



RESEARCH ARTICLE

Impact of Transportation Infrastructure on Tourism Development: Analyzing Factors Influencing Visit Decisions and Economic Welfare Improvement

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ARTICLE INFO	ABSTRACT
Received: Sep 23, 2024 Accepted: Oct 30, 2024	The tourism industry is a vital economic sector for the economic growth and development of a country. To increase the decision of tourist visits to East Java, adequate transportation infrastructure is needed. This research aims to examine the elements that influence transportation infrastructure in increasing tourist visiting decisions thereby improving economic welfare. The research method used is quantitative with a multiple linear regression analysis approach. Data collection was carried out through questionnaires distributed to people who had traveled to East Java. The research results show that the transportation service quality variable has a significant influence on tourists' visiting decisions, while the variables of accessibility, comfort, security and connectivity do not show a partially significant influence. However, simultaneously, all independent variables have a significant influence on visit decisions. This research is important because good transportation can increase contributions to regional economic development, one of which is the tourism sector. Based on these findings, strategies to increase the effectiveness of transportation infrastructure in supporting the tourism industry include increasing transportation accessibility, comfort, security, and connectivity between modes of transportation. With good accessibility, tourist destinations can attract more visitors, increase demand for local services and products, and create job opportunities in the tourism sector so that they can improve the community's economy.
Keywords	
Tourism Industry	
Transportation Infrastructure	
Visiting Decision	
Service Quality	
Economic Welfare	
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INTRODUCTION

The tourism industry is one of the important sectors in the Indonesian economy. (Murniati, Maski, Noor, et al., 2021) In 2023 alone, the tourism industry contributes 5.3% to Indonesia's GDP and creates 13.6 million jobs. The contribution of the tourism industry is also projected to continue to increase to reach 7.6% in 2024. (Murniati, Maski, & And, 2021) The tourism industry needs to continue to grow to be able to continue to contribute to the Indonesian economy. The development of the tourism industry can encourage the country's economic growth by creating jobs, providing a source of income, and becoming a source of foreign exchange income. In addition, the tourism industry is also a source of support for local crafts and fine arts (MSMEs), which then become one of the drivers of the country's economy. (Thommandru et al., 2023) The potential of tourism in East Java is very high where the data has 2,002 tourism aesthetics consisting of natural tourism development,

cultural tourism, artificial tourism and tourism villages. (Sistem Informasi Data Jawa Timur, 2024) According to the distribution data of Tourist Destinations in East Java



Figure 1. Map of the Distribution of Tourism Destinations in East Java in May 2024

Source: (Sistem Informasi Data Jawa Timur, 2024)

In its development, the tourism industry requires adequate transportation infrastructure. Transportation in tourism requires a good structure to be able to increase the comfort of tourists in reaching tourist destinations. Transportation is considered a determinant of destination attractiveness, because transportation offers accessibility to tourist destinations. (Jangra et al., 2023) The accessibility made possible by the transportation infrastructure will then affect the desire of tourists to visit and also the attractiveness of the destination. (Ouariti & Jebrane, 2020) After the crisis period of the COVID-19 outbreak, the Tourism industry is increasing. This can be seen from the following data:

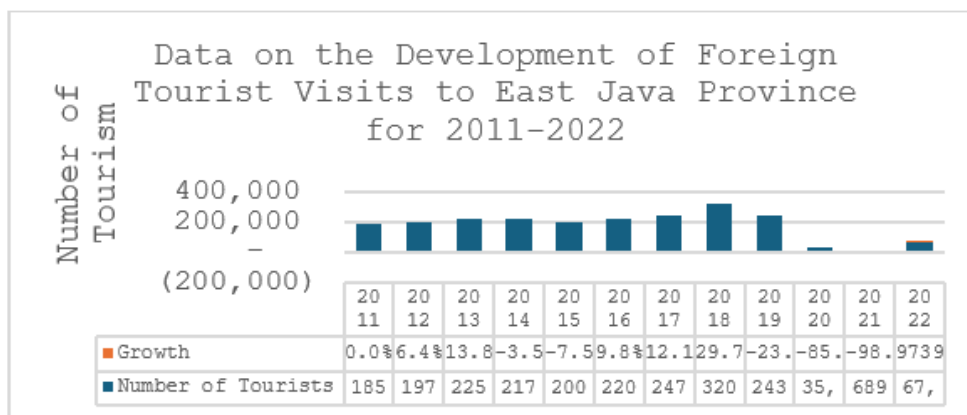


Figure 2. Data on the Development of Foreign Tourist Visits to East Java in 2011-2022

Source: (Badan Pusat Statistik. Provinsi Jawa Timur, n.d.)

