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Strategy To Improve Community Behavior Using Sustainable Public Transportation In Makassar City

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ABSTRACT

This research aims to determine community behavior regarding the use of sustainable public transportation. Furthermore, it aims to determine the knowledge of urban ecosystems, the environment, pollution, attitudes, quality, motivation, and government policies regarding public transportation. It also ascertains the variable that becomes a strategy to sustainably improve public transportation behavior when one variable is decided for discretion by the authority. The research further aims to determine the variables that become strategies to sustainably improve behavior using public transportation when two, three, four, and five variables are decided to be considered by the authorities in Makassar City. This correlational research used the purposing sampling method to select the Tamalanrea sub-district as the sample area. The sample comprised 200 households selected by systematic random sampling method. The dependent variable is the behavior of using sustainable urban public transportation (Y), while the independent includes the knowledge of urban ecosystems (X_1), environment (X_2), public transportation (X_3), environmental pollution (X_4), public transport attitude (X_5), motivation (X_6), service quality (X_7), and government policy (X_8). All samples were administered knowledge tests and questionnaires to obtain data. The descriptive and inferential statistical analyses were used, and the model is stepwise Multiple Regression. The result showed that the people who use sustainable public transportation have low behavior. Furthermore, the knowledge about urban ecosystems, the environment, public transportation, pollution, attitudes, motivation, service quality, and government policies on public transportation is low. The government's policy is the variable that becomes a strategy to sustainably improve behavior in using public transportation when one independent variable is decided to be considered by the authorities. When two variables are considered, then government policy and the quality of public transportation services are the required strategies. In the case of three, the strategies include government policy, knowledge, and quality of public transportation services. Similarly, when four variables are independent, the government policy, knowledge, service quality, and knowledge of urban ecosystems are the required strategies. They also include government policy, service quality, motivation, and the knowledge of public transport and urban ecosystems for five independent variables.

Keywords: Government Policy, Behavior, Knowledge, Public Transport, and Ecosystems.

INTRODUCTION

Urban public transport plays an important role in achieving the objectives of community mobility. This function makes public transportation in Makassar City a crucial strategic aspect for facilitating community mobility. Amin (2009) suggests that public transit can lead to efficient and sustainable transportation.

Law Number 22 (2009) concerning Road Traffic and Transportation, Article 158 stated that the government had provided public

transportation, but private vehicle users have not completely switched, which resulted in a high congestion level. Sutandi (2015) argued that the community's active role as users of urban public transportation is very important for sustainability, maintaining the quality of life, and reducing environmental impacts. According to Schafe (1998), the existence of public transportation meets economic and social needs, providing opportunities for people to increase mobility and achieve their goals.

The research problems are as follows:

1. What is the behavior of people using sustainable public transportation in Makassar City?
2. How well-informed are the residents of Makassar City about urban ecosystems, the environment, public transportation, environmental pollution, attitudes towards motivation, service quality, and government policies on public transportation?
3. Which variable is the strategy to sustainably increase public transportation behavior when the authorities consider only one variable?
4. Which variable is the strategy to sustainably increase behavior using public transportation when two, three, four, and five variables are decided for discretion by the authorities?

LITERATURE REVIEW

According to Faizal Amir (2019), behavior is an individual's action towards the environment. Ardi (2015) suggested that environmental behavior is influenced by knowledge, attitudes, motivation, local conditions, subjective norms, beliefs, opportunities, and self-control.

Fadhilah (2018) argued that knowledge is everything known to individuals, resulting in perception, attitudes, and actions. Hamrat (2018) stated that knowledge plays an important role in environmental interaction. It consists of three components, namely cognitive, affective, and psychomotor (Suriasumantri, 2010)

Faizal Amir (2021) argued that the ecosystem is a unitary space with a reciprocal relationship between the living and non-living things and forms a system. It consists of biotic and abiotic components (Ardi, 2018). Ahmadi (2012) and Ardi (2018) reported that the environment is a living system where there is human intervention in the ecosystem order. It consists of physical, biological, and social components Ahira (2011)[13].

According to Miro (2012), transportation can be generally interpreted as an effort to move people or goods from one location to another for certain purposes by using cmeansertain. Morlok (1985) suggested that the transportation system is very important in urban life due to its effect on all fields, such as social, economic, and environmental.

