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Intention to Adopt and Willingness to Pay: Mass Rapid Transport System in Greater Jakarta, Indonesia

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The objective of this study is to explore and examine supportive factors of Mass Rapid Transport (MRT) implementation in Jakarta, Indonesia. Successful implementation requires proper understanding of which factors are influential to the acceptance of this technology. The population of this study is commuters along the North to South route of Jakarta MRT development site. We conducted the survey in thirteen locations along the track based on the Station Development Plan. We obtained only 392 valid data after the validation and verification process. This study used Factor Analysis (FA) to test the construct validity of the measurement instrument and Path Analysis (PA) to identify significant structural paths between variables. We found that only Attitude and Perceived Usefulness significantly predict Intention to Adopt MRT for private vehicle users, while only Attitude and Subjective Norms significantly predict Intention to Adopt MRT for public transportation users. We found that for current users of private transportation, both Overall Monthly Transport Expenditure and Intention to Adopt have significant influence to the Willingness to Pay. While for current users of public transports, no predictor is significant for their Willingness to Pay.

Keywords: Intention to Adopt, Willingness to Pay, Technology Acceptance Model, Mass Rapid Transport System, Indonesia

Introduction

The city of Jakarta is the capital of the Republic of Indonesia and the largest metropolis in the country. Jakarta and its surrounding municipalities comprise the Greater Jakarta (Jabodetabek) metropolitan area, home to approximately 24 million people (Kawaguchi et al., 2010). Transportation is a major problem for the Jakarta city government. The imbalance between growth of road infrastructure and growth of motor vehicles caused intensifying traffic congestion in parts of the city (Indonesian Ministry of Public Works, 2009). The annual economic cost of this problem was estimated at IDR12,4 Trillion in 2004 and projected at IDR65 Trillion in 2020 (Suhendra, 2013).

Compared to the capital cities of neighboring countries (such as Singapore, Thailand or Malaysia), the development of transportation system in Jakarta is considered left behind by 20 years (Manurung, 2012). The government has implemented measures to reduce traffic in Jakarta by building alternative transportation systems for car and motorcycle users, such as the Commuter Line Trains and TransJakarta Busway, with small and temporary success (Hudalah and Pratama, 2010). One reason why the previous measures fail to produce a significant result is that they do not attract sufficient car and motorcycle users to reduce the traffic problems (Kawaguchi et al., 2010). The latest solution offered by the Jakarta city government is a Mass Rapid Transit (MRT) transportation system which was initiated in 2013 and estimated to be operational in 2018 (MRT Jakarta, 2013). However, at the current stage of development, acceptance of the MRT initiative is still in question.

This paper aims to analyze supportive factors of MRT implementation in Jakarta, Indonesia. The first supportive factor is the intention of potential users to adopt the MRT initiative in the future after its completion. Intention to adopt is a strong predictor for future adoption (Arts, Frambach, and Bijmolt, 2011; Aguirre-Urreta and Marakas, 2012; Cheung and Vogel, 2013; Shropshire, Warkentin, and Sharma, 2015). Therefore, the intention of potential users to adopt the Jakarta MRT is a useful measure to assess its potential success in the future.

The second supportive factor is the willingness of potential users to pay for the fare. It is an important variable used by various transportation researchers to determine the feasibility of an initiative (Li, Hensher and Rose 2010; Hidrue et al., 2011; Drevs et al., 2014). A project that fails to generate sufficient willingness to pay from their potential users indicates the project has weak sustainability. Therefore, it is important to examine factors among potential users that lead to higher willingness to pay.

Additionally, past researchers have outlined the importance of acceptance by car and motorcycle users as

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a success criterion for the implementation of a public transportation system (Kawaguchi et al., 2010; Chen and Chao, 2011; Fishman, Washington, and Haworth, 2014). Therefore, this paper also compared the results between current users of public and private transportation.

According to the stated research objectives, this study will underpin four research questions as follows:

1. What factors explain the intention of potential users to adopt MRT in Jakarta?
2. What factors influence the willingness to pay for MRT potential users?
3. Is there any difference in how the factors explain the intention to adopt MRT between current public transportation and private vehicle users?
4. Is there any difference in how the factors explain the willingness to pay for MRT fare between current public transportation and private vehicle users?

