.195	VALID
question 6	0.289	0.195	VALID
question 7	0.496	0.195	VALID
question 8	0.453	0.195	VALID
question 9	0.552	0.195	VALID
question 10	0.473	0.195	VALID

According to table 4.8, the results of the validity test for the Passenger Comfort variable (X3), all statements are declared valid because every *Corrected Item* -Total *Correlation* or $r_{count} > r_{table}$, and at a significance level <0.05. The r_{table} 0.195 is obtained from the statistical r table where the value df=N (number of respondents)-2.

The author uses a 1-way significance level for the 0.05 significance level test. Based on the Passenger Comfort validity test table (X3), it shows that each questionnaire item 1 to 10 is VALID because the $_{calculated\ r}$ starts from the lowest to the highest, namely 0.289 to 0.552 > r_{table}, namely 0.195.

c. Passenger Density (Y)

Table 4.9 Validity Test of Passenger Density (Y)

Passenger Density Validity Test (Y)			
question	r_{count}	r_{table}	information
question 1	0.429	0.195	VALID
question 2	0.484	0.195	VALID
question 3	0.501	0.195	VALID
question 4	0.362	0.195	VALID
question 5	0.323	0.195	VALID
question 6	0.637	0.195	VALID
question 7	0.524	0.195	VALID
question 8	0.601	0.195	VALID
question 9	0.383	0.195	VALID
question 10	0.592	0.195	VALID

According to Table 4.9, the validity test results for the Passenger Density (Y) variable, all statements are declared valid because each is *Corrected Item* -Total *Correlation* or $r_{count} > r_{table}$ and at a significance level <0.05. For the $r_{table,}$ 0.195 is obtained from the statistical r table where the value df=N (number of respondents)-2.

The author uses a 1-way significance level for the 0.05 significance level test. Based on the Passenger Density (Y) validity test table, it shows that each questionnaire item 1 to 10 is VALID because the $_{calculated\ r}$ starts from the lowest

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Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

to the highest, namely 0.323 to 0.637 > r $_{table}$, namely 0.195.

4.2.2 Reliability Test

According to Sugiyono (2019), the Reliability Test is used to show the reliability, accuracy, thoroughness, and consistency of the indicators in the questionnaire. So, besides being valid, sound research must also be reliable to have accuracy values when tested in different periods.

Table 4.10 Reliability Test Table

Variable	Amount Statement	*Cronbach Alpha*	Information
Price (X1)	10	0.803	reliable
duration Travel (X2)	10	0.634	reliable
comfort passenger (X3)	10	0.707	reliable
Density passenger (Y)	10	0.715	reliable

Based on the data in table 4.9 above, it is known that the Price variable (X1) , Trip Duration variable (X2), Passenger Comfort (X3), and Passenger Density (Y) have *Cronbach Alpha values* > 0.60, namely X1 = 0.803, X2 = 0.634 > 0.60, X3 = 0.707 > 0.60, and Y = 0.715 > 0.60. This proves that the Price variable (X1), Trip Duration variable (X2), Passenger Comfort (X3), and Passenger Density (Y) in this study can be declared trustworthy (Reliable).

4.3 Statistical Data Analysis

Processing statistical data using SPSS version 25 software results in the following analysis results:

4.3.1 Price analysis results (X1) on Passenger Density (Y)

Processing data information using SPSS version 25 software resulted in the following analysis results:

Table 4.11 Results of simple regression analysis between variables X1 and Y variable

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,091	3,397		1,793	,076
	Price	,798	,087	,680	9,177	,000

a. Dependent Variable: Density Passenger

From the results of Table 4.11 above, it can be seen that Y = 6.091 + 0.798X with the following analysis:

a. The constant value is 6,091, which means that if the value of the Price variable (X1) does not exist or X = 0 then the value of the Passenger Density variable (Y) is 6,091.

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b. From the results, the Price coefficient value (X1) is 0.798, which means that for every increase in the Price variable (X1) by one unit, the Passenger Density variable (Y) will experience an increase of 0.798 units.

Table 4.12 Results of correlation coefficient analysis between variables X1 and Y variable

Correlations			
		Density Passenger	Price
Density Passenger	Pearson Correlation	1	,680 **
	Sig. (2-tailed)		,000
	N	100	100
Price	Pearson Correlation	,680 **	1
	Sig. (2-tailed)	,000	
	N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.12 above, the correlation value for the Price variable (X1) is 0.680, meaning that Price does not have a strong relationship with Passenger Density.

Table 4.13 Results of analysis of the coefficient of determination between variable X1 and Y variable

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,680 a	,462	,457	3,647

a. Predictors: (Constant), Price

From the results of Table 4.13, the analysis results obtained from the coefficient of determination value of 0.462 mean that Price has an impact contribution of 46.2% on Passenger Density.

