JISS Journal of Indonesian Social Science

Vol. 5, No. 4, April 2024
E-ISSN: 2723 – 6692
P-ISSN: 2723 – 6595
http://jiss.publikasiindonesia.id/

A Comprehensive Analysis of Public Choices in Mass Transport and Assessing Development Challenges in The Transportation Sector

Ipoeng Martha Marsikun, Paulus Israwan Setyoko, Hikmah Nuraini, Muslih Faozanudin, Denok Kurniasih
Universitas Jenderal Soedirman Purwokerto, Indonesia
Email: ipoeng.marsikun@mhs.unsoed.ac.id
Correspondence: ipoeng.marsikun@mhs.unsoed.ac.id*

KEYWORDS
Public Preferences; Mode of Transportation; Banyumas Regency

ABSTRACT
The primary objective of this research is to investigate public transportation governance in Banyumas Regency using the New Public Management (NPM) paradigm, with the aim of enhancing efficiency and effectiveness. The study focuses on understanding the factors that influence people's preferences for public transportation modes, particularly in relation to availability, cost, comfort, safety, and environmental concerns. The research also aims to address the challenges associated with the perception of private vehicles as status symbols, recognizing their impact on economic and societal development. The study employs quantitative methods and the SmartPLS4 analysis tool to uncover significant findings regarding the positive impacts of availability and comfort on preferences and the varying influences of cost, environment, and security. The ultimate goal is to provide insights that can inform the development of transportation policies, promoting effectiveness and alignment with the community's needs in Banyumas Regency.

1. Introduction

Transportation is transporting goods or people using various types of transportation geographically (Steenbrink, 1974). Transportation has a vital role in shaping the face and development of a region in the long run as a formative power. The role of transportation includes support for other sectors and as a driver to open up regional isolation. In addition, transportation also plays a role in supporting the community's economic growth by facilitating the movement of goods and people, which can increase the economic value of an area (Adisasmita, 2012).

Analysis of factors influencing people's preference towards mass transportation in Indonesia is considered necessary for understanding the challenges and opportunities associated with its implementation (Cannas et al., 2020). By identifying and addressing these factors, policymakers can

develop strategies to promote public transit, increase mobility, reduce congestion, and make mass transportation safer, more convenient, and more sustainable (Miller et al., 2016).

The congestion problem in a region's governance not only impacts the community's socio-economic problems but also causes public problems such as the obstruction of public transportation services, health services, and transportation of waste from the community. Congestion can also damage public trust, so the government is responsible for providing services to solve congestion problems (Nasution, 2004).

The development of the transportation sector is closely related to infrastructure development, such as toll roads, airports, monorails, and freight transportation systems at ports. However, it should be acknowledged that not all infrastructure development can fully solve transportation problems in Indonesia. A study conducted by transportation infrastructure experts at the Bandung Institute of Technology (ITB) shows that although infrastructure development can improve the transportation system, it is only sometimes an absolute solution. There are several complex and dynamic factors involved in transportation problems, including people's movement patterns, transportation policies, and social and economic aspects (Savitri, 2022).

Thus, while infrastructure development can significantly contribute, it is essential to consider its other aspects and investigate holistic solutions involving various areas, including traffic management policies, regulations, and public awareness. Policies issued by the Government must also be in line with the program proclaimed. For example, the bus ride program or returning to public transportation will have a more positive impact if accompanied by incentives for purchasing public transportation units, not even incentives given to private vehicles. This means that transportation infrastructure development must be integrated with a broader and integrated approach to achieve increased efficiency and effectiveness of the transportation system in Indonesia.

Table 1 Types of Transport

No	Types Of Transport	Number Of Fleets		Passenger Capacity
		2021	2022	Perritase
1	Intercity Between Provinces (Antar Kota Antar Propinsi/AKAP)	50	47	1.510
2	Intercity within Provinces (Antar Kota dalam Propinsi/AKDP)	421	413	8.640
3	Bus Rapid Transit Trans Banyumas (BRT Trans Banyumas)	0	52	2.080
4	Urban Transport (Angkutan Perkotaan/Angkot)	328	294	4.300
5	Rural Transport (Angkutan Pedesaan (Angkudes)	596	596	5.654
6	Taxi	46	46	848
7	Travel shuttle transportation	106	106	848
8	Tourism Transport (7 operators)	125	125	2.700
9	Bus Rapid Transit Trans Central Java (BRT Trans Jateng)	14	14	560

