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Evaluating Paratransit Transformation in Jakarta from Citizen Perspective

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Abstract

The formalization of *angkot* (paratransit) into Transjakarta network in 2018 was intended to increase coverage of reliable public transport in Jakarta, where many areas are considered transit deserts. Transjakarta rebranded *angkot* as Mikrotrans and now 82% of Jakarta residents could access reliable public transport within 500 meters from their residence. Mikrotrans aims to provide first and last-mile services for the rapid transit system in an integrated, affordable, and comfortable way. Before the pandemic in 2019, the ridership of MRT, Transjakarta, and LRT combined reached 288 million with a total Public Service Obligation of 3,1 Trillion Rupiah. However, the number of public transport modal shares was only around 20% in 2019. This study examines citizen perceptions towards the provision of reliable public transport from four variables: service quality, accessibility, customer satisfaction, and impacts. These four variables were analyzed using path analysis to see relations and significance towards the further impacts, such as economically and socially. The result shows that service quality significantly influences customer satisfaction and impacts, whereas accessibility only makes a minuscule influence.

Keywords: Minibus; Paratransit; Public Transportation; Mobility; Accessibility

2. Introduction

1.1. Background

Transportation has always been a crucial need of the people of Jakarta. To fulfill this need, the Jakarta Provincial Government is doing its best to implement a reliable and extensive transportation system throughout the city. To reach this goal, the Jak Lingko system is introduced, which integrates all existing means of public transportation. Eventually, this integration is aimed to increase people's access and comfort in transit.

The integration itself includes the physical infrastructure, services, fare, and payment, along with the data and general information on the public transportation operating in the Jakarta area. Starting with a Bus Rapid Transit (BRT) and feeder services operated by Transjakarta, the Jak Lingko expanded its coverage by including the microbus service, which is widely called *Angkot*. Furthermore, the system was getting better when the Mass Rapid Transit (MRT) and Light Rapid Transit (LRT) were included in 2019.

While comprehensive integrated public transportation is not a new thing in the world, Jakarta is proud to integrate its traditional *Angkot* into the system. This particular means of transportation has always been the frontline of Jakarta's public transportation. Compact in size while still managing a reasonable number of passengers, it becomes the best choice to serve the suburban area and dense residential area which mainly has narrow roads.

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Despite its essential role, *Angkot* has also been infamous for its problems. Unplanned routes, unstandardized and old vehicles, and incompetent drivers were some of the common issues found every day. In short, it creates its own rules, where the customer's point of view was neglected. To overcome this issue, a new approach was introduced by the Jakarta Provincial Government, where *Angkot* is standardized, including the driver competency, designated bus stops, and the fare system. Through this new approach which is branded as Mikrotrans, customer satisfaction becomes the main goal, while at the same time the rights of decent income for the drivers are fulfilled.

Eventually, the implementation of the Mikrotrans service is to ensure the fulfillment of holistic public transportation service in Jakarta. People are now well connected not only within the city centers but also to the suburban areas. Therefore, societies are inclusively well served and connected to all of the transportation needs.

1.2. Research Problem

The initiative of providing Mikrotrans as the grassroots service of the integrated Jak Lingko system has been believed to be positively affecting the life of society. However, on the other side, this system is mainly still run in a government subsidy scheme and is increasing every year. Statistically, in 2020 the total public transportation subsidy was increased by 189% within three years. This huge number of sums of money was mainly used for the expansion of the system, including the Mikrotrans. In the context of Mikrotrans, this increasing number of subsidies makes an increasing number of riders, yet does not necessarily attract new passengers to use Mikrotrans. Furthermore, this study also aims to evaluate whether the huge amount of public service obligation for public transportation (particularly in Mikrotrans) has been providing accessible, equitable, comfortable, and impactful services, as well as insights to improve Mikrotrans's daily operation.

1.3. Problems Limitation

In regards to the explanation above, this research will be focused on the service of Mikrotrans. Moreover, this research will specifically focus on society's point of view, both for those who have been the riders and those who have not tried the service yet.

This research was conducted between September to December 2021, in five administrative regions of Jakarta, namely: Central Jakarta, East Jakarta, North Jakarta, South Jakarta, and West Jakarta. The Kepulauan Seribu Regency could not be included in the research since no Mikrotrans system has yet been built in the region.