Table 4.14 Partially Significant Test Results (T-Test)

Coefficients a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,091	3,397		1,793	,076
	Price	,798	,087	,680	9,177	,000

a. Dependent Variable: Density Passenger

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

From the table above the t value for Price is 9,177, while the t table value is 1,793, so it can be seen that t count is 9,177 > t table 1,793 and the significant value is 0.000. So, the hypothesis states that there is a positive and significant impact between Price and Passenger Density (Ha is accepted and Ho is rejected). This means that partially there is a positive and significant impact between Price and Passenger Density. To be more clear, you can see the significant test curve below:

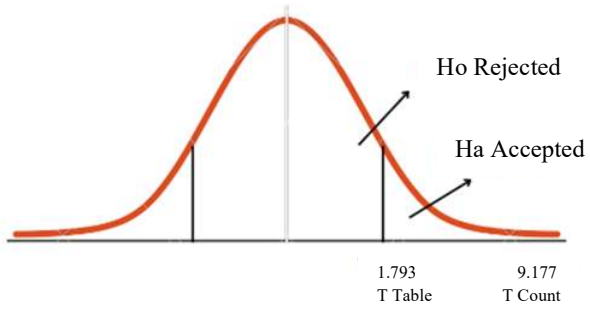

Figure 2 Hypothesis Ha1

4.3.2 Results of Analysis of Trip Duration (X2) on Passenger Density (Y)

Processing data information using SPSS version 25 software resulted in the following analysis results:

Table 4.15 Results of simple regression analysis between variable X2 and Y variable

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9,062	3,642		2,488	,015
	Duration Journey	,740	,096	,616	7,740	,000
a. Dependent Variable: Density Passenger						

From the results of Table 4.15 above, it can be seen that Y = 9.062 + 0.740X with the following analysis:

c. The constant value is 9,062, which means that if the Trip Duration variable (X2) does not exist or X = 0, then the Passenger Density variable (Y) is 9,062.
d. From the results, the Trip Duration coefficient value (X2) is 0.740, which means that for every increase in the Trip Duration variable (X2) by one unit, the Passenger Density variable (Y) will increase by 0.740 units.

Table 4.16 Results of correlation coefficient analysis between variables X2 and Y variable

Correlations			
		Duration Journey	Density Passenger
Duration Journey	Pearson Correlation	1	,616 **
	Sig. (2-tailed)		,000
	N	100	100
Density Passenger	Pearson Correlation	,616 **	1

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	Sig. (2-tailed)	,000	
	N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.57 above, the correlation value for the Trip Duration variable (X2) is 0.616, meaning that Price has a solid relationship to Passenger Density.

Table 4.17 Results of analysis of the coefficient of determination between variable X2 and Y variable

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,616 [a]	,379	,373	3,918

a. Predictors: (Constant), Duration Journey

From the results of Table 4.17, the analysis results obtained from the coefficient of determination value of 0.379 mean that Trip Duration has an influential contribution of 37.9% to Passenger Density.

Table 4.18 Partially Significant Test Results (T-Test)

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9,062	3,642		2,488	,015
	Duration Journey	,740	,096	,616	7,740	,000

a. Dependent Variable: Density Passenger

From the table above, the t value for the Trip Duration is 7,740, while the t table value is 2,488, so it can be seen that the t count is 7,740 > t table 2,488, and the significant matter is 0.000. So, the hypothesis states that there is a positive and significant impact between Trip Duration and Passenger Density (Ha is accepted and Ho is rejected). This means a positive and considerable impact exists between Trip Duration and Passenger Density. To be more precise, you can see the significant test curve below:

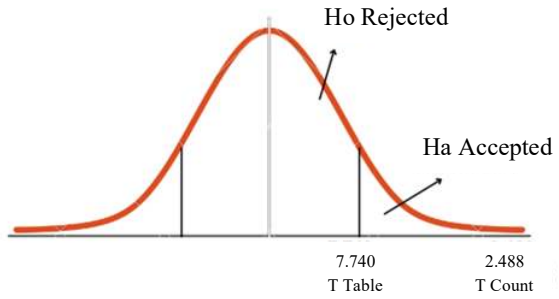

Figure 3 Hypothesis Ha2

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Results of Analysis of Passenger Comfort (X3) on Passenger Density (Y)

Processing data information using SPSS version 25 software resulted in the following analysis results:

Table 4.19 Results of simple regression analysis between variable X3 and Y variable

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,293	4,018		3,308	,001
	Comfort Passenger	,611	.103	,516	5,956	,000
a. Dependent Variable: Density Passenger						

From the results of Table 4.60 above, it can be seen that Y = 13,293 + 0.611X with the following analysis:

a. The constant value is 13,293, which means that if the value of the variable Passenger Comfort (X3) does not exist or X = 0, then the value of the variable Passenger Density (Y) is 13,293.
b. From the results, the value of the Passenger Comfort coefficient (X3) is 0.611, which means that for every increase in the Passenger Comfort variable (X3) by one unit, the Passenger Density variable (Y) will experience an increase of 0.611 units.