Total	1.686	1.693	27.140

Source: Banyumas Regency Transportation Office 2023

However, this condition also has a negative impact in the form of increased traffic density and congestion, especially on the main roads leading to the city center and industrial areas. The 2022 survey by the Banyumas Regency Transportation Office shows that the average traffic density level on national roads and main roads has reached 0.8 (0.8 degree of saturation), close to the congestion threshold. During peak hours, congestion points generally occur around Purwokerto, Purwareja Klampok, Wangon, and the city center (source: Banyuma Regency Transportation Offices).

Most previous studies have focused more on user characteristics such as age, gender, and income in examining transportation mode preferences (Chowdhury et al., 2018; Ho et al., 2020; Ismail et al., 2012; Matubatuba & De Meyer-Heydenrych, 2022). Even so, comprehensive research has yet to be done on public transportation mode preferences in the Banyumas Regency (Putro et al., 2022).

The research findings are expected to provide a comprehensive picture of the factors of Banyumas people's preferences in choosing transportation modes so that they can be used as recommendations for the Banyumas Regency Government and public transportation operators in formulating policies and strategies to improve the quality of public transportation services according to user preferences. Thus, public transportation is expected to be an efficient, environmentally friendly mode of transportation and reduce traffic congestion and exhaust emissions of motorized vehicles in the Banyumas Regency. This research is an integral part of supporting the development of intelligent transportation systems in Banyumas Regency, which is a step toward the concept of a smart city in the future (Marsikun et al., 2023).

2. Materials and Methods

The research method employed in this study utilizes a quantitative approach with a cluster random sampling technique. The research location is in Banyumas Regency, with the object of research involving users of transportation modes in the Regency consisting of 27 Districts with divisions into 10 Clusters. The study population includes people who use transportation modes in Banyumas Regency in 2022, with 3,267,059 users or passengers. The sampling method used is cluster random sampling using the Slovin formula to determine the sample size. Based on calculations, the minimum sample size required is 400 respondents, data analysis used with SmartPLS4 analysis applications.

3. Results and Discussions

Research Results

The data obtained from the study conducted in January 2024 includes 535 respondents. After the data cleansing process, the number of respondents that can be considered reaches 480, spread across ten sampling areas or clusters. A total of 55 respondents were removed from the analysis because they were considered not eligible for age, i.e., under 17 years old. To expand the coverage area, additional respondents were involved in Wangon Terminal, covering the Lumbir and Rawaheng areas; Ajibarang Terminal, covering the northern part of Ajibarang and Pekuncen; and Karanglewas

Terminal, covering the Kedungbanteng and Karanglewas Kidul areas. The results of the addition of respondents are then recorded as follows:

Table 2 Number of Respondents

Cluster Sampling	Respondent	Target	Difference	%
Bulupitu Terminal	81	80	1	17%
Karanglewas Terminal	54	40	14	11%
Sokaraja Terminal	53	40	13	11%
Ajibarang Terminal	52	40	12	11%
Wangon Terminal	49	40	9	10%
Baturraden Terminal	47	40	7	10%
Pasarpon Terminal	37	30	7	8%
Bulupitu Terminal	37	30	7	8%
Notog Patikraja Terminal	36	30	6	8%
Banyumas Lama Terminal	34	30	4	7%
Total Respond	480	400	80	100%