Literature Review

Mass Rapid Transit

City transport management should put emphasis on the availability of public transportation system to reduce over-reliance on private cars and motorcycles (Lindau et al., 2014). The routes of TransJakarta Busway are considered no longer sufficient to reduce traffic on busy routes across the capital city since the bus tracks overlapped with existing roads further reducing the capacity required by the rapid growth of private vehicles. In 2013, the Jakarta government initiated the construction of a Mass Rapid Transit (MRT) system to overcome this problem. The rail-based system planned to span approximately 110.8 km, which consists of the North-South Corridor (approximately 23.8 km) and the East-West Corridor (approximately 87 km). The North-South corridor is due to be completed in 2018, while the East-West corridor is planned to be operational in 2024 (MRT Jakarta, 2013).

Technology Acceptance Model

Technology Acceptance Model (TAM) has been developed rapidly in the recent decade. Successful implementation of new technology is affected by the intention to adopt by prospective users. Technology Acceptance Model is based on the Theory of Reasoned Action to explain the cognitive process that underlies the intention to use a new technology (Venkatesh and Davis, 2000).

TAM has been used successfully to explain a user's intention to adopt new technologies in transportation contexts. Wu et al. (2011) summarized 131 studies that used TAM to explain adoptions of new technology in various contexts, including transportation technology. In transportation technology, Vlassenroot et al. (2010) used TAM to examine the adoption of Intelligent Transport System in the European Union. Furthermore, Zimmerman, et al. (2011) successfully applied the model to explain the implementation of Tiramisu. It is a software developed using crowdsourcing method in the United States to record transit information of commuters who voluntarily uploaded their GPS track during bus travel and report problems during the trip.

In Mass Rapid Transit, Wu, Yu, and Weng (2012) applied a modification of the model to explain the adoption if I-Pass, an e-ticketing system within the Taiwan Mass Rapid Transit. Meanwhile, Chen and Chao (2011) used TAM to describe the intention to use MRT by motorists in Taiwan. They found that the motorists have greater resistance to adopt public transportation due to negative attitude and perception compared to other users. In addition to the Perception of Usefulness and Ease of Use, Chen and Chao (2011) also include Attitudes and Subjective Norms from the Theory of Reasoned Action in their model. This study used this modified model by Chen and Chao (2011) as the initial framework of the proposed model.

We developed the Chen and Chao (2011) model by including an additional dependent variable, the willingness of prospective users to pay as the subsequent consequence of their intention to adopt MRT. Some researchers linked the intention to adopt with the willingness to pay (Bollino, 2009; Zografakis et al., 2010; Sardianou and Genoudi, 2013). Willingness to pay is also related to the subjective value or utility of a particular goods or service as perceived by the individual (Erdem, Şentürk, and Şimşek, 2010). Hypothetically, potential users should be willing to pay more when they believe that the technology provides better utility. Additionally, potential user's willingness to pay is one of the most important variables in transportation policy research for defining feasibility study of a project (Li, Hensher and Rose 2010; Hidrue et al., 2011; Drevs et al., 2014). From this point of view, it is important to include this variable in the model.

We also include user demographics as an independent variable to explain the willingness to pay potential users for the furthest route of MRT. Several demographic variables included are occupation, current mode of transportation, monthly transport expenses, daily travel distance, and daily travel time. An analysis of the population effects of a policy must consider the full impact of the demographic profile of the respondents (Tsui and O'Reilly, 1989). In other words, it is important to examine demographic variables when interpreting the result of the Jakarta MRT prospective user's intention to adopt and willingness to pay. We show the full conceptual model of the study in Figure 1.