Currently, existing tourism transportation services are still based on private companies at more expensive prices. Not only that, the use of public transportation for tourism purposes is still very low, even though tourists need modes of transportation that are easily accessible and at affordable prices. (Judiantono & Mukhsin, 2020) This sector is expected to make a significant contribution to economic growth, job creation, community development and encourage regional development. Based on research from Fathoni, (Fathoni et al., 2022) that the current government as an implementer of development is more focused on government tasks, especially as facilitators so that tourism activities can develop rapidly. Quite complex problems actually require special attention from the government related to the tourism transportation sector by maximizing the improvement of facilities and infrastructure in tourist areas can attract visitors, both domestic and foreign. Based on the description above, the formulation of the problem in this study is (1) What factors affect transportation infrastructure on the decision to visit. (2) How each factor of transportation infrastructure influences the improvement of visiting decisions. (3) What strategies can be done to

improve the effectiveness of transportation infrastructure in supporting the tourism industry. While the objectives of this research are (1) To analyze what factors affect transportation infrastructure on visiting decisions. (2) To analyze the effect of each factor of transportation infrastructure on improving visiting decisions. (3). This research is important because with good transportation accessibility, transportation access becomes easier and tourist destinations increasingly attract more tourists to visit, increasing demand for local services and products, and creating job opportunities in the tourism sector, thereby increasing community income and economy. To formulate a strategy for sustainable transportation infrastructure development to support the Indonesian tourism industry. The literature review used in this research is

Transport infrastructure refers to the system of highways, railways, and airports that facilitate the movement of people and goods. Transportation infrastructure has a crucial role in encouraging economic development by providing connectivity between regions. (Kadyraliev et al., 2022) In tourism, terminal systems and modes of transport also include transport infrastructure. The existence of transportation infrastructure supports the sustainability of tourist centers, ensuring more cost-effective, timely, safe, and quality transportation services for tourists who visit. (Khodikova & Lapkina, 2023) (Dileep & Pagliara, 2023) Factors that affect transportation infrastructure in attracting tourists include: Accessibility: How ease of transportation affects the influx of tourists. Accessibility is a measurement of the capacity of ease with which a location can be reached from different locations. (Rodrigue, 2024) then factor Comfort: The concept of comfort in tourism transportation is a complex and diverse concept, covering domestic comfort, driving quality, mobility quality, information, safety, security, and other environmental factors. (Kisgyörgy & Tóth, 2020) and then Safety: Safety in tourism includes various important elements in ensuring the welfare of tourists and the success of tourism activities. Safety factors highlight the classification of risks and sources of danger in tourism. (Tatsienko et al., 2021) The safety that can be guaranteed by tourist destinations can increase the intention to visit And so Factor Connectivity: Refers to the integration of different modes of transportation to support the tourism economy. Connectivity is important in transportation infrastructure, as it provides an integrated system of transportation modes, thereby lowering transportation costs, reducing travel distances, and contributing to the growth of tourism. (Liu et al., 2023) finally factor Quality of transportation services: Quality of service is a key performance indicator in the transportation system, i.e. as a focus on meeting customer needs and expectations. (Purba et al., 2017)(Markowska, 2020) Evaluation of service quality is essential to ensure acceptable standards and to improve service for passengers and travelers. (Mikuličić et al., 2024) The concept of purchasing decision refers to the process of making purchasing choices by consumers, where this process is influenced by many factors, including product quality, price, brand image, and value received. (Indriana et al., 2021; Kiruti Ratchaya & Sreeya, 2019; Murtopo & Ikhwan, 2018) In tourism, purchasing decision means the process by which a traveler makes a choice regarding the purchase of a product or service during the time of the tour. (Jamrozy & Lawonk, 2017)

RESEARCH METHOD

The research approach used is a quantitative descriptive approach. The data used primary data which will be collected through questionnaires distributed to tourists through surveys This list of questions is then compiled using Google form and distributed through various social media platforms such as Whatsapp, Instagram, and others. (Takamatsu et al., 2020) The sample is tourists in East Java where according to Sugiono (2013) explained that the sample is a portion of the number and characteristics of the population to be observed or studied which is used as an estimator. The method used in sampling is Purposive Sampling. The sample used is at least 5 times the number of variable parameter indicators to be analyzed, which is 1 number of sample.(Wirawan et al., 2019) Research variables are (Villasís-Keever & Miranda-Navales, 2016) The dependent variables in this study are the variable "Visiting Decision" (Y), and the independent variables are Accessibility (X1), Comfort (X2), Security (X3), Connectivity (X4), Quality of Transportation Services (X5)

Test instruments

Instrument tests in research are carried out to assess and validate the data to ensure the data to be processed in accordance with research criteria and can be explained the source and truth. (Muzammil et al., 2020) In this study, instrument tests were carried out using *SPSS statistical* software.