Source: Primary Data of Research Results, January 2024

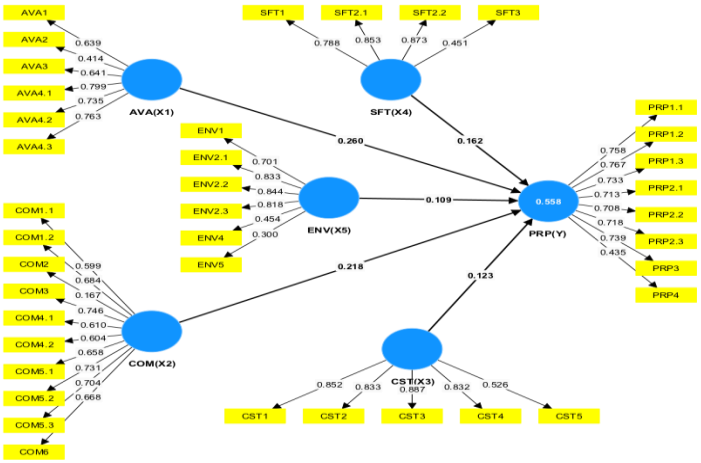
Discussion

The Banyumas Regency has experienced increased economic activity and population growth recently. According to BPS data, in 2022, the population reached 1,806,013 people, with a growth rate of 0.91% per year. Economic growth reached 5.86% in 2022, exceeding the local government's target and Central Java's economic growth rate. The trade, hotel, and restaurant sectors are driving economic growth. The positive impact of economic and population growth can be seen in the increase in the needs and activities of the movement of people and goods in Banyumas Regency. Data shows there are 879,023 units of vehicles in operation, including passenger cars, buses, freight cars, motorcycles, and special vehicles (Source: korlantas.polri.go.id).

Analysis of Research Results

1. Results of Measurement Model Analysis (Outer Model)

The outer loadings assessment assesses the correlation between the score item or indicator and its construct score, which shows a statement item's validity level. Outer loadings testing is carried out based on the results of questionnaire trials that have been carried out for all research variables. There are stages of testing with data analysis techniques to assess outer loadings, namely individual item reliability, internal consistency reliability, average variance extracted, discriminant validity, and Variant analysis (R2) or Determination Test. There are the following Variable descriptions: 1. AVA: Availability, 2.COM: Comfort, 3. CST: Cost, 4. SFT: Safety, 5. ENV: Environment and 6. PRP: Public Preference.



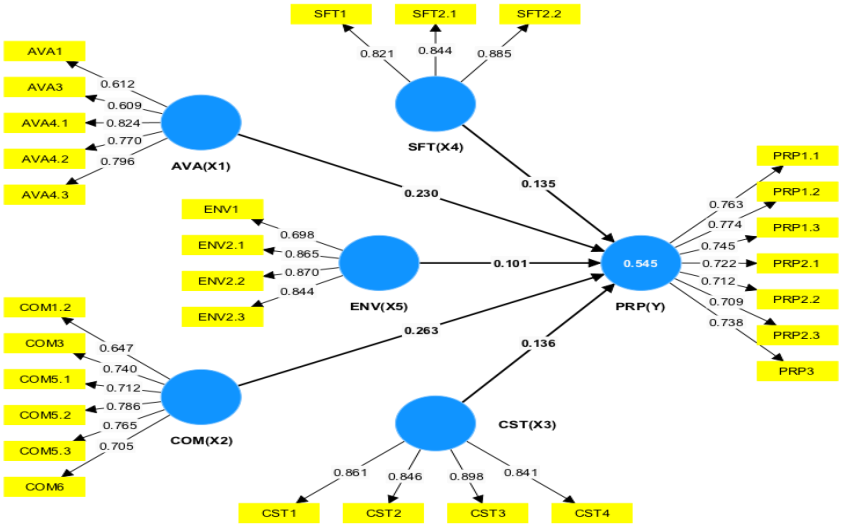
Testing is done by looking at the value of the Standardized Loading Factor. The value describes the magnitude of the correlation between indicators and variables. If there is a value above 0.7, it can be considered valid as an indicator to measure variables, but if there is a value above 0.6, it can still be used as a minimum standard (Henseler et al., 2009). After testing, eight indicators have values below 0.6, namely, AVA2, COM1.1, COM2, CST5, SFT3, ENV4, ENV5, and PRP4 so that these indicators are removed, but the variables from the indicators that have been eliminated are still used because other variable indicators still represent them. Retesting is carried out by looking at the value of the Standardized Loading Factor used to see the criteria for values that can be valid with values above 0.7 as an indicator to measure variables, but if there are values above 0.6 as the minimum limit value. Overall, judging from the value in the figure above, it is fully qualified, which is above 0.6. Next, look at the value of Average Variance Extracted (AVE) as follows:

Table 3 Average Variance Extracted (AVE) Test Result

Variable	Average Variance Extracted (AVE)
Availability	0.531
Comfort	0.467
Cost	0.743
Safety	0.723
Environment	0.677
Public Preference	0.723

Source: Primary Data of Research Results, January 2024.

