



PASSENGER PREFERENCES AT GENERAL AHMAD YANI AIRPORT, SEMARANG, INDONESIA

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Abstract

Aligned with Indonesia's commitment to providing reliable and comfortable air transportation, this study investigated passenger preferences at Ahmad Yani Airport, Semarang, aiming to inform strategic improvements to terminal facilities. Employing the Slovin formula, a sample of 375 respondents was derived from 2019 passenger data, adjusted to reflect post-COVID-19 travel patterns. The research explored variables encompassing alternative travel options, travel attributes, passenger perceptions, attitudes towards the airport, as well as alternative and individual limitations. Methodologically, the study utilized descriptive qualitative analysis, Pearson correlation for validity testing, and binary logistic regression for reliability. The findings revealed a demographic profile dominated by male passengers (58.93%), with a significant majority possessing higher education (85.86% holding diplomas or above) and high incomes (78.81% earning over 6 million). Critically, the analysis demonstrated a significant influence of individual passenger capabilities on their preferences, as evidenced by a t-statistic of 22.82228, which significantly exceeds the critical t-value of 1.966. This study concludes that airport managers should prioritize the customization of airport facilities and services to effectively meet the nuanced needs and preferences of this specific demographic, acknowledging the substantial impact of individual capabilities on passenger preferences.

Keywords: Passenger Preferences, Airport, Education, Capabilities

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INTRODUCTION

The increase in demand for air transportation passengers, both on an Asian and national scale, is significant (Tri et al, 2017) and the growth in passenger demand, especially at Ahmad Yani Airport in Semarang, is 8-9% (BPS, 2017). The increase in demand for air transport passengers will affect airport planning and management, which is important in determining infrastructure needs (Tito, 2014), this will affect capacity and infrastructure on both the air and land sides. The land side facilities needed by passengers are efficient, comfortable and safe, for this reason it is necessary to know passenger preference so that passengers can be satisfied. Indonesia is currently actively building representative airports that are comfortable and safe.

Demographics can be used to measure the characteristics of airplane passengers, age groups, gender, education and income of passengers can be analyzed as subcultures because they have different values and behavior, income subcultures will make people have different incomes and also have different behavior and lifestyle. So for airport development it is necessary to observe this behavior.

PROBLEM BACKGROUND

What parameters influence passenger preferences at Ahmad Yani Airport in Semarang, so that in preparing facilities for airplane passengers on the land side they can feel comfortable and safe when they are at the terminal.

LITERATURE

Airports are an important node in the transportation system and can have an important role in supporting the socio-economic development of urban areas (Paolina, 2016), as the current development of airport platforms changes its activities, namely the relationship between commercial activities and aeronautical activities (Estelle, 2016) and to optimize Airport functions need to increase air traffic capacity, including terminal modernization, airport infrastructure and purchase of operational equipment (Dariusz, 2016).

Characteristics of passengers at the airport on behavioral intentions through technology acceptance and customer satisfaction. The results are that customer satisfaction has a significant influence on behavioral intentions (Jong and Jin, 2019), the level of education influences understanding and perception (Yi Shi, et all, 2023). Airport services significantly influence passenger preferences, as in other markets, by impacting passengers' choice of airline and the utilization of available terminal facilities (Sofia & Filipe, 2021). The attitude of forgetting and destroying the environment reflects irresponsible humans which is contrary to ethical and religious values (Normah, et all, 2023)

There is an increasing trend in the number of disruptive airline passengers taking flights, so the safety of passenger preference is critical to the

comfort, well-being and safety of other passengers, crew and the smooth operation of airlines. Safety culture has been proven to have an impact on the implementation and efficiency of safety management (Katherine, 2022), increasingly rapid development will change people's behavior (Normah, 2020), while service quality and availability of facilities have a partial or simultaneous influence on passenger satisfaction in waiting room at Ahmad Yani Airport Semarang (Mohammad & Nur, 2022), Airport facilities and service quality have a significant and positive effect on passenger satisfaction, where passengers feel more satisfied when the facilities available at the airport are complete and in good condition (Jumawana & Primadi, 2022 ; Immanuel, et al, 2024 ; Alex, et al, 2024). Characteristic factors of passengers that can influence the choice of mode to get to the airport include distance from residence, type of work, income level, private vehicle ownership, passenger age and gender (Wahadi & Iwan, 2017)