Validity test

Validity test in research refers to the assessment of the accuracy and suitability of a test kit. (Sireci & Soto, 2016) As well as ensuring that data collection tools are valid and reliable. (Richter & Werner, 2015) The criteria if the value of the correlation coefficient resulting from the analysis results for each item (r_{xy}) is greater than the r_{table} value of the product moment at the level of $\alpha = 0.05$ is declared valid with the following criteria: If $r_0 > r_{table}$: the instrument is said to be valid. If $r_0 < r_{table}$: the instrument is said to be invalid. The formula for the product Moment coefficient is as follows:

$$r_{xy} = \frac{n(\sum x_i y_i) - (\sum x_i)(\sum y_i)}{\sqrt{(n(\sum x_i^2) - (\sum x_i)^2)(n(\sum y_i^2) - (\sum y_i)^2)}}$$

Where:

Rxy = Product Moment correlation coefficient n = number of respondents

xi = score of each item on first try yi = score of each subsequent item

Reliability Test

Reliability refers to the correctness of the data obtained and the degree to which the measuring instrument controls random errors. (Ahmed & Ishtiaq, 2021) and to ensure the results obtained are consistent and accurate. (Daniel et al., 2015) The basis for decision making in reliability testing is as follows, Cronbach's Alpha value > 0.5 , so the instrument is considered reliable. Cronbach's Alpha value < 0.5 , so the instrument is declared unreliable. Here is the formula used to perform the reliability test:

$$r = \left[\frac{k}{k-1} \right] \left[\frac{\sum \sigma b^2}{\sigma t^2} \right]$$

r = instrument reliability k = number of question items
 $\sum \sigma b^2$ = number of grain variants $\sum \sigma t^2$ = total variance

Data analysis methods

Descriptive statistical analysis

That is the summary and presentation of data clearly and simply using tables, figures, charts, or graphs. (Rendón-Macías et al., 2016) Descriptive statistical analysis provides a simple summary of a sample and aims to summarize the data rather than study the population it represents.

Multiple Linear Regression Analysis

It is a statistical method used to investigate the relationship between a set of predictors and dependent variables. (Kelley & Maxwell, 2018; Plonsky & Ghanbar, 2018) The predictor here is the independent variable that exerts an influence on the dependent variable. Here is a multiple liner regression model with 5 independent variables:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + e$$

Y = Bound variable

a = Constant

b_1b_2 = Value of regression coefficient

X_1 = Accessibility Variable

X_2 = Comfort Variable

X_3 = Security Variable

X_4 = Connectivity Variable

X_5 = Variable Quality of Transportation Services = error.

RESULT AND DISCUSSION

Based on the data from the questionnaire that has been distributed, quantitative data processing has been carried out using SPSS software. The distributed questionnaire consisted of 20 variable indicator questions and had 100 respondents. From the existing questionnaire data, it was found that the majority of respondents used cars as the preferred mode of transportation to visit selected tourist destinations in East Java.

Validity Test Results

	Accessibility (X1)	Comfort (X2)	Safety (X3)	Connectivity (X4)	Transport Service Quality (X5)	Visit Decisions (Y)	Score
Accessibility (X1)	1.000	.623	.539	.415	.484	.126	.768
Comfort (X2)	.623	1.000	.714	.408	.464	.126	.740
Safety (X3)	.539	.714	1.000	.562	.641	.123	.791
Connectivity (X4)	.415	.408	.562	1.000	.674	.211	.705
Transport Service Quality (X5)	.484	.464	.641	.674	1.000	.378	.825
Visit Decisions (Y)	.126	.126	.123	.211	.378	1.000	.502
Score	.768	.740	.791	.705	.825	.502	1.000

The results of the validity test conducted show that all indicators used to measure research variables are valid. This can be seen in the score of the correlation coefficient significance test results which is higher than the significance level of 0.5. This means that the data that has been collected through the questionnaire is valid and reliable data.