1.4. Objective and Functionality

This research is aimed to evaluate the service of Mikrotrans from the perspective of the society and user, especially in the condition before the COVID-19 pandemic outbreak. Moreover, this research also aimed to gather perspectives and input from those who have not used the service and those who decided not to use it. Eventually, this approach and research are expected to become an input for the betterment of Mikrotrans service in the future.

1.5. Research Questions

- With a more accessible service to the residential area, will the people increase their mobility behavior or frequency in using Mikrotrans service?
- What are the prerequisite conditions to convert into first-time user?
- Does the service provided by Mikrotrans meet people's expectations of quality and satisfaction?
- From people's perspective, what are the impacts perceived by the passengers?

2. Literature Review

2.1. Background

A policy can be credited as a good one when it is not only managed to be implemented but also succeed to reach the planned target dan bringing benefits to society (Cairney, 2012). In line with this theory, the Mikrotrans system is needed to be accessed whether or not it had been a good policy and brings benefits significantly to the society. While research and study about transportation have been widely conducted, the Jak Lingko and especially the Mikrotrans system are fairly new subjects to be studied. There have been several pieces of research with various angles about it, but the number is still very limited.

Referring to several previous research about Mikrotrans, the common variables assessed were customer satisfaction, priorities in transportation, and expectation for service upgrades in the future. One of the examples is Zahra et al (2020) found, that the top expectation from the customer is the punctuality of the service. This research outcome is also revealed by Arifin and Widyaningsih (2021), along with the security aspect. Regardless of those concerns, the users said they are satisfied with the service.

Since the Jak Lingko system was just launched in 2018, there has been very limited research about it, especially with a focus on the Mikrotrans service. Based on our literature review, there were only two researches that made the Jak Lingko system the main research object. However, there are a lot of other angles that can be explored with the implementation of this system. One of the important elements that have not been explored deeply is the further implications of this Jak Lingko system. As described by Jacob et al (2019), impact and implication have always been a benchmark for the success and effectiveness of a policy. Aside from impact, an in-depth examination of people's perceptions is yet to be explored, developing from the existing research variables. Although implicitly visible from the variable of customer satisfaction, it is just too general and limited where further elaboration of the impact is not explored. Similar to this, accessibility is also not yet examined, although it is very essential in terms of the range of stops and time of travel (Puspa, 2020). The last dimension that is still missed to be assessed is mobility behavior. Regardless of the quality of the existed system, the behavioral aspect also put a role in regards to any transportation picture. Expectedly, the examination of those variables above will become the input of further enhancement and lessons learned for the system.

2.2. Research Variables

Theoretically, there are vast dimensions that can be referred to for the evaluation of public transportation policy, where people's opinions are positioned at the top, both at the empirical level and based on perception. As mentioned by Puspas (2020), the main dimension which determines the quality of public transportation is accessibility. While seems different, this variable is still part of the perception. Accessibility is very subjective so perception plays a huge role in the degree of the accessibility itself. In regards to the transportation system, when access is visibly very easy, good public transportation has been met. As Litman (2017) mentioned, accessibility is about how easy people travel to their place of activities.

Other dimensions also arise in this particular research, such as fares, facilities, convenience, time of travel, and other means of transportation. These dimensions have been widely explored such as in Zhang et al (2018) and Bull et al (2020), which stated that fare is highly influencing people's preference in transportation, Kou et al (2017) with a finding that travel time plays a huge role in people's choice, and Şimşekoğlu et al (2015) which highlighted competition of services draw a significant role of people preference.

In regards to the research about Jak Lingko, most of the variables are on the preference of needs of the people towards the existing service. Therefore, it is commonly discussed punctuality and safety aspects (Zahra et al., 2020 and Arifin & Widyaningsih, 2021). However, all of those mentioned dimensions were more targeting customer's perceptions to maintain loyalty towards the service. There are a lot of other sides to be assessed

related to the effort specially to attract the currently non-user. Regarding this consideration, this research aimed to get a big picture, not only from the perspective of a service user but also from the wider society, which eventually targeted to be the future user. Therefore, this research can fill a gap and explain why Jak Lingko's user, especially in the framework of Mikrotrans has not been developed significantly and is even credited as stagnant. This condition challenges us to think and pick suitable variables not only to gather the bigger picture of people's perceptions but also helping to increase the rider's number.