Travel motivation substantially increases the intention to travel (Nor Hayati, et al, 2024) while the factors that are statistically significant influence passengers in choosing the Taipei-Kuala Lumpur-Jakarta flight route are the airport's reputation for transit, flight ticket prices, flight duration , comfort in connection, and number of luggage (Dwi D, et al, 2021), customer satisfaction is influenced by their behavior, which has an impact on satisfaction (Aznor, et al, 2023), the ability to pay makes it possible to choose environmentally friendly facilities (Aisyah, 2024)

RESEARCH METHODOLOGY

The annual population of airplane passengers at Ahmad Yani Airport in Semarang as secondary data was taken before Covid hit the world, data taken for 2019 from Angkasa Pura 1, Semarang Branch was 1,618,109 passengers, including the number of departing and arriving airplane passengers, so the number of daily passengers was 4,433 passengers. which is the daily population. The number in the last year of 2019 before Covid was 8250 passengers/day. The number of sample respondents was determined from the daily passenger population using the Slovin formula (Sugiyono, 2017), with an error accuracy of 5% (e value = 0.05), so that a sample size of 375 respondents was obtained. The sampling method is using an instrument in the form of a questionnaire which is distributed directly to respondents and online to airplane passengers. Behavioral analysis was conducted using a descriptive and qualitative approach while for testing the instruments used are tested including their validity and reliability (Riduwan, 2008), calculating the validation and reliability of all variables in this study using SPSS version 29 software.

RESULT AND DISCUSSION

The results of calculating 375 data (rounded) can be presented as follows, for passengers according to gender, they are 58.93% male and 41.07% female, which can be seen in table 1,

Table 1: Gender of Airplane Passengers

Amount	Gender	Percentage
221	Man	58.93
154	Woman	41.07
375		

Meanwhile, according to age groups, airplane passengers at Ahmad Yani airport are dominated by the productive age group > 21 years, amounting to 85.27%, see table 2 below.

Table 2: Airplane passengers according to age

Age	Respondents	Percentage
< 10 year	1	0.27
11 - 20 year	13	3.47
21 - 30 year	153	40.80
31 - 40 year	144	38.40
> 40 year	64	17.07
Total	375	100

The educational level of airplane passengers is high school graduates or above, amounting to 98.86% and the largest number of education levels above strata-1 amounting to 74.13%, can be seen in table 3.

Table 3: Airplane Passengers by Education Level

Education	Respondents	Percentage
Elementary school	1	0.27
Junior High School	3	0.80
Senior High School	49	13.07
Diploma	44	11.73
Strata-1/2/3	276	74.13
Total	375	100.00

Table 4: Airplane Passengers According to Income

Income (million)	Respondents	Percentage
< 3	30	8.00
3 s/d 6	48	12.80
6 s/d 9	130	34.67
9 s/d 12	109	29.07
> 12	58	15.47
Total	375	100.00

Table 4 shows that the income of airplane passengers with income > 6 million is 78.81%. In table 5, according to the purpose of travel, the largest number is for work matters, namely 59.47% and family matters at 16.80% and for tourist purposes at 12.53, this is in accordance with the location of the airport in the city of Semarang which has the title of service city, so that airplane passengers are for work purposes, with the formula:

Table 5: Passengers by Travel Purpose

Travel Purpose	Respondents	Percentage
Family	63	16.80
Education	22	5.87
Social/religious	20	5.33
Tour	47	12.53
Job/business	223	59.47
Total	375	100.00

This study analyzed the behavior of airplane passengers at Ahmad Yani Airport in Semarang, utilizing a sample of 375 respondents. The variables examined included alternative travel options, travel attributes, perceptions of the airport, attitudes towards the airport, alternative limitations, and individual limitations. Regarding alternative travel, 45% of respondents agreed that air transportation is their primary mode, while 77% indicated they could use other modes, and 81% found it easy to access these alternatives. In terms of travel attributes, 41% perceived airport capacity as tight, 53% reported that flight departures and arrivals were often delayed, and 33% stated they rarely experienced travel disruptions. However, 73% found air travel cost-effective for their trip purposes, and 89% appreciated the availability of train transportation to the airport. Perceptions about the airport revealed that 85% found air transportation comfortable, 62% considered it safer, and 65% preferred it for long-distance travel compared to other modes. Concerning attitudes towards airport facilities, 92.53% agreed that the waiting area was comfortable, and 93.33% rated the overall facilities and infrastructure as good.

Alternative limits refer to external factors regarding capacity and public facilities at Ahmad Yani Airport in Semarang area; 90.40% agreed that access to the airport was good and easy to reach and 31% agreed that the facilities were still not comfortable, but 49% said they were comfortable.