The table above shows that the Average Variance Extracted (AVE) value with a minimum standard value above 0.5 is valid. However, in the Comfort indicator with a value of 0.467, judging from this value cannot be continued, it must eliminate the value on the lowest Comfort indicator, namely the COM1.2, COM4.1, and COM4.2 indicators.



Source: Primary Data of Research Results, January 2024.

Retesting is done after eliminating unqualified indicators by looking at the value of the Standardized Loading Factor. The correlation value between indicators and variables is valid and can be used. The values for each variable indicator can be seen in the table below.

Table 4 SmartPLS Loading Factor Test Results

Indikator	Availability	Comfort	Cost	Safety	Environment	Public Preference
AVA1	0.612					
AVA3	0.609					
AVA4.1	0.824					
AVA4.2	0.770					
AVA4.3	0.796					
COM1.2		0.647				
COM3		0.740				
COM5.1		0.712				
COM5.2		0.786				
COM5.3		0.765				
COM6		0.705				
CST1			0.861			
CST2			0.846			
CST3			0.898			
CST4			0.841			
SFT1				0.821		
SFT2.1				0.844		
SFT2.2				0.885		

ENV1	0.698	
ENV2.1	0.865	
ENV2.2	0.870	
ENV2.3	0.844	
PRP1.1		0.763
PRP1.2		0.774
PRP1.3		0.745
PRP2.1		0.722
PRP2.2		0.712
PRP2.3		0.709
PRP3		0.738

Source: Primary Data of Research Results, January 2024

1. Internal Consistency Reliability

This study used a composite reliability value with a threshold of 0.7, as indicated by Henseler et al. (2009). Here are the SmartPLS test results.

Table 5 SmartPLS Composite Reliability Test Results

Variable	Composite Reliability
Availability	0.848
Comfort	0.870
Cost	0.920
Environment	0.893
Public Preference	0.893
Safety	0.887

Source: Primary Data of Research Results, January 2024.

The table above shows a Composite Realibility value above 0.7, valid in the Composite Realibility test.

2. Average Variance Extracted (AVE)

Convergent validity testing by looking at the average variance extracted (AVE) value column. AVE value to show the amount of variance in a variable that is in a latent variable. The minimum standard AVE value of 0.5 indicates a good measure of convergent validity (Henseler et al., 2009). Here are the test results from SmartPLS.

Table 6 SmartPLS Average Variance Extracted (AVE) Tets Results

Variable	Average Variance Extracted (AVE)
Availability	0.531
Comfort	0.529

Cost	0.743
Environment	0.677
Public Preference	0.545
Safety	0.723

Source: Primary Data of Research Results, January 2024.

Table 25 shows that the Average Variance Extracted (AVE) value is above 0.5, so it can be said to be valid, and there are no problems in AVE testing.

3. Uji Discriminant Validity

The test uses cross-loading, where the Average Variance Extracted root values will be compared. Cross-loading is a statistical tool used to assess the correlation between one indicator and another in a variable. A higher correlation between indicators and constructs indicates a superior value compared to other indicators. Below are the test results obtained by SmartPLS.

***Table 7* SmartPLS Discriminant Validity Test Results**

	Availability	Comfort	Cost	Safety	Environment	Public Preference
AVA1	0.612	0.469	0.431	0.432	0.371	0.484
AVA3	0.609	0.475	0.384	0.364	0.305	0.414
AVA4.1	0.824	0.530	0.488	0.415	0.525	0.466
AVA4.2	0.770	0.481	0.497	0.383	0.486	0.461
AVA4.3	0.796	0.517	0.496	0.399	0.519	0.458
COM1.2	0.434	0.647	0.309	0.426	0.466	0.428
COM3	0.635	0.740	0.670	0.632	0.653	0.617
COM5.1	0.416	0.712	0.391	0.513	0.372	0.422
COM5.2	0.445	0.786	0.456	0.538	0.416	0.476
COM5.3	0.479	0.765	0.475	0.501	0.449	0.449
COM6	0.515	0.705	0.465	0.449	0.485	0.487
CST1	0.567	0.573	0.861	0.549	0.566	0.487
CST2	0.502	0.499	0.846	0.486	0.492	0.493
CST3	0.545	0.595	0.898	0.573	0.589	0.554
CST4	0.579	0.581	0.841	0.569	0.548	0.541
SFT1	0.594	0.613	0.710	0.821	0.650	0.570
SFT2.1	0.360	0.584	0.388	0.844	0.495	0.456
SFT2.2	0.423	0.609	0.473	0.885	0.512	0.490
ENV1	0.410	0.428	0.487	0.437	0.698	0.439
ENV2.1	0.570	0.630	0.613	0.615	0.865	0.537
ENV2.2	0.536	0.574	0.526	0.567	0.870	0.508
ENV2.3	0.483	0.542	0.459	0.532	0.844	0.456
PRP1.1	0.471	0.524	0.450	0.496	0.449	0.763
PRP1.2	0.482	0.506	0.387	0.441	0.415	0.774