Referring to the aim above, the first chosen variable is accessibility. Although it seems a general variable is used in public transportation research or study, we approach this variable differently, especially in the special context of Jakarta. We are trying to explore other dimensions, aside from the common review about the travel time. As Redman et al (2012) stated, accessibility is also about the time of arrival guarantee, fleet interval, and also about the availability of relevant information such as routes. Since Mikrotrans is specifically targeted for a dense population area (*Kampung*), the stops are different, mainly just a simple pole. This characteristic of service furthermore requires a different approach to examine the service accessibility. This distinct condition, therefore, we believe will reveal a newness that can be very beneficial for public transportation study. Modifying the definition by Litman (2017), this research will assess accessibility by the number of available stops in each Hamlet which is called *Rukun Warga* (RW), where the respondent lives. From this method, the more stops easily accessed by the resident, the better accessibility is.

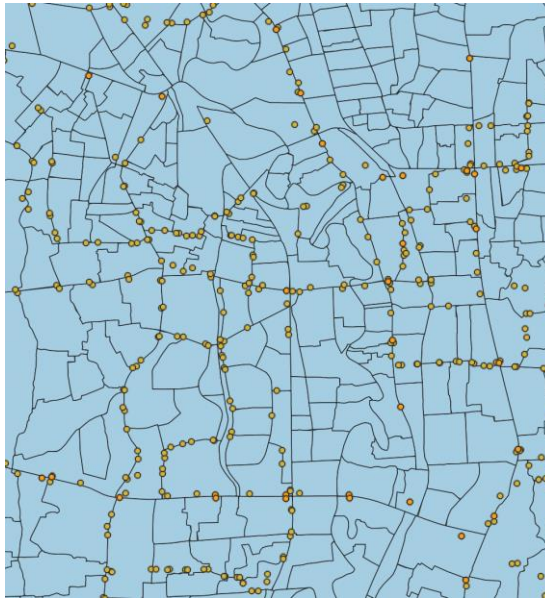


Figure 1. Dividing Mikrotrans stops in each hamlet

Related to the accessibility variable, this research also looks at the awareness of the people. This is a logical choice since the degree of awareness is always influencing the number of customers in any product (Alexandra and Chercia, 2018). In short, a better awareness will lead to a higher number of customers. One simple example of this theory is the advertisement of various products we saw every day. Companies are circulating numbers of advertisements intending to build and strengthen people's awareness of their products. Once awareness builds, people will look up to the products, even where no advertisement is visible.

Specifically, in the context of Jakarta, this awareness measurement will be aimed at the people to see whether or not they know about this Mikrotrans service and how well their knowledge is. Referring to the low and stagnant number of users, this research offers a hypothesis that people's awareness is not deep enough about the service. The lack of information and product knowledge plays a huge role in the small number of users we see currently.

The second variable in this research is quality. Although it can be very subjective, eventually, people’s first consideration will be quality. Moreover, quality will also lead to the degree of satisfaction of the customer (Carvalho et al., 2015; Vicente and Reis, 2016). This aspect also becomes the justification for whether or not people will return and reuse the service provided (Irtema et al., 2018; Oña et al., 2020).

The next variable is user satisfaction. It is a very essential variable to examine since theoretically satisfaction is the basic indicator of the success of a service (Vicente and Reis 2016). In the context of Mikrotrans, the measurement of customer satisfaction is aimed to see the broad perception of the service. This variable can show us a primary verdict on whether or not the Mikrotrans is a successful initiative.

To sum up the above variables, this research will also study the further impacts from the perspective of Mikrotrans users. Various possible impacts such as economy, social, health, and culture will be assessed if are correlated to the provided service. To be specific, the impact measurement will be focused on the benefit of the service from the mentioned aspects above. Eventually, this measurement will lead to an explanation of the reasons whether people decide to or not to use this Mikrotrans service.

3. Methodologies

3.1. Research Population

The population of this research is the total population of Jakarta, which is divided into six administrative districts. The detailed data is:

No	District	Total Population
1	Central Jakarta	1,151,689
2	East Jakarta	3,194,532
3	North Jakarta	1,826,051
4	South Jakarta	2,343,278
5	West Jakarta	2,547,105
6	Kepulauan Seribu	29,100
	Total	11,091,755

Table 1. Total Population of Jakarta in Each District

Although the population number consists of the six administrative districts, the Kepulauan Seribu however, is excluded since no Mikrotrans has yet operated there.