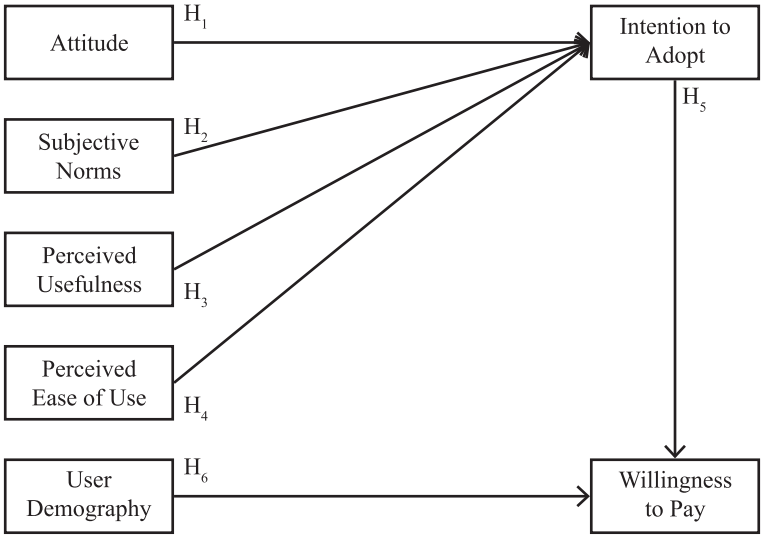

Figure 1. Conceptual Model

Attitude is the willingness to respond favorably to a person, object, institution or event (Jan & Contreras, 2010). We can define it as the degree to which a person has a favorable or an unfavorable evaluation or appraisal of the behavior. Attitude represents a core elicitor of behavioral intention to adopt new technology (Chen and Chao, 2011). As discussed earlier, users' prominent beliefs about a particular technology determine their attitude towards it and ultimately, their intention to adopt. Therefore, this study's hypothesis is:

H_1: Attitude has a positive causal relationship with the intention to adopt the Jakarta MRT.

Subjective Norms in the context of technology adoption is the belief that using a new technology would lead to approval by those they considered close and significant (Moore and Benbasat, 1996). Subjective norm also influences technology acceptance through the internalization effect of perceived usefulness. This effect represents the human tendency to interpret information from their significant others as evidence about reality (Schepers and Wetzels, 2007). Therefore, this study postulates that:

H2: Subjective norms have a positive causal relationship with the intention to adopt the Jakarta MRT.

We defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). In his study, he said that usefulness was linked to usage more strongly than was ease of use. Davis argued that although ease of use is important, it has little impact or value if the system does not perform a useful function. Therefore in this study, we hypothesized that:

H_3: Perception of usefulness has a positive causal relationship with the intention to adopt the Jakarta MRT.

Wei, Marthandan, Chong, Ooi, and Arumugam (2009) suggested that no matter how the technology is perceived to be useful, the practicality of technology or "ease of use" may still affect the users' intention of initial adoption or continuity. Several researchers concluded that perceived ease of use is a significant predictor of users' acceptance of new services (Cheong and Park, 2005; Snowden, Spafford, Michaelides, and Hopkins, 2006). Thus, in this study we examined:

H_4: Perception of easiness (ease of use) has a positive causal relationship with the intention to adopt the Jakarta MRT.

Researchers often use the concept of willingness to pay as one of the criteria to measure the consumer's benefit in change of the price or quality of goods. Hsu and Yen (2012) argued that willingness to pay means the amount a person would be willing to pay to "secure an improvement in their welfare". Additionally, Chern, Rickertsen, Tsuboi, and Fu (2002) linked user acceptance of a new technology with the willingness to pay for using that technology. Therefore, in this study will hypothesize:

H_5: Intention to use has a positive causal relationship with willingness to pay.

Finally, we also included in our model the socio-demographic factors employed in previous studies as direct determinants of willingness to pay (Schepers and Wetzels, 2007). We included several demographics for which our study is related to the current usage of public and private transportation during the daily commute. So, in this study we examined:

H_6: Users demographics have a causal relationship with willingness to pay.

Table 1. Operational Definition of Variables in the Model

No.	Variables	Operational Definition
1	Attitude towards the MRT Implementation	General evaluation by potential users about the overall plan of MRT implementation.
2	Subjective Norms towards the MRT Implementation	Perception of potential users about the general evaluation from their significant other on the overall MRT implementation plan.
3	Perceived Usefulness of the MRT Implementation	Perception of potential users about the particular and overall benefits of MRT compared to existing mode of transportation currently in use.
4	Perceived Ease of Use of the MRT Implementation	Perception of potential users about the simplicity of particular and overall features of MRT compared to existing mode of transportation currently in use.
5	Intention to Adopt the MRT Implementation	Deliberate plan by potential users about use the MRT when it is fully implemented.
6	Willingness to Pay for the MRT fare	The highest price the potential user is still willing to pay for the longest distance offered by the MRT, considering the anticipated benefits and simplicity of use.