PRP1.3	0.500	0.495	0.579	0.479	0.453	0.745
PRP2.1	0.488	0.539	0.558	0.459	0.485	0.722
PRP2.2	0.405	0.451	0.317	0.418	0.407	0.712
PRP2.3	0.430	0.452	0.369	0.393	0.393	0.709
PRP3	0.476	0.491	0.413	0.405	0.446	0.738

Source: Primary Data of Research Results, January 2024.

The table above shows that the value of the construct in bold is more excellent than the value not in bold. Thus, the research model used already has good characteristics in the tests.

4. Variant Analysis (R2) or Determination Test

Variant Analysis (R2) or the Determination test determines the amount of influence the independent variable has on the dependent variable. Here are the results of SmartPLS testing.

Table 8 SmartPLS R-square value result

Variable	R Square
Public Preference	0.545

Source: Primary Data of Research Results, January 2024.

Based on the table above, the R-square value shows that the Public Preference variable is 54.5%, with the rest of the variable's value influenced by other factors. Based on these results, the research model carried out has qualified to be continued on structural model testing (inner model).

Results of Measurement Model Analysis (Inner Model)

Structural Model Testing (Inner Model) includes parameter coefficients, t-statistics, and p-values to see if a hypothesis is acceptable or rejected. This study tested hypotheses using SmartPLS software. This value is seen from the bootstrapping results. The rules of thumb used in this study are t-statistics >1.96, a significance level of p-value of 0.05, and a positive coefficient. The results of this study can be seen in the table below.

Table 9 Path Coefficients SmartPLS Result

Hipotesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Availability -> Public Preference	0.230	0.229	0.049	4.730	0.000
Comfort -> Public Preference	0.263	0.265	0.053	4.967	0.003
Cost -> Public Preference	0.136	0.139	0.074	1.826	0.065

Environment -> Public Preference	0.101	0.097	0.063	1.593	0.116
Safety -> Public Preference	0.135	0.137	0.055	2.463	0.003

Source: Primary Data of Research Results, January 2024.

1. Availability towards Public Preference

After testing the hypothesis above, the Availability variable significantly affects the Public Preference for transportation modes in Banyumas Regency. Where the results of calculating SmartPLS Availability show that the Original Sample is 0.230, the Sample Mean is 0.229, the standard deviation is 0.049, and p values are 0.000, it can be concluded that Availability affects the Public Preference of transportation modes in Banyumas Regency. This aligns with the previous hypothesis that H1 = Availability affects public preference positively and significantly. The mode of transportation in Banyumas Regency is relatively easy, and often, the availability of a service is so that the community feels fulfilled regarding the availability of transportation modes in Banyumas Regency. The results of this study are in line with research from (Cattaneo et al., 2018; Tuffour & Asiama, 2023), which states that Availability is a factor that can influence people's preferences in choosing public transportation modes from students' attitudes towards mobility in choosing transportation modes sustainably and Ghanaian city public preferences in choosing public transportation.

2. Comfort towards Public Preference

After testing the hypothesis above, it shows that the Comfort variable significantly affects the Public Preference of transportation modes in Banyumas Regency. Where the SmartPLS Comfort calculation results show that the Original Sample is 0.263, the Sample Mean is 0.265, the standard deviation is 0.053, and p values are 0.000, it can be concluded that Comfort affects the Public Preference of transportation modes in Banyumas Regency. This aligns with the previous hypothesis that H2 = Comfort positively and significantly affects public preference. The mode of transportation in Banyumas Regency is comfortable, so people feel fulfilled in terms of comfort. This study's results align with Batarce et al., (2015). Comfort in public transportation in terms of passenger density and transportation mode facilities significantly affects the utility of transportation modes in Santiago, Chile. In addition, research by Soza-Parra et al. (2019). Service reliability in improving the comfort of transportation modes almost always plays a vital role in the satisfaction and choice of transportation modes.