3.2. Research Sample

According to Sugiyono (2015), the sample part of the total population can generally represent the characteristic of the total population. In this regard, we decided on the number of the sample using the Slovin’s Formula which lead to:

$$n = \frac{N}{1 + N(e)^2} = \frac{11,06 \text{ Million}}{1 + 11,06 \text{ Million} (0,05)^2} = 400$$

Information:

n = Number of samples

N = Number/total of population

e = Margin of error (5%)

According to the formula, the minimum ideal number of samples for respondents is 400. However, during the data collection process, this research manages to collect 521 respondents, exceeding the minimum target.

3.3. *Types and Data Collection*

This research is using primary data collected directly from the respondents. Furthermore, there are two types of data which are quantitative data and qualitative data. The quantitative one is the numerical based data which presented with the number of respondents, numbers of people categorized as users and non-users, number of frequencies, the total number of vehicles owned by the society, number of vehicle types, total income per capita, and others.

Opposite to the quantitative data, the qualitative one is presented verbally and very often unable to be measured precisely and is mainly abstract. Specifically for this research, the qualitative data is presented through the location of the hamlets (RW), people's perception, level of satisfaction, impact, and implication, and others.

Moreover, these two types of data were collected through two different instruments: questionnaires and focus group discussions. Through the questionnaire, various data were collected, both quantitative and qualitative. However, most of the data gathered were in a quantitative form which was presented numerically.

While the questionnaire gathered mostly in quantitative format, the FGD was managed to gather more qualitative data. Through a discussion, this research listened to opinions, input, suggestions, critics, and experiences of the people who use Mikrotrans regularly. Things like the perception of convenience, cleanliness, punctuality, and the fare are the majority of data collected through this approach.

This research, furthermore, also categorizes the respondents into two groups: user and non-user. For the user, it is then divided into two groups as well, the regular user and the non-regular user. This grouping is aimed to map a proportional recommendation for service improvement. Eventually, it is expected to strengthen the loyalty of regular users and attract non-user to switch to Mikrotrans.

Regarding the accessibility variable, respondents are divided into several levels. Using the Geographical Information System (GIS), respondents are grouped into three levels of accessibility, where 1 indicates the lowest and 3 the highest. Determining indicators for this level is the number of stops for each residential hamlet. This categorization is then specifically used in the variable analysis process of accessibility.

As previously mentioned, there are two techniques used to gather the data: questionnaire and focus group discussion. The questionnaire provides detailed information on how to fill it. Besides, this research also employs surveyors to not only distribute the questionnaire but also to assist the respondent during the filling process. Through this approach, the suitability of the data collected can be guaranteed. There are several ways used to measure the indicator for further analysis, namely:

- The closed-ended question, where option of answers is provided and variation beyond is impossible
- Open-ended questions, where answers are not determined and could be dynamic and unique.
- Scale technique (Likert), where respondents were asked to choose a level of perception from the question given (Scale: 1 – 4, where 1 is the least and 4 represents the most).

3.4. *Data Analysis Methods*

3.4.1. *Simple Linear Regression*

Linear regression was employed in this study to seek a correlation between an independent variable and a dependent variable. The relationship is explained through a simple straight line in the graph. This study utilizes R to run simple linear regression and capture the significance of the influence found.

3.4.2. Path Analysis

This methodology analyzes the causal relationship between an independent variable and dependent variable, or in a multiple regression process. Path analysis allows us to determine whether the relationship between independent variables and the dependent variable is statistically significant (Rutherford, 1993). If the covariance (ϕ) is bigger than 0.05 then the relationship is statistically significant. In addition to that, if a model meets certain standards in Goodness-of-Fit (chi-square, Tucker-lewis-index, comparative-fit-index, Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA)), then a model is considered as a statistically proper model.

3.5. Variables Operationalization

The selected variables are then modeled to ensure a coherent flow of the path analysis model. There are two independent variables which are accessibility (X_1) and service quality (X_2). Furthermore, this research also employs an intervening variable which is the user's satisfaction (X_3). Eventually, the dependent variable is the further impacts of the service (Y), which is extracted from the analysis of independent and intervening variables.

To analyze these variables, an operationalization of a model is required. The detailed information on this operationalization can be seen in Table 1 below.