Methods

Population and Sample

The population of this study is commuters along the North to South route of Jakarta MRT development site. We conducted the survey in thirteen locations along the track based on the Station Development Plan. We collected 400 responses using purposive sampling method. Half are private transportation users (cars and motorcycles) and the other half are public transportation users (bus and train). We screened the potential respondents with two screening questions. First, they must commute along the path of the planned MRT construction site. Second, they must have at least the basic knowledge and awareness of the MRT construction program to be able to respond to the questionnaire. Finally, we obtained only 392 valid data after the response validation and verification process.

Measures

This study employed two screening questions, 25 items were developed to measure the five latent variables in the model and eight questions on demographic variables. The screening questions are used to ensure that the respondents met the criteria for purposive sample required in the study. We adapted the items utilized in a previous study by Chen and Chao (2011) to measure Attitude, Subjective Norms, Perceived Usefulness, Ease of Use, and Intention to Adopt the MRT implementation in Taiwan. We conducted a minor adaptation to adjust the context to the planned implementation of MRT in Jakarta, Indonesia. We used the attribute items from Hidrue et al. (2011) to measure Willingness to Pay, adapted to adjust the research context. The items were used initially to measure consumer willingness to pay for electrical vehicles, but several attributes were found compatible with the current research context. We presented the operational definition of each variable in Table 1.

Reliability and Validity

We conducted the reliability analysis using Cronbach's α with a minimum cut-off value of 0.70 (Hair et al., 2001). The Cronbach's α for all latent variable measurements exceeded the established cut-off limit. Thus, the measurements fulfilled the internal consistency criteria of the analysis. Subsequently, we conducted a factor analysis to determine the construct validity of the measures. The factor analysis was executed using Varimax rotation and formed five factors consistent with the model. We used the cut-off criteria for factor loading of 0.50 suggested by Hair et al. (2001). We excluded the measurement of Willingness to Pay due to the different nature of the measurement scale which yielded only one value. Cronbach's α and factor analysis are not applicable for single item measurements (Milton, Bull, and Bauman; 2011). The result from the five latent variables confirmed that all 25 items in the measures are valid and reliable based on both criteria. We show the full result of Cronbach's α and factor loading of all 25 items in Table 2.

Results and Discussion

Sample characteristics

As mentioned earlier, we have collected 400 filled questionnaires during the study. However, following the verification procedure, only 392 responses were considered valid for the final data analysis. The eight excluded questionnaires either did not pass the screening question or contained missing values. We decided to use list-wise deletion for the treatment of missing values due to the small number of occurrence and large dispersion which suggested that the missing values may have occurred at random (Hair et al., 2001).

We describe the sample characteristics of the 392 valid responses in this section. The youngest respondent is 16 years old, while the oldest is 64 years old, with an average age of 27.34 years old. The shortest distance of their daily

Table 2. Results of Reliability and Validity Test

Variables	Items	Factor Loading	Cronbach's α
Attitude towards the MRT Implementation	Att1	0.828	
	Att2	0.840	
	Att3	0.853	0.905
	Att4	0.886	
	Att5	0.857	
Subjective Norms towards the MRT Implementation	Snorm1	0.876	
	Snorm2	0.884	
	Snorm3	0.884	0.927
	Snorm4	0.880	
	Snorm5	0.878	
Perceived Usefulness of the MRT Implementation	Puse1	0.766	
	Puse2	0.751	
	Puse3	0.804	0.840
	Puse4	0.805	
	Puse5	0.789	
Perceived Ease of Use of the MRT Implementation	Pease1	0.862	
	Pease2	0.903	
	Pease3	0.872	0.921
	Pease4	0.884	
	Pease5	0.839	
Intention to Adopt the MRT Implementation	Intdopt1	0.761	
	Intdopt2	0.865	
	Intdopt3	0.823	0.871
	Intdopt4	0.784	
	Intdopt5	0.834	