Reliability Test Results

Reliability Statistics

Cronbach's Alpha	N of Items
.781	6

From the data that has been collected and processed, the reliability test results show a Cronbach Alpha value (0.781) which is higher than the significance level of 0.5. The results of this reliability test show that the variable indicators of the study are declared reliable and accurate.

Normality Test Results

From the results of the normality test that has been carried out, the significance value used is from the Kolmogorov-Smirnov table, because the number of respondents received is more than 50 respondents, which is 100 respondents. The results of the normality test above show that all variable indicators used in this study are not normally distributed.

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Accessibility (X1)	.128	100	.000	.953	100	.001
Comfort (X2)	.143	100	.000	.935	100	.000
Safety (X3)	.120	100	.001	.944	100	.000
Connectivity (X4)	.184	100	.000	.927	100	.000
Transport Service Quality (X5)	.104	100	.010	.949	100	.001
Visit Decisions (Y)	.141	100	.000	.895	100	.000

a. Lilliefors Significance Correction

Multiple Linear Regression Test

Based on the results of multiple linear regression tests that have been carried out, it was found that the amount of influence exerted by all independent variables, namely Accessibility, Comfort, Security, Connectivity, and Quality of Transportation Services on the variables of Visiting Decision was 0.172 or 17.2%. This means that the remaining 82.8% of the influence was explained by other variables that were not studied in this study.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415 ^a	.172	.128	2.568

a. Predictors: (Constant), Transport Service Quality (X5), Comfort (X2), Accesibility (X1), Connectivity (X4), Safety (X3)

b. Dependent Variable: Visit Decisions (Y)

T Test Results (Partial Significance Test)

Similarly to simultaneous tests, the alpha level used in the partial significance test is 5% or 0.05, where when the significance of the variable is higher than alpha, then the variable does not significantly affect the dependent variable. In this study, it was found that the variables Accessibility, Convenience, Security, and Connectivity had a significance value higher than 0.05, thus showing that these four independent variables did not significantly affect the Visiting Decision variable.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.570	1.913		9.187	.000
	Accessibility (X1)	-.042	.111	-.048	-.380	.705
	Comfort (X2)	-.166	.256	.096	.650	.517
	Safety (X3)	-.325	.208	-.246	-1.563	.122
	Connectivity (X4)	-.057	.237	-.031	-.239	.812
	Transport Service Quality (X5)	.692	.185	.536	3.750	.000

a. Dependent Variable: Visit Decisions (Y)

The Transportation Service Quality variable itself has a significance value of 0.000, which is below 0.05, thus indicating that the independent variable influences the Visiting Decision variable significantly. From the results of the data processing above, it was found that if together, all independent variables have a significant influence on the dependent variable, which shows a correlation between all variables in the study.

DISCUSSION

Based on the results of data analysis, it can be seen that Factors that influence transportation infrastructure on visiting decisions, namely:

Accessibility Factors

Accessibility factors did not have a significant effect on visiting decisions. This can be seen from the results of the partial significance test (T test), where the accessibility significance score is 0.705, greater than alpha 0.05. Based on the third question item in the questionnaire, 40.2% of respondents strongly agree that tourist destinations in East Java can be reached using public and private transportation, so the accessibility factor is not a factor that is too considered by tourists in the process of determining visiting decisions. This is in accordance with the results of research from Suwanto and Daulay, this is because the existing accessibility in East Java is quite adequate, especially support between regions where accessibility is one of the important aspects that support tourism development because it involves cross-sectoral development. While research from Maski and Bawono is very influential because

it is very influential on tourist visits (Suwanto, 2019) (Daulay, 2022) (Maski et al., 2024) (Bawono, 2020)

Comfort Factor

The comfort factor also did not have a very significant influence on visiting decisions, with a significance score greater than alpha 0.05, which is 0.517. This is supported by the results of question where 36.6% of respondents agreed that the information provided by transportation services is complete, thus ensuring the comfort of tourists who will visit. The results of this study differ from research by Carreira and Karimi (Carreira et al., 2014) (Karimi & Mohammad, 2022), the comfort factor that has the strongest impact on experience outcomes, which suggests that transportation providers should maintain a strong focus on providing core services of good convenience.