No.	Variables	Conceptual Definition	Operational Definition				The question in the Questionnaire	Variables Final Value	Information/Justification
			Dimension	Attribute	Score	Scale			
1.	Accessibility	Accessibility is the easiness to reach a place of activity, service, goods, and other objectives (Todd Litman, 2021)	<ul style="list-style-type: none"> • Location of Stops • Number of Stops • Location of Station • Number of Station • The Hamlet (RW) Border 	<ul style="list-style-type: none"> • The Data of stops location in each hamlet/RW (divided into percentage) 	<ul style="list-style-type: none"> • High: The residential hamlet (RW) is served by many bus stops 	Ratio	<ul style="list-style-type: none"> • The residential hamlet (RW) 	Categorization (Dummy Variable) - High Accessibility /Low Accessibility	In regards to The residential hamlet (RW), the researcher measures the score of accessibility using a Geographic Information System (GIS) application. This application will show the number of stops in each hamlet along with the distance. Number 1 represents the lowest accessibility while number 3 represents the highest accessibility.
2	Quality	A degree of products, goods, or service conditions that compared to a certain standard (Ratnasari and Aska 2016 in Supriyadi, Manggabari and Nastiti 2020; Zahra, Baihaqi, and Ardiantono 2020)	<ul style="list-style-type: none"> • Performance • Feature • Reliability • Suitability • Resilience/Endurance • Service Ability • Aesthetic • Quality Perception 	<ul style="list-style-type: none"> • Trust • Loyalty • Perception 	<ul style="list-style-type: none"> • Very Bad (1) • Bad (2) • Good (3) • Very Good (4) 	Likert	<ul style="list-style-type: none"> • Per hour frequency/arrival of the Mikrotrans service in the designated stops is satisfactory • The arrival of the Mikrotrans service at the designated stops is punctual • Feel safe and secure from criminals/pickpockets/and potentially sexual harassment when using the Mikrotrans service 	Average number	

No.	Variables	Conceptual Definition	Operational Definition				The question in the Questionnaire	Variables Final Value	Information/ Justification
			Dimension	Attribute	Score	Scale			
							<ul style="list-style-type: none"> • Feeling convenience in using Mikrotrans • The distance to the designated stops is close 		
3	Satisfaction	Fulfillment of needs, wishes, and hope/expectations towards something and related to someone (Vicente dan Reis 2016)	<ul style="list-style-type: none"> • Performance • Suitability • Responsiveness • Provision • Reliability 	<ul style="list-style-type: none"> • Continuity • Trust 	<ul style="list-style-type: none"> • Very Disagree (1) • Disagree (2) • Agree (3) • Very Agree (4) 	Likert	Question number 14 in the questionnaire (Look at attachment)	Categorization (Dummy Variable) - High Significance/Insignificance of Satisfaction	
4	Impact	The strong influence attracts consequences (both positive and negative) (Nellthrop, Mackie, and Bristow 1999)	<ul style="list-style-type: none"> • Individual • Community • Region 	<ul style="list-style-type: none"> • Social • Economy • Quality • Quantity 	<ul style="list-style-type: none"> • Very Unaffected (1) • Unaffected (2) • Effective (3) • Very Effective (4) 	Likert	Question number 14 in the questionnaire (Look at attachment)	Average number	

Table 2. Research Variables Operationalization

4. Measuring Correlation between Variables from Citizen's Perspective

This study carries out 521 questionnaires, both online and offline. The respondents should be residents of Jakarta or stay in Jakarta for a long period. The location of respondents is distributed into five administrative areas in Jakarta, where mikrotrans services are present. Given the irregular pattern of mobility and capacity restriction during the pandemic, this study only considers the Mikrotrans usage before the pandemic.

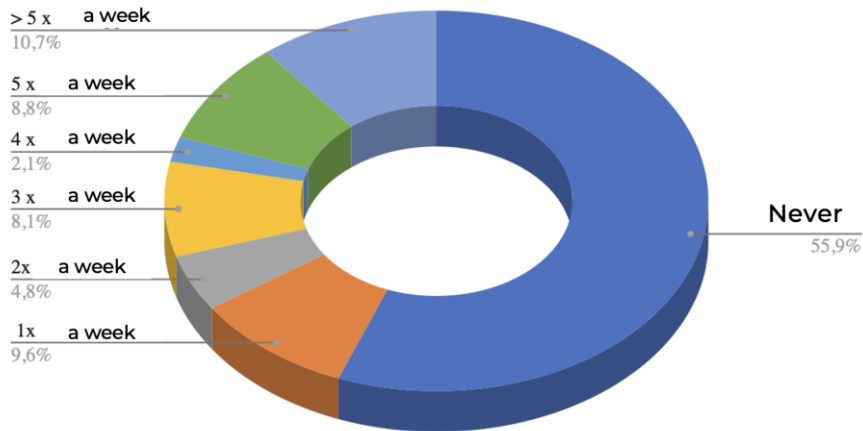


Figure 2. Frequency of using Mikrotrans before Pandemics

In 2021, Transjakarta services, including Mikrotrans, cover 82% of the residential area of Jakarta within 500 meters radius of bus stops. Consequently, the improvement also increases the access of Jakarta residents to reliable public transportation services. This number doubled from 2017 when the coverage area was only 42% of Jakarta residents. The expansion of reliable public transport services is massive, mainly due to paratransit (*angkot*) formalization. However, only 44% of the respondents used Mikrotrans before the pandemics, while the rest are various (Figure 2). Therefore, this study wants to evaluate the impact of accessibility from the perspective of the citizen.