Table 3. Sample Characteristics

Respondent Demography	Minimum	Maximum	Average	Std. Deviation
Age of Respondent (Years)	16	64	27.34	9.69
Distance (km) of Daily Commute	2	150	33.34	37.63
Time span (minute) of Daily Commute	20	330	96.04	64.40
Monthly Transport Expenditure (IDR)	100,000	4,200,000	438,915.82	529,841.76
Willingness to Pay the Longest Route (IDR)	1,000	50,000	6,627.55	6,102.31

commute is only 2 km, while the longest is 150 km, with a mean distance of 33.34 km back and forth every day. The shortest time of their daily commute is only 20 minutes a day, while the longest is 330 minutes (5.5 hours) a day, with an average duration of 96.04 minutes (1.6 hours) back and forth every day. Monthly transportation expenditure range from IDR100,000 to IDR4,200,000 a month, with an average of IDR438,915.82 a month. The highest fare the respondent is still willing to pay for one way trip in the longest MRT route ranges from IDR1,000 to IDR50,000, with an average of IDR6,627.55 per trip. We present the breakdown in Table 3.

Furthermore, we also classified the respondents based on their willingness to pay into four categories. The largest group is willing to pay between IDR5,001 and IDR10,000, followed by those who are willing to pay between IDR1,000 and IDR5,000. The rest are prepared to pay between IDR10,001 and IDR50,000. Additionally, we also compare them between the mode of transport currently used by the respondents. We show the cross tabulation in Table 4.

Overall, nearly half of the respondents claimed not to have any car (42.35%) while 38.01% claims to own only one car. In contrast, only 13.01% claim not to own any motorcycle while more than half claim to own more than one motorcycle. This percentage indicates a strong tendency of motorcycle ownership even among those who use cars or public transportations for their daily commute.

Another concern is for the consumption of subsidized gasoline. Reducing consumption of subsidized gas is considered a matter of keen interest of the government in the management of public transportation in Indonesia. Overall, only 21 (5.36%) respondents claim not owning any motor vehicle, thus did not consume gasoline dur-

Table 4. Cross Tabulation between Willingness to Pay and Mode of Transport

Willingness to Pay	Current mode of transport				Total	Percentage
	Private Transport		Public Transport			
	Car	Motor	Train	Bus		
IDR1,000- IDR5,000	12	54	31	34	131	33.42%
IDR5,001- IDR10,000	26	72	41	42	181	46.17%
IDR10,001-IDR15,000	10	18	9	8	45	11.48%
IDR 15,001-IDR50,000	12	7	9	7	35	8.93%
Total	60	151	90	91	392	100.00%
Percentage	15.31%	38.52%	22.96%	23.21%	100.00%	

Table 5. Cross Tabulation between Ownership of Car and Motorcycle

Number of Cars Owned	Number of Motor Owned				Total	Percentage
	Zero	One	Two or Three	Four or More		
Zero	21	56	75	14	166	42.35%
One	16	47	77	9	149	38.01%
Two or Three	12	14	33	7	66	16.84%
Four or More	2	2	5	2	11	2.81%
Total	51	119	190	32	392	100.00%
Percentage	13.01%	30.36%	48.47%	8.16%	100.00%	

Table 6. Usage of Subsidized Fuel

Fuel Usage	Frequency	Percentage
Does not own Motor Vehicle	21	5.36%
Use Subsidized Fuel	273	69.64%
Use Non-Subsidized Fuel	98	25.00%
Total	392	100.00%

Table 7. Education and Professions

Education	Frequency	Percentage	Professions	Frequency	Percentage
No Diploma	12	3.06%	Employees	172	43.88%
High School Diploma	222	56.63%	Entrepreneurs	39	9.95%
College Diploma	53	13.52%	Students	148	37.76%
Bachelor Degree	94	23.98%	Housewives	29	7.40%
Graduate Degree	11	2.81%	Unemployed	4	1.02%
Total	392	100.00%	Total	392	100.00%

ing their daily commute. More than two-thirds (69.64%) used subsidized gasoline while only a quarter used non-subsidized gas. These owners of motor vehicles may use either public transportation or their vehicles for their daily commute, but even those who use public transport for their daily commute may use their vehicles occasionally. The final pair of demographic characteristics described in this section is education and profession of our respondents. Overall, based on their last education, 222 (56.63%) respondents graduated from high school while only 158 (40.30%) have degrees in higher education. Based on their professions, 172 (43.88%) respondents claimed to work as employees while 148 (37.76%) respondents claimed to be either high school or college students. We present the full frequency of each group in Table 7.