Ali (2012) reported that attitude is an emotional predisposition to respond consistently to an object. Furthermore, Azwar (2013) reported that the attitude structure is divided into three mutually supportive components, namely cognitive, affective, and conative. The cognitive component is what is known and believed; the affective refers to emotion, while the conative component is the tendency to act.

Setiawan (2013) said that motivation is a potential power that exists in humans which can be developed. It consists of two parts, namely those that come from within and their external environment (Pramuditya, 2019).

According to Wahab (2008), a policy is the direction of action whose aims and objectives are set by people within the authority with the right to overcome existing problems. Tangkilisan (2007) stated that the role of the government is crucial in implementing interests and policies.

RESEARCH METHODS

This correlational research was conducted in Makassar City using Tamalanrea sub-district as the sample area selected by the purposive sampling method. The research sample comprises 200 households selected by

systematic random sampling method.

The dependent variable is the behavior of using sustainable urban public transportation (Y). The independent variables include the knowledge of urban ecosystems (X_1), environmental (X_2), public transportation (X_3), environmental pollution (X_4), attitude (X_5), motivation (X_6), service quality (X_7), and government policies (X_8). All samples were administered knowledge questionnaires to obtain data. The descriptive and inferential statistical analyses were used, and the model is stepwise Multiple Regression.

RESEARCH RESULTS AND DISCUSSION

The descriptive statistical analysis showed that people's behavior using sustainable urban public transportation is low. Furthermore, the knowledge of urban ecosystems, environment, public transportation, pollution, attitudes, motivation, service quality, and government policies are moderate.

The analysis of eight independent variables included in the first round of multiple regression stepwise models shows that the motivation to use public transport has the least contribution. Therefore, motivation was excluded from the model for the next round. In the next round, knowledge of urban ecosystems has the least contribution.

The results of the simultaneous implementation of five independent variables as a strategy to improve people's behavior using urban public transportation in the third stepwise multiple regression analysis are presented in Table 1.

Results of Stepwise Multiple Regression Analysis for Third Round Anova X_8, X_7, X_5, X_4, X_3, and X_2 Against Y

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1936.80	5	1936.80	386.56	.000[b]
	Residual	972.15	194	5.01		
	Total	2908.95	195			

a. Dependent Variable: Y

b. Predictors: (Constant), X_8, X_7, X_5, X_4, X_3, X_2

R square = .8265

B8 = 4.07; B7 = 3.37; B5 = 3.09; B4 =2,82; B3 = 2,18; B2 = 1,72

Table 1 shows that F = 0.000 < α 0.05, indicating that X_8, X_7, X_5, X_4, X_3, and X_2 have a joint effect on Y. The coefficient of determination (R^2) = 0.7925 shows that the magnitude of the effect on Y is 82.65%. Furthermore, X_2 has the least regression coefficient; hence, it was excluded from the model. It was concluded that the five independent variables that can be simultaneously applied to improve public transportation behavior are government policies, service quality, attitudes, knowledge of environmental pollution, and public transportation.

Suppose four independent variables will be implemented simultaneously as a strategy to improve people's behavior using urban public transportation. In that case, the results of the fourth stepwise multiple regression analysis are presented in Table 2.

Table 2. Results of Stepwise Multiple Regression Analysis for Fourth Round Anova X_8, X_7, X_5, X_4, and X_3 Against Y

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1936.80	5	1936.80	386.56	.000[b]
	Residual	972.15	194	5.01		
	Total	2908.95	195			

a. Dependent Variable: Y

b. Predictors: (Constant), X_8, X_7, X_5, X_4, X_3

R square = .7925

B8 = 4.11; B7 = 3.53; B5 = 3.15; B4 =2,98; B3 = 2,26

Table 2 shows that F = 0.000 < α 0.05, indicating that X_8, X_7, X_5, X_4, and X_3 have a joint effect on Y. An R^2 value of 0.7925 shows that the magnitude of the effect on Y is 79.25%. Furthermore, X_3 has the least regression coefficient; thereby, it was excluded from the model. Conclusively, the four independent variables that can be simultaneously applied to improve public transport are government policy, service quality, attitudes, and knowledge about environmental pollution.

The results of the fifth round of stepwise multiple regression analysis where three independent variables are implemented simultaneously are presented in Table 3.