The individual restrictions related to airplane passengers who have vehicles, income and health to use private means of transportation are; 70% stated that to support the journey to their destination because they have a private vehicle, 64% stated that because of their salary or income it is possible to reach their travel destination by private transportation and 72% stated that your capabilities or physical health is still good enough to use private transportation.

Validity testing, the results of the validity test of the items for statements show that all statement items regarding alternative travel variables, travel attribute statements, perception statements regarding airports, attitude statements towards airports, alternative limitation statements, and individual limitation statements, all variables are declared valid, this can be seen in table 6. determining the value of r table, in the initial stage 375 samples were used with $\alpha = 5\%$, for $df = N - 2$, or in this case $df = 375 - 2 = 373$, with a significance level of 95% and a 5 %, then r-table.

$$r = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{n \sum X^2 - (\sum X)^2} \sqrt{n \sum Y^2 - (\sum Y)^2}}$$

Table 6: Distribution of r

df (N-2)	Significance level					
	One tail	0.05	0.025	0.01	0.005	0.0005
	Two tail	0.1	0.05	0.02	0.01	0.00100
373		0.08507	0.10129	0.12010	0.13287	0.16926
374		0.08496	0.10115	0.11994	0.13269	0.16904
375		0.08484	0.10102	0.11978	0.13252	0.16881
376		0.08473	0.10089	0.11962	0.13234	0.16859
377		0.08461	0.10075	0.11946	0.13217	0.16837

The figure obtained is 0.10129, testing the validity of the statement items using the following assumptions. If the r-count is positive and the r-count $>$ r-table then the item or variable is declared valid. Validity test analysis of each variable is presented in table 7.

Table 7: Calculated r and r table Values for Variables

Variable	Statement (item)	Calculated r value	Table r values	Information
Alternative travel	1	0.085	0.1012898	Invalid
	2	0.316	0.1012898	Valid
	3	0.332	0.1012898	Valid
Travel Attributes	1	0.437	0.1012898	Valid
	2	0.521	0.1012898	Valid
	3	0.481	0.1012898	Valid
	4	0.267	0.1012898	Valid
	5	0.234	0.1012898	Valid
Perceptions about airports	1	0.504	0.1012898	Valid
	2	0.586	0.1012898	Valid
	3	0.388	0.1012898	Valid
Attitude towards the airport	1	0.387	0.1012898	Valid
	2	0.342	0.1012898	Valid
	3	0.402	0.1012898	Valid

Variable	Statement (item)	Calculated r value	Table r values	Information
Alternative boundaries	1	0.261	0.1012898	Valid
	2	0.163	0.1012898	Valid
	3	0.228	0.1012898	Valid
Individual limitations	1	0.519	0.1012898	Valid
	2	0.534	0.1012898	Valid
	3	0.557	0.1012898	Valid

Reliability testing is used to show the extent to which a measurement can be trusted and has high reliability, which is called a reliable measurement. A questionnaire is said to be reliable if $r_{\text{count}} > r_{\text{table}}$, the results of each variable's reality value are displayed in table 8. with the formula below:

$$r = \left(\frac{k}{k-1} \right) + \sum_{n=1}^{\infty} \left(\frac{\sum \sigma^2 b}{\sigma^2 t} \right)$$

Table 8: Reliability Test

Variables	No item	Cronbach alpha	α
Alternative travel	1	0.704	0.5
	2	0.680	0.5
	3	0.679	0.5
Travel Attributes	1	0.671	0.5
	2	0.659	0.5
	3	0.664	0.5
	4	0.684	0.5
	5	0.686	0.5
Perceptions about airports	1	0.663	0.5
	2	0.653	0.5
	3	0.674	0.5
Attitude towards the airport	1	0.674	0.5
	2	0.677	0.5
	3	0.673	0.5
Alternative boundaries	1	0.696	0.5
	2	0.691	0.5
	3	0.699	0.5
Individual limitations	1	0.660	0.5
	2	0.658	0.5
	3	0.654	0.5

From table 8. The reliability values for all variables are satisfactory because the Cronbach alpha value is greater than the value $\alpha = 0.5$.

Rating scale analysis is a list containing the traits or characteristics of passenger preferences that you want to assess that are in accordance with the

criteria you want to assess and recorded in stages starting from the lowest value to the highest value.

The average value of passenger preferences for all points regarding passenger preferences is 3.763 on a scale of 1-5, so the statement about *passenger preferences* is high.