Correlation Analysis

We conducted descriptive statistics and correlation analysis between the variables as the initial examination of the final data set. We performed descriptive statistics to summarize the data, especially the measure of location for each item and variables. We conducted correlation analysis to test the degree of correspondence between variables, before further statistical testing. We obtained our data using measurements with seven points Likert scale.

Subsequently, the correlation analysis showed that the correspondence between items and variables to Intention to Adopt MRT is more uniformly significant than the association to Willingness to pay. Variable with the

Table 8. Descriptive and Correlation Analysis

Variables	Items	Descriptive		Intention to Adopt		Willingness to Pay	
		Item Average	Variable Average	Item Correlation	Variable Correlation	Item Correlation	Variable Correlation
Attitude towards the MRT Implementation	Att1	5.93		0.35**		0.05	
	Att2	5.91		0.36**		0.08	
	Att3	5.88	5,79	0.35**	0.45**	0.11*	0.10*
	Att4	5.64		0.41**		0.10	
	Att5	5.61		0.42**		0.14**	
Subjective Norms towards the MRT Implementation	Snorm1	5.66		0.35**		0.14**	
	Snorm2	5.67		0.38**		0.16**	
	Snorm3	5.67	5,55	0.32**	0.43**	0.11*	0.14**
	Snorm4	5.38		0.38**		0.08	
	Snorm5	5.40		0.43**		0.13**	
Perceived Usefulness of the MRT Implementation	Puse1	6.00		0.40**		0.09	
	Puse2	5.33		0.41**		-0.05	
	Puse3	5.57	5,60	0.40**	0.50**	0.08	0.05
	Puse4	5.30		0.36**		0.07	
	Puse5	5.80		0.49**		0.08	
Perceived Ease of Use of the MRT Implementation	Pease1	5.45		0.37**		0.13**	
	Pease2	5.45		0.39**		0.16**	
	Pease3	5.29	5,41	0.40**	0.44**	0.08	0.14**
	Pease4	5.44		0.36**		0.08	
	Pease5	5.44		0.45**		0.13**	
Intention to Adopt the MRT Implementation	Intdopt1	5.18		n.a		0.01	
	Intdopt2	4.92		n.a		0.06	
	Intdopt3	5.44	5,23	n.a	n.a	0.15**	0.11*
	Intdopt4	5.42		n.a		0.20**	
	Intdopt5	5.23		n.a		0.10	

highest correlation with Intention to Adopt is Perceived Usefulness. While specifically, the item with the highest correlation with Intention to Adopt, aside from "Overall Usefulness" (Puse5), is "Time Saving" (Puse2). As for the correlation with Willingness to Pay, both Subjective Norms and Perceived Ease of Use showed the highest correlation. In particular, "Viewed as Helpful" (Snorm2) and "Ease of Transit System" (Pease2) have the highest correlation among the items.

Hypothesis Test

The final part of the analysis was the hypotheses test. We employed Path Analysis to test six hypotheses in the model. Additionally, we compared the structural model between current users of Public and Private Transportation using a multi group approach. Path analysis is a precursor of structural equation modeling (SEM), which employs similar statistics. The main difference lies in the type of the variables. SEM models relationships between latent variables, while path analysis estimates relationships between observed variables. We chose this approach because some of our variables in the model are not latent variables, but measured with a single item. Due to this characteristic, we must reduce the multiple measurement items for each latent variable into a single item first. We used summative score approach for the data reduction process due to the similar factor score for each item in the measurement shown in Table 2. We show the descriptive statistics for each item and variables in Table 7.

Overall, we found that the formulated model produced acceptable goodness of fit statistics. The p-value for the model Chi-square value was greater than 0.05. The Root Mean Square Error Approximation (RMSEA) was less than 0.05 while the minimum p-value for the test of close fit must be higher than 0.05. The other fit indices also exceeded 0.90 including Goodness of Fit Index, Adjusted Goodness of Fit Index, Normed Fit Index, Incremental Fit Index, Relative Fit Index, and Comparative Fit Index