3. Cost towards Public Preference

After testing the hypothesis above, it shows that the Cost variable does not significantly affect the Public Preference for transportation modes in Banyumas Regency. Where the results of calculating SmartPLS Cost show that the Original Sample is 0.136, the Sample Mean is 0.139, the standard deviation is 0.074, and p values are 0.068, it can be concluded that Cost does not affect the Public Preference of transportation modes in Banyumas Regency. This contradicts the previous hypothesis that H3 = Cost affects Public Preference positively and significantly. The sign of a positive coefficient on Cost means that the condition of Cost in transportation modes in Banyumas Regency

on tariff affordability, tariff competitiveness, tariff suitability, and price with benefits does not affect the preferences of the people of Banyumas Regency. People do not consider the cost of using transportation modes and tend to prefer comfort and safety in the Banyumas Regency. The results of this study are in line with research from Alessandrini et al., (2014), Where public preference shows a relatively high number when supported in terms of facilities, but based on economics does not show significance for the choice of transportation modes based on the results of European surveys. However, the results of this study are different from the research (Goulas et al., 2023), where the cost affects the choice of mode of transportation in Athens. This study is also reviewed based on transportation provided free of charge.

4. Safety Towards Public Preference

After testing the hypothesis above, it shows that the Safety variable significantly affects the Public Preference of transportation modes in Banyumas Regency. Where the results of the SmartPLS Safety calculation show that the Original Sample is 0.135, the Sample Mean is 0.137, the standard deviation is 0.055, and p values are 0.014, it can be concluded that Safety affects the Public Preference of transportation modes in Banyumas Regency. This contradicts the previous hypothesis that H4 = Safety positively and significantly affects Public Preference. The sign of a positive coefficient on Safety means that the Safety conditions in transportation modes in Banyumas Regency on travel safety, safety in waiting places, and fearlessness on the way are suitable based on the preferences of the people of Banyumas Regency. The mode of transportation in Banyumas Regency is relatively safe, so people do not hesitate to use transportation modes in Banyumas Regency.

The results of this study show similarities and a significant influence of transportation safety on public preferences, and this is very common because safety is the main factor of a fleet or mode of transportation to be used, especially the selection of transportation modes with a high level of security dramatically affects people's preferences in using public transportation (Chai et al., 2022; Jain et al., 2014).

5. Environment Towards Public Preference

After testing the hypothesis above shows that the environmental variable has no significant effect on the Public Preference of transportation modes in Banyumas Regency. Where the results of the SmartPLS Environment calculation show that the Original Sample is 0.101, the Sample Mean is 0.097, the standard deviation is 0.055, and p values are 0.112, it can be concluded that the Environment does not affect the Public Preference for transportation modes in Banyumas Regency. This contradicts the previous hypothesis that H5 = Environment positively and significantly affects Public Preference. The sign of a positive coefficient in the Environment means that the condition of the Environment in transportation modes in Banyumas Regency on environmental concerns, environmentally friendly products, price-friendly products, and product brand image does not affect the preferences of the people of Banyumas Regency. People feel that the mode of transportation has yet to be distributed to environmental friendliness. Besides that, the community also needs to think about the mode of transportation used to impact the environment. Based on the analysis of this research is very contrary to research from (Ambarwati et al., 2017; Bernasconi et al., 2009), Where public preferences in choosing modes of transportation in terms of the environment are very influential. These people see automated transportation structures' visual strengths and weaknesses in urban environments. They can help plan similar transportation systems.

6. Availability, Comfort, Cost, Safety, and Environment Towards Public Preference

The statement refers to the results of regression analysis (or linear regression model) conducted to understand the relationship between availability, comfort, cost, environment, safety, and public preference variables. Here is an explanation of the main elements of the statement:

1. R Square (R^2) worth 0.545 > 0.50:

- R Square measures the extent to which variations in the dependent variable (in this case, Public Preference) can be explained by independent variables (Availability, Comfort, Cost, Environment, and Safety).
- The given Square value (0.545) indicates that approximately 54.5% of the variation in Public Preference can be explained by the combination of Availability, Comfort, Cost, Environment, and Safety variables in this regression model.
- The number 0.50 is often used as a lower bound to determine how well the model can account for variations in data. An R Square value greater than 0.50 indicates that the model has a good level of explanation.