Table 3. Results of Stepwise Multiple Regression Analysis for Fifth Round Anova X_8, X_7, X_5, and X_4 Against Y

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1887.32	4	1887.32	383.60	.000[b]
	Residual	959.71	195	4.92		
	Total	2847.03	196			

a. Dependent Variable: Y

b. Predictors: (Constant), X_8, X_7, X_5, X_4

R square = .735

B8 = 4.36; B7 = 3.82; B5 = 3.41; B4 =3.26

Table 3 showed that F = 0.000 < α 0.05, indicating that X_8, X_7, X_5, and X_4 have a joint effect on Y. The R^2 value of 0.7532 shows that the magnitude of the effect on Y is 75.32%. Furthermore, X_4 has the least regression coefficient; hence, it was excluded from the model. Conclusively, the three independent variables that can be applied simultaneously to improve public transportation behavior are government policy, service quality, and public transport attitudes.

The results of the sixth stepwise multiple regression analysis where two independent variables will be implemented simultaneously are presented in Table 4.

Table 4. Results of Stepwise Double Regression Analysis for the Sixth Round Anova X_8, X_7, and X_5, Against Y

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1858.36	3	1858.36	385.55	.000[b]
	Residual	946.29	196	4.82		
	Total	2804.65	197			

a. Dependent Variable: Y
b. Predictors: (Constant), X_8, X_7, X_5.
R^2= .617
B8 = 4,79; B7 = 4,17; B5 = 3,87

Table 4 showed that F = 0.000 < α 0.05, indicating that X_8, X_7, and X_5 have a joint effect on Y. R^2 value of 0.617 showed that the magnitude of the effect on Y is 61.70%. Furthermore, X_5 has the least regression coefficient; consequently, it was excluded from the model. It was concluded that the two independent variables that can be simultaneously applied to improve public transport behavior are government policy and service quality.

Table 5 presents the results of the seventh-round stepwise multiple regression analysis, which considered only one independent variables as a strategy to improve people's behavior using urban transportation.

Table 5. Results of Stepwise Multiple Regression Analysis for the seventh round (Anova X_8 and X_7 against Y)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1946.65	2	3946.65	385,47	.000[b]
	Residual	993.39	197	5.05		
	Total	2942.04	198			

a. Dependent Variable: Y
b. Predictors: (Constant), X_8, X_7
R^2= .575
B8 = 4,79; B7 = 4,17

Table 5 showed that F = 0.000 < α 0.05, indicating that X_8 and X_7 have a joint effect on Y. The R^2 value of 0.575 indicates that the magnitude of the effect on Y is 57.50%. X_7 has the least regression coefficient; subsequently, it was excluded from the model. It can be concluded that when only one independent variable is considered, it is government policy. Therefore, implementing the government's policy is necessary to ensure sustainable public transportation in Makassar City.

B. Discussion

The behavior of people who use public transportation is included in the low category and should be improved. Therefore, the Makassar government is recommended to immediately makes regulations related to road repairs, opening new roads, public transportation standards, and traffic signs. Soon, the Makassar City government will enact rules to enhance knowledge, attitudes, motivation, service quality, and policies to attain sustainable public transportation.

In addition to government policies, service quality, and public attitudes, the government must provide community-based environmental pollution, urban ecosystems,

and public transportation program. This will increase the public knowledge about the environment and urban ecosystems and help overcome environmental pollution in urban areas.

The Makassar City Government should foster people's motivation and encourage citizens to use public transportation for mobility. Moreover, fostering people's attitudes to enjoy and desire comfortable public transportation is necessary. The Makassar City Government should implement a policy that helps realize the quality of public transportation services and ensure people's comfort. Ultimately, the behavior of people who use public transportation is increased sustainably.

CONCLUSION

Conclusively, the community behavior using sustainable urban public transportation is low. They also have a low level of knowledge about urban ecosystems, environment, public transport, pollution, attitudes, motivation, service quality, and government policy on public transportation. Suppose one of the independent variables will be applied to improve people's behavior in sustainable public transportation, then it is government policy. In the case of two variables, government policy and service quality are applicable. Similarly, the three variables to improve people's behavior in sustainable public transportation are government policies, service quality, and public attitudes. In the case of four variables, government policies, service quality, public attitudes, and knowledge about environmental pollution are applicable. Finally, in the case of five independent variables, the strategies are government policy, service quality, attitudes, knowledge of environmental pollution, and public transportation.

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