Table 4. 20 Results of correlation coefficient analysis between variable X3 and Y variable

Correlations			
		Comfort Passenger	Density Passenger
Comfort Passenger	Pearson Correlation	1	,516 **
	Sig. (2-tailed)		,000
	N	100	100
Density Passenger	Pearson Correlation	,516 **	1
	Sig. (2-tailed)	,000	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

From Table 4.20 above, the correlation value for the Passenger Comfort variable (X3) is 0.516, meaning that Passenger Comfort has a solid relationship to Passenger Density.

ISSN: 2622-5778 (online)
Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Table 4.21 Results of analysis of the coefficient of determination between variable X3 and Y variable

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,516 [a]	,266	,258	4,262
a. Predictors: (Constant), Comfort Passenger				

From the results of Table 4.21, the analysis results obtained from the coefficient of determination value of 0.516 mean that Passenger Comfort has an influential contribution of 51.6% to Passenger Density.

Table 4. 22 Partially Significant Test Results (T-Test)

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13,293	4,018		3,308	,001
	Comfort Passenger	,611	.103	,516	5,956	,000
a. Dependent Variable: Density Passenger						

From the table above, the t value for Price is 5,956, while the t table value is 3,304; it can be seen that the t count is 5,956 > t table 3,304, and the significant matter is 0.000. So, the hypothesis states that there is a positive and significant impact between Passenger Comfort and Passenger Density (Ha Accepted and Ho Rejected). This means a positive and considerable impact exists between Passenger Comfort and density. To be more precise, you can see the significant test curve below:

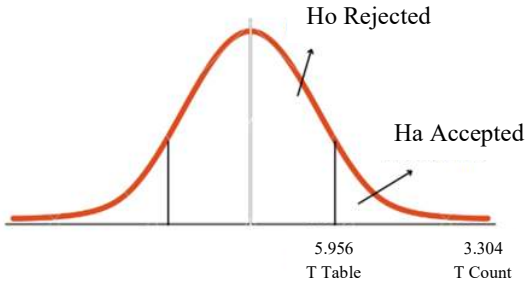

Figure 4 Hypothesis Ha3

Results of Price Analysis (X1), Trip Duration (X2) and Passenger Comfort (X3) Against Passenger Density (Y)

Data processing using SPSS version 25 resulted in the following analysis:

Multiple Linear Regression

Complete statistical calculations in multiple linear regression analysis can be seen in the attachment and are further explained in the following table:

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http://proceedings.itltrisakti.ac.id/index.php/altr

Table 4.23 Multiple Linear Regression Results for Variables X1, X2 and X3 Against Y

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,215	4,260		,989	,325
	Price Effects	-.026	.128	-.021	-.204	,839
	Duration Journey	,584	.125	,486	4,678	,000
	Comfort Passenger	,303	,119	,255	2,542	.013
a. Dependent Variable: Density Passenger						

From the results of table 4.23 above, the regression equation model that can be written from these results in the form of a multiple linear regression equation is as follows:

Y = 4.215 + (-0.026) X1 + 0.584 X2 + 0.303 X3

The multiple linear regression equation means that for every 1 unit increase in the score in variable X1 (Price) of -0.026, it will be followed by an increase in variable Y (Passenger Density) of 4,215 with the assumption that variables An increase of 1 unit score in variable X2 (Trip Duration) of 0.584 will be followed by an increase in variable Y (Passenger Density) of 4,215 with the assumption that variables An increase of 1 unit score in variable X3 (Passenger Comfort) of 0.303 will be followed by an increase in variable Y (Passenger Density) of 4.215 with the assumption that variables.

Simple Correlation Coefficient

Table 4.24 results of multiple correlation coefficient analysis

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,649 [a]	,422	,404	3,821	,422	23,344	3	96	,000
a. Predictors: (Constant), Comfort Passenger , Duration Travel , Price Effects									

From the results of table 4.24 above, it is known that the correlation coefficient is 0.649, indicating that the three variables have a very strong and linear positive relationship according to the table of correlation levels and strength of relationship. Based on the R value in table 4.24 it is 0.649. So, the R value of 0.649 has a strong level of relationship.

Coefficient of Determination

Table 4.25 results of simultaneous analysis of the coefficient of determination

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,649 [a]	,422	,404	3,821	,422	23,344	3	96	,000
a. Predictors: (Constant), Comfort Passenger , Duration Travel , Price Effects									

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Advances in Transportation and Logistics Research
http://proceedings.itltrisakti.ac.id/index.php/altr

Based on the information in table 4.25 above, it can be seen that the coefficient of determination value in the following table has an R square value of 0.422. This means that the ability of the Price, Trip Duration and Passenger Comfort variables to impact the Passenger Density variable is 42.2%, so the remainder from other research discussing this variable is 57.8%.