2. Significant influence and moderate value:

- The statement states that the variables Availability, Comfort, Cost, Environment, and Safety significantly affect Public Preference.
- The "moderate" rating refers to interpreting the strength of the relationship between these variables and the Public Preference. According to Harahap (2020), the criterion "moderate" is used to describe relationships that are strong enough or relevant. Judging from the medium criteria, according to Harahap (2020), if = or > 0.50:
- The statement refers to the criteria or standards used by Harahap in 2020 to assess the strength of the relationship/regression.

In this context, an R Square value equal to or greater than 0.50 is considered an indicator that the variables Availability, Comfort, Cost, Environment, and Safety have a strong enough influence on Public Preference. So, in conclusion, the results show that the variables Availability, Comfort, Cost, Environment, and Safety have a significant and moderate effect on Public Preference, as measured by an R Square value greater than 0.50.

4. Conclusion

Conclusion of data from research on public preferences for transportation modes in (Banyumas Regency: 1) Availability: The positive coefficient on Availability shows that fleet availability, ease of use, and fleet completeness in Banyumas Regency are suitable according to community preferences. However, it is necessary to update the fleet, especially in certain areas/routes with old/expired vehicles. 2) Comfort: The positive coefficient of Comfort shows that the convenience of access, transactions, and transportation benefits in Banyumas Regency are suitable according to community preferences. However, high congestion during rush hour can create inconvenience, and adjusting the headway/distance between buses during rush hour is necessary. 3) Cost: The positive coefficient indicates that the cost increase does not influence people's preferences positively. Affordability and fare competitiveness are not significant factors, with preference more likely to be influenced by travel comfort and safety. 4) Safety: A positive coefficient on Safety indicates that a higher safety level positively influences people's preferences in Banyumas Regency. Maintenance and improvement of safety can be an effective strategy to increase public acceptance of transportation modes. 5)

Environment: Environment variables do not significantly affect Community Preferences in Banyumas Regency. People do not perceive the significant contribution of modes of transportation to the environment, and environmental impact is not a significant consideration in shaping preferences for modes of transportation.

With these findings, the analysis provides valuable insights into the factors influencing people's preference for transportation modes in Banyumas Regency. Recommendations include fleet renewal, increased comfort during peak hours, evaluation of fare policies, and improved safety as strategies to increase public acceptance of transportation services.

5. References

Adisasmita, S. A. (2012). *Perencanaan Infrastruktur Transportasi Wilayah* (1st ed., Vol. 1). Graha Ilmu.

Alessandrini, A., Alfonsi, R., Site, P. D., & Stam, D. (2014). Users' Preferences towards Automated Road Public Transport: Results from European Surveys. *Transportation Research Procedia*, *3*, 139–144. https://doi.org/10.1016/j.trpro.2014.10.099

Ambarwati, L., Verhaeghe, R., Arem, B. van, & Pel, A. J. (2017). Assessment of transport performance index for urban transport development strategies — Incorporating residents' preferences. *Environmental Impact Assessment Review*, *63*, 107–115. https://doi.org/10.1016/j.eiar.2016.10.004

Batarce, M., Muñoz, J. C., de Dios Ortúzar, J., Raveau, S., Mojica, C., & Ríos, R. A. (2015). Use of Mixed Stated and Revealed Preference Data for Crowding Valuation on Public Transport in Santiago, Chile. *Transportation Research Record: Journal of the Transportation Research Board*, *2535*(1), 73–78. https://doi.org/10.3141/2535-08

Bernasconi, C., Strager, M. P., Maskey, V., & Hasenmyer, M. (2009). Assessing public preferences for design and environmental attributes of an urban automated transportation system. *Landscape and Urban Planning*, *90*(3–4), 155–167. https://doi.org/10.1016/j.landurbplan.2008.10.024

Cannas, V. G., Ciccullo, F., Pero, M., & Cigolini, R. (2020). Sustainable innovation in the dairy supply chain: enabling factors for intermodal transportation. *International Journal of Production Research*, *58*(24), 7314–7333. https://doi.org/10.1080/00207543.2020.1809731