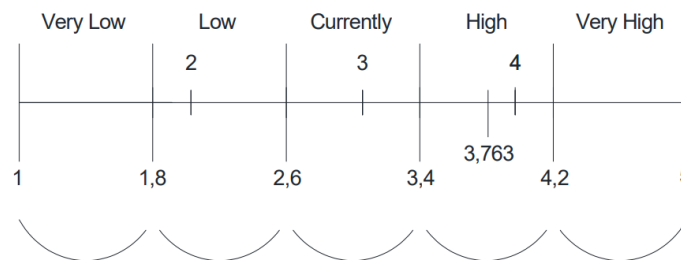


Figure 1. Criteria for Average Level of Behavior

The average value of passenger satisfaction with all points regarding passenger preferences is 3.751 on a scale of 1-5, so the statement regarding satisfaction is high.

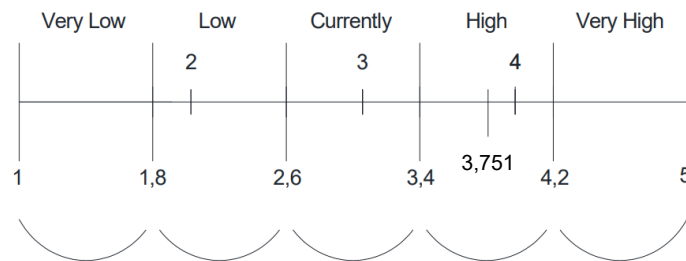


Figure 2. Criteria for Average Capabilities Level

After 375 respondents' data was processed into ordinal data in ranking form so that it was known to be bi^2 as in the table above. Then these results are entered into the Sperm Rank Rank correlation formula for the calculation as follows:

$$\rho = 1 - \frac{6\sum bi^2}{n(n^2-1)}$$

$$\rho = 1 - \frac{6 \times 2862172,50}{375(375^2-1)}$$

$$\rho = 0,674346$$

From the results of these calculations, it can be seen that there is a positive relationship, namely 0.674346, between the level of passenger preferences towards airport facilities and the abilities possessed by each passenger at Ahmad Yani airport. To be able to provide an interpretation of the strength of this relationship, the following table guidelines can be used:

Table 9: Guidelines for Providing Interpretations of Correlation Coefficients

Coefficient interval	Relationship level
0,000 – 0,199	Very low
0,200 – 0,399	Low
0,400 – 0,599	Neutral
0,600 – 0,799	Strong
0,800 – 1,000	Very strong

Source: Sugiono, 1999.

Based on this table 9, the correlation coefficient found was 0.674346, including the strong category. So there is a relationship between the level of passenger preferences and the level of capabilities of passengers at Ahmad Yani airport.

So that it can be applied to the entire passenger population at Ahmad Yani airport, it is necessary to carry out a significance test. The hypotheses for testing this significance are as follows:

$H_0 = t_{\text{count}} = t_{\text{table}}$ (correlation coefficient is not significant)

$H_a = t_{\text{count}} > t_{\text{table}}$ (significant correlation coefficient)

The calculation of the significance test results from the correlation coefficient is as follows:

$$t_0 = \rho \sqrt{\frac{n-2}{1-\rho^2}}$$

$$t_0 = 0,674346 \sqrt{\frac{375-2}{1-0,674346^2}}$$

$$t_0 = 22,82228$$

To find out whether it is significant or not, it is necessary to compare it with the t-table value $dk = n - 2$ with an error level of 5%, using a two-party test, the t-value is seen by a two-party test with an error of 5% and the result obtained is $t_{\text{table}} = 1.966$, then compared with t-count with t-table as above, it can be seen that $t_{\text{count}} (22.82228) > t_{\text{table}} (1.966)$. This means that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, where the correlation coefficient is significant. With the results of the significance test from the correlation coefficient of a sample of 375 respondents at Ahmad Yani airport, it

was stated that there was a strong relationship between the level of passenger preferences towards airport facilities and the capabilities possessed by each passenger, the more passengers were able to use the means of transportation, namely airplanes, at Ahmad Yani Airport.

CONCLUSION

According to gender, airplane passengers at Ahmad Yani Airport in Semarang were 58.93% male and 41.07% female, with a strata-1 educational background of 74.13% and 78.81% with an income of > 6 million. There is a strong relationship between passenger preferences and capabilities in airplane passengers, with reliability values above the standard Cronbach alpha value greater than the value $\alpha = 0.5$ and compared with the t-count with the t-table as above, it can be seen that the t-count (22.82228) > t-table (1.966). This study concludes that airport managers should prioritize the customization of airport facilities and services to effectively meet the nuanced needs and preferences of this specific demographic, acknowledging the substantial impact of individual capabilities on passenger preferences.

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