Hypothesis Test (F Test)

The results of the simultaneous significant coefficient test can be seen in the following table:

Table 4.26 F Test Results

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1022,528	3	340,843	23,344	,000 [b]
	Residual	1401,662	96	14,601		
	Total	2424,190	99			

a. Dependent Variable: Density Passenger
b. Predictors: (Constant), Comfort Passenger, Duration Travel, Price Effects

From the results of table 4.26, the sig value is 0.000 < 0.05 from the calculated F value of 23,344 > F table 3.09, so it can be concluded that Ho is rejected and Ha is accepted, which means there is an impact of the variables Price (X1), Trip Duration (X2) and Passenger Comfort (X3) simultaneously with the Passenger Density variable (Y). For more clarity, you can see the significance test curve below:

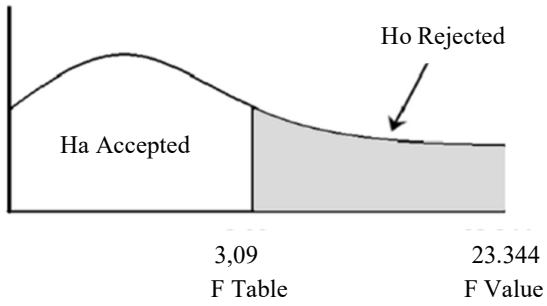

Figure 5 F Test

Conclusion

From the results of all data processing, the author can draw the following conclusions:

a. The hypothesis states that there is a positive and significant impact between Price and Passenger Density (Ha is accepted and Ho is rejected). This means that partially there is a positive and significant impact between Price and Passenger Density. Thus, the proposed hypothesis H1, which predicts that there is a positive and significant impact between the Price variable and the Passenger Density variable, is accepted. The value of the impact of the relationship between Price and Passenger Density is 0.680 or 86%.
b. The hypothesis states that there is a positive and significant impact between Trip Duration and Passenger Density (Ha is accepted and Ho is rejected). This means that partially there is a positive and significant impact between Trip Duration and

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Passenger Density. Thus, the proposed hypothesis H1, which predicts that there is a positive and significant impact between the Trip Duration variable and the Passenger Density variable, is accepted. The value of the impact of the relationship between Trip Duration and Passenger Density is 0.616 or 61.6%

c. The hypothesis states that there is a positive and significant impact between Passenger Comfort and Passenger Density (Ha Accepted and Ho Rejected). This means a positive and considerable impact exists between Passenger Comfort and density. Thus, the proposed hypothesis H3, which predicts a positive and significant effect between the Passenger Comfort and density variables, is accepted. The value of the impact of the relationship between Passenger Comfort and Passenger Density is 51.6%
d. The hypothesis states that there is a positive and significant impact between the variables Price (X1), Trip Duration (X2) and Passenger Comfort (X3) simultaneously on the Passenger Density (Y) variable (Ha Accepted and Ho Rejected). This means that simultaneously there is a positive and significant impact between Price, Trip Duration and Passenger Comfort on Passenger Density. Thus, the proposed H4 hypothesis is accepted. The impact value is 0.422 or 42.2% and the rest is caused by other factors.

5. Implications

Based on the conclusions that have been made, the author tries to put forward or provide suggestions as follows:

a. The research results show that Passenger Comfort factors significantly impact Passenger Density. This will incentivize PSO train service providers to prioritize improving service quality, including comfort, to overcome overcrowding problems.
b. If ticket Prices or train fares are proven to impact Passenger Density significantly, then authorities may consider policies to control or stabilize ticket Prices to manage crowding levels.
c. This research can guide PSO train companies to design more efficient travel schedules and optimize Trip Duration. This can help in reducing crowding during peak hours.
d. The research results may also encourage authorities to consider route development, capacity increases, or expansion of PSO train services in certain areas to address high density.
e. This research can emphasize the importance of providing train facilities, such as comfortable seats, clean toilets, and other supporting facilities to increase Passenger Comfort.
f. The results of this research can help the government and related institutions make better decisions and policies related to PSO rail transportation on the island of Java.

6. Research limitations

The initial idea for this research departed from observations regarding the problem of Passenger Density. The problem is then expanded into a dependent variable and an objective function. As an objective function, this dependent variable is considered to be impactd by other variables or identified as an independent variable. By studying concepts and theories, it turns out that many separate factors or variables impact Passenger Density. However, due to limited research resources, the independent variables believed to have the ability to control the purchasing decision were then fixed so that only two independent variables were considered to have the ability to impact the purchase decision strongly. Dependent variable. Therefore, the results obtained in identifying factors for the dependent variable need to be further improved. Several limitations were felt during this research.

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