Cattaneo, M., Malighetti, P., Morlotti, C., & Paleari, S. (2018). Students' mobility attitudes and sustainable transport mode choice. *International Journal of Sustainability in Higher Education*, *19*(5), 942–962. https://doi.org/10.1108/IJSHE-08-2017-0134

Chai, N., Zhou, W., & Hu, X. (2022). Safety evaluation of urban rail transit operation considering uncertainty and risk preference: A case study in China. *Transport Policy*, *125*, 267–288. https://doi.org/10.1016/j.tranpol.2022.05.002

Chowdhury, Md. S., Osman, Md. A., & Rahman, Md. M. (2018). Preference-Aware Public Transport Matching. *2018 International Conference on Innovation in Engineering and Technology (ICIET)*, 1–6. https://doi.org/10.1109/CIET.2018.8660857

Goulas, E., Kontaxi, A., & Yannis, G. (2023). Free Public Transport in Athens: a stated preference approach. *Transportation Research Procedia*, *72*, 926–932. https://doi.org/10.1016/j.trpro.2023.11.519

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). *The use of partial least squares path modeling in international marketing* (pp. 277–319). https://doi.org/10.1108/S1474-7979(2009)0000020014

Ho, C. Q., Mulley, C., & Hensher, D. A. (2020). Public preferences for mobility as a service: Insights from stated preference surveys. *Transportation Research Part A: Policy and Practice*, *131*, 70–90. https://doi.org/10.1016/j.tra.2019.09.031

Ismail, R., Hafezi, M. H., Mohd Nor, R., & Ambak, A. (2012). Passengers preference and satisfaction of public transport in Malaysia. *Australian Journal of Basic and Applied Sciences*, *6*(8), 410–416.

Jain, S., Aggarwal, P., Kumar, P., Singhal, S., & Sharma, P. (2014). Identifying public preferences using multi-criteria decision making for assessing the shift of urban commuters from private to public transport: A case study of Delhi. *Transportation Research Part F: Traffic Psychology and Behaviour*, *24*, 60–70. https://doi.org/10.1016/j.trf.2014.03.007

Marsikun, I. M., Zaelani, A., Faozanudin, M., & Kurniasih, D. (2023). Implementasi Program Buy The Service Kementerian Perhubungan Pada Transportasi Massal Di Kabupaten Banyumas. *Innovative: Journal of Social Science Research* , *3*(2), 5167–5180.

Matubatuba, R., & De Meyer-Heydenrych, C. F. (2022). Moving towards smart mobility: Factors influencing the intention of consumers to adopt the bus rapid transit (BRT) system. *Cogent Business & Management*, *9*(1). https://doi.org/10.1080/23311975.2022.2089393

Miller, P., de Barros, A. G., Kattan, L., & Wirasinghe, S. C. (2016). Public transportation and sustainability: A review. *KSCE Journal of Civil Engineering*, *20*(3), 1076–1083. https://doi.org/10.1007/s12205-016-0705-0

Nasution, M. N. (2004). *Manajemen Transportasi* (2nd ed., Vol. 1). Ghalia Indonesia.

Putro, P. A., Malkhamah, S., & Muthohar, I. (2022). Konektivitas danAksesibilitas Bus Trans Banyumas Berdasarkan Persepsi Pengguna. *Journal of Syntax Literate*, *7*(9).

Savitri, F. N. (2022, February 15). *Tantangan Pembangunan Infrastruktur Transportasi Berkelanjutan di Indonesia*. Institut Teknologi Bandung. https://www.itb.ac.id/berita/tantangan-pembangunan-infrastruktur-transportasi-berkelanjutan-di-indonesia/56543

Soza-Parra, J., Raveau, S., Muñoz, J. C., & Cats, O. (2019). The underlying effect of public transport reliability on users' satisfaction. *Transportation Research Part A: Policy and Practice*, *126*, 83–93. https://doi.org/10.1016/j.tra.2019.06.004

Steenbrink, P. A. (1974). Transport network optimization in the Dutch integral transportation study. *Transportation Research*, *8*(1), 11–27. https://doi.org/10.1016/0041-1647(74)90014-8

Tuffour, M., & Asiama, R. K. (2023). Public transport preferences amongst Ghana's urban dwellers. *International Journal of Social Economics*, *50*(3), 419–435. https://doi.org/10.1108/IJSE-05-2022-0360