Safety Factor

The significance score value belonging to the safety factor was 0.122, indicating that this factor did not have a significant influence on the decision to visit. Respondent data also supports this statement through question number eight, where 32.1% of respondents agree that the security and comfort facilities for visitors provided by tourist attractions in East Java are good. This research is different from Maski and Murniati where safety is a very important factor for tourist visits. (Maski et al., 2024) (Murniati, 2023)

Connectivity Factors

Just like the previous factors, the connectivity factor also has a greater significance value than alpha 0.05, which is 0.812. Respondent data also showed 33.9% of respondents who agreed that the road infrastructure between one tourist attraction and another attraction was adequate, making it easier for tourists to mobilize. In addition, an adequate digitalization system is very helpful in visiting decisions for tourists to increase visits to destinations in the East Java region. Unlike the research from Melintari, this is because there are several infrastructures that still need to be improved. (Hakim, 2017)

Service Quality Factor

The service quality factor is the only factor with a significance value below 0.05, with a score of 0.000. This makes the service quality factor the only research variable that has a significant influence on the decision to visit tourists to East Java. Where tourist attractions in East Java provide friendly services to tourists. Followed by where 40.2% of respondents agreed that transportation services in Java still need to be improved by standardizing services, training programs to improve employee performance, making standardized business management in their fields. (Tregear, 2014) (Priyanto et al., 2023)

The influence of each transportation infrastructure factor on increasing visiting decisions are:

From the results of the analysis that has been carried out, the Service Quality factor is the most influential factor in the decision to visit with a fairly high value, this can be the main reference in determining strategies to increase tourist visits. Meanwhile, accessibility, comfort, security, and connectivity factors have a minimal partial significance influence on the increase in the decision to visit East Java. Based on Simultaneous Influence: Simultaneously, the factors of overall transportation infrastructure have a significant influence on the decision to visit tourists. This means that factors are more often considered simultaneously as a whole, rather than as different variables.

Strategies that can be done are:

Improved Transportation Accessibility

This can be done by means of first, Development of Transportation Routes and Networks, second, optimization of public transportation. Third Digital Infrastructure: Develop a digital platform that

provides complete information about transportation routes, schedules, and availability of transportation modes in real-time.

Improved Transportation Convenience:

That is the modernization of the transport fleet. The second provides Supporting Facilities: Provide supporting facilities such as air conditioning, comfortable seats, Wi-Fi access, and adequate parking areas at departure and arrival points. Third Excellent Service: Improve service quality through training for transportation officers to be more friendly and responsive to the needs of tourists.

Enhanced Security:

That is by creating an Integrated Security System in all modes of transportation. Second, Socialization and Education to tourists regarding safety procedures and measures to be taken in an emergency. Third Cooperation with Law Enforcement

Improved Intermodal Connectivity:

Namely by means of Transportation Mode Integration: Building an integration system that allows travelers to move between modes of transportation (such as buses, trains, and ships) easily and without obstacles. Second, the Development of an Integrated Terminal that combines various modes of transportation in one location. Third, an Integrated Ticketing System that allows travelers to purchase one ticket for an entire trip covering multiple modes of transportation.

Improving the Quality of Transportation Services

Namely the creation of high Transportation Service Standards to ensure the comfort and satisfaction of tourists. Both Feedback and Evaluation can provide input on service quality, which is then used to evaluate and improve continuously. Third Service Innovation: Implementing the latest technology such as mobile applications for ticket booking, real-time tracking, and travel information to improve the traveler experience.

CONCLUSION

Based on the results of the study, it can be concluded that the Transportation Service Quality factor is the main factor that influences the decision to visit to travel in East Java To be able to improve the decision to visit tourists to East Java, several appropriate strategies are needed, namely Improving the Quality of Transportation Services, maintaining the existing quality and continuing to improve the factor Others are in Accessibility, Comfort, Security, Connectivity. In addition, the need for better transportation infrastructure development so that it will attract more tourists and also ensure the safety, comfort, and experience of tourists during visits, and also contribute to improving the decision of other tourists to visit East Java. To achieve good transportation infrastructure, an equitable development strategy is needed, and transportation infrastructure also needs to be supported by the collaboration of all parties, namely the government, the private sector, and the community to be able to achieve sustainable and quality transportation infrastructure development. The implementation of the above strategies is expected to increase the decision of tourists to visit East Java.

OPEN DATA

This data can be accessed on <https://data.mendeley.com/datasets/ftfwx7bd84/1>

AUTHOR CONTRIBUTION

Conceptualization, M.M, and P.P.W.; methodology, M.M. and P.P.W.; validation, M.M.; formal analysis, M.M., and P.P.W.; investigation, M.M., and P.P.W.; writing—original draft preparation, M.M., and P.P.W.; writing—review and editing, M.M., and P.P.W.; supervision, M.M.; funding acquisition, M.M. All authors have read and agreed to the published version of the manuscript.

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