Answering research questions, this study employs linear regression to compare the number of bus stops in one hamlet (representing accessibility) and the frequency of using Mikrotrans before the pandemic. The result shows that the frequency of Mikrotrans usage will only increase by 13% if an additional bus stop is built in one hamlet (Figure 3). Of the total respondents, only 230 respondents (44%) have been using Mikrotrans services. For those who are never using Mikrotrans, the questionnaire also provides open-ended questions about what are the main factors that could make the respondents use Mikrotrans (Figure 4). The result explains that one-third of the respondents would take Mikrotrans if there were more relevant direct or closer routes to their daily mobility needs. Despite the significant improvement done by Transjakarta and Mikrotrans operators, there are 13% want a better quality of Mikrotrans. A small fraction of 9% also would take Mikrotrans if the previously known *angkot* are more reliable and not waiting for the passengers before departure to the terminus. The last two points from the best three factors that could increase Mikrotrans usage are currently done because of the paratransit formalization. This means, many citizens of Jakarta that are not well-informed about the change undergoing in paratransit operation. Therefore, disseminating the improvement of Mikrotrans is one important homework that Transjakarta should urgently undertake.

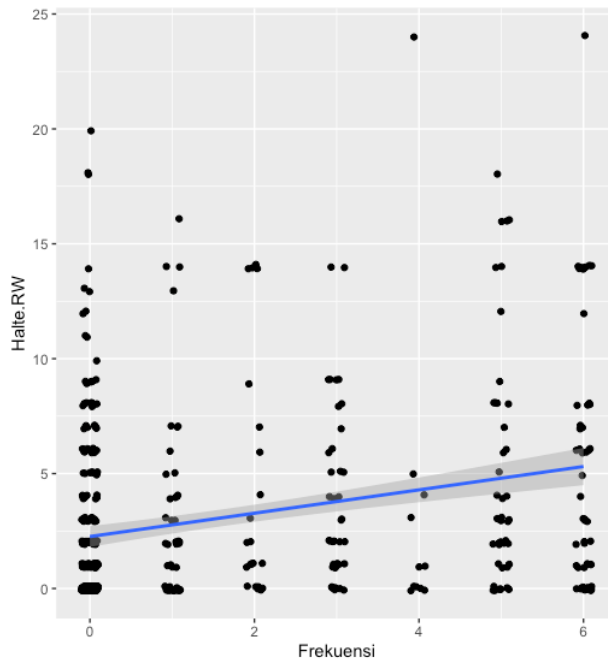


Figure 3. Simple Linear Regression result between Accessibility and Frequency of using Mikrotrans

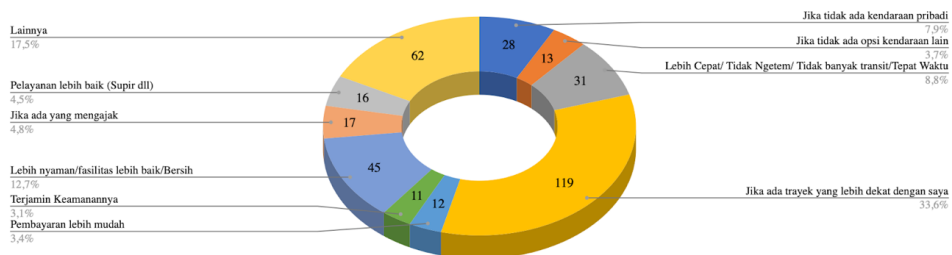


Figure 4. Prerequisites for converting non-user into first-time user

Accessibility as the main indicator in public transport service that has been improving for the past several years should be evaluated with other variables. Therefore, this study employs path analysis to figure out the impact of public transport improvement. The aforementioned variables are broken down into questionnaire questions to gather inputs from respondents. Only respondents that have been using Mikrotrans are allowed to answer the questionnaire, which only 230 respondents.

Afterward, the result from the questionnaires is analyzed using R to calculate the coefficient of correlation from each variable. The accessibility variable, as it has its value, must be differentiated first into three dummy variables before proceeding to the next steps. The additional dummy variables are divided into 3 criteria: low, medium, and high accessibility. These criteria are divided based on the number of Mikrotrans stops in one hamlet (RW). If a hamlet has nothing or one bus stop within its boundaries, then it belongs to low access. For 2 – 3 Mikrotrans stops in a hamlet, it is categorized as a medium access. High access is defined as a hamlet which has more than 4 Mikrotrans stops.

Is using Mikrotrans convenient?

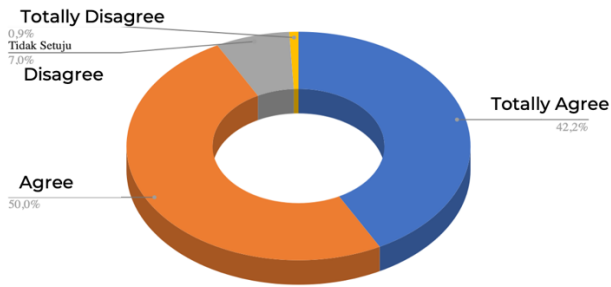


Figure 5. Service Quality: Convenience

Mikrotrans' stop are in suitable location

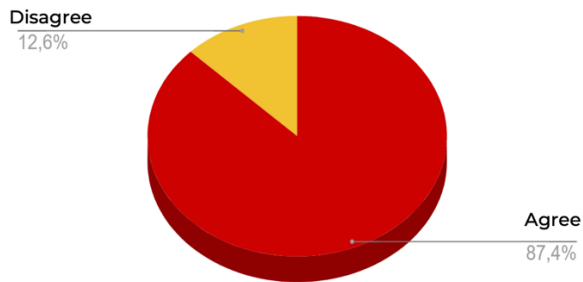


Figure 6. Service Quality: Proper Bus Stop

Do You Satisfy With Mikrotrans Service?

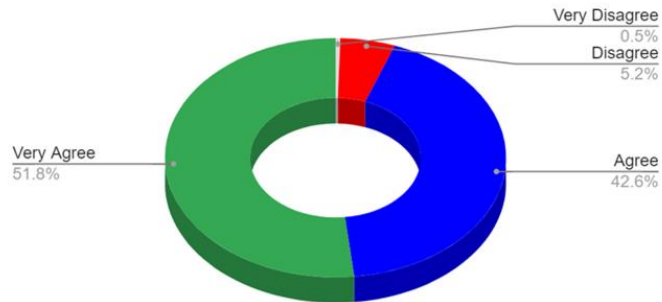


Figure 7. User Satisfaction

Is using Mikrotrans reduce transport-related expenses?

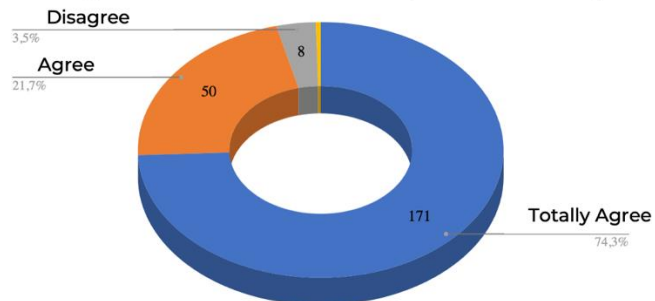


Figure 8. Perceived Impact

This study establishes a model, representing the correlation flow from accessibility and service quality to end-impact. According to model fit calculation, the model is relatively a good fit. The chi-square value is 0.510 (> 0.5), the Tucker Lewis Index value is 0.99 (> 0.95), the Confirmatory Factor Index value is 0.99 (> 0.95), and the Root Mean Square Error of Approximation (RMSEA) value is 0.001 (< 0.05). The result of the path analysis in the established model can be seen in table 3 and figure 3. As shown in figure x, service quality is playing a more important role in influencing user satisfaction and impact compared to accessibility. Service quality could significantly determine user satisfaction in a direct relationship. Similarly, the service quality also determines perceived impact significantly in a direct correlation. On the other hand, low, medium, and high accessibility do not have a significant influence on user satisfaction and impacts. This result shows that the value of Mikrotrans accessibility does not have a strong correlation with user satisfaction and impact. Most likely, this happens because of the ubiquity of Mikrotrans (reliable public transportation) services, so the passengers do not pay attention to where they can access bus stops.

Variabel Dependen	Prediktor	B	S.E	z
Customer Satisfaction	Service Quality	0,642*	0,065	9,934
	Low Accessibility	0,040	0,107	0,372
	Medium Accessibility	0,007	0,103	0,067
	High Accessibility	0,043	0,085	0,503
Perceived Impact	Customer Satisfaction	0,141*	0,044	3,220
	Service Quality	0,677*	0,051	13,189
	Low Accessibility	-0,017	0,071	-0,236
	Medium Accessibility	0,062	0,069	0,906
	High Accessibility	0,035	0,057	0,621

Note. B, estimated score; S.E., standard error; z, standardized score; *p<0.01.

Table 3. Path Analysis Statistics Result

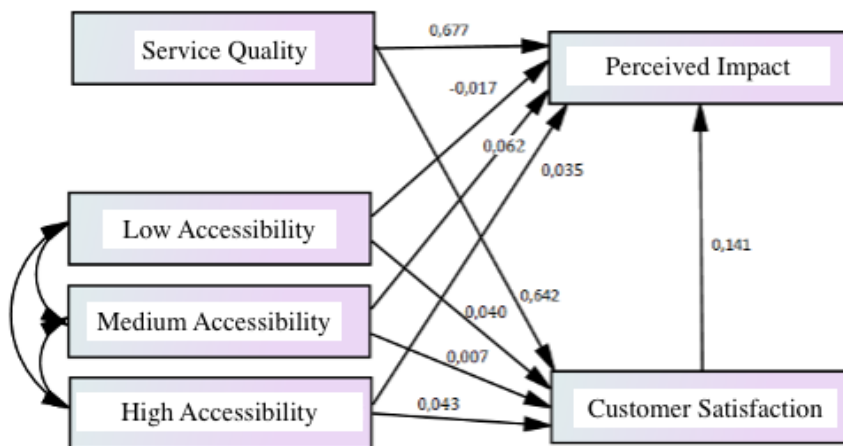


Figure 9. Path Analysis Result

5. Conclusion

Despite decreasing ridership due to the pandemic, Transjakarta and Jakarta Provincial Government successfully expanded reliable public transport coverage and improved public transport accessibility for the citizen. One of the keys is the formalization of *angkot* (paratransit) under the Jak Lingko umbrella term. *Angkot*, which rebranded into Mikrotrans, has the agility to roam all over the dense residential area through narrow

road access. According to this study, most of the respondents receive many positive benefits the Mikrotrans brought, especially before the pandemic. For instance, the reduction of monthly transport costs, more comfortable services, and punctual travel time (due to no more waiting for the passengers). However, there are still concerns about acquiring more first-time users, such as the dissemination of route information, communication of service improvement, and enhancement of service frequency.

The result of simple linear regression shows that the relationship between accessibility, which is defined as the number of bus stops per hamlet (RW), and the frequency of using Mikrotrans has a tiny correlation. This presumably is the impact of massive paratransit formalization, where hundreds of new bus stops were being constructed. Therefore, the citizen could seek the closest bus stops near their residence. Nevertheless, it is not enough to persuade them to take Mikrotrans for the first time.

The model in path analysis also tells a relatively similar result. Accessibility is not playing an important role in satisfaction and impact which are perceived by the passengers. Those who have been using Mikrotrans services, tend to rely heavily on better Mikrotrans service quality to be the deciding factor for customer satisfaction and perceived impact. However, based on the questionnaire, the majority of the respondents that have been using Mikrotrans services say that Mikrotrans services are accessible and cover important destinations.

Improving public transport services is never easy, let alone with limited budget allocation from the city's administration. This study suggests several things that could be prioritized, for example, the targeted marketing and promotion of Mikrotrans according to where the demand is. It is strongly recommended that Transjakarta also should open a WhatsApp and call center to answer questions regarding the daily operation, routes from origin to destinations, or where the bus stops are. The current social media center should be improved to cater more to a wide citizen age group.

Regular evaluation methods, namely random checking, mystery guest, and whistleblower channel, are important to ensure the service level of Mikrotrans are equally met, regardless of the operator and the driver. All the insights, reports, and complaints should be taken care of and responded to immediately and accordingly. Having done so, the service quality will meet the standard and therefore influence the satisfaction of passengers and the impacts that the passengers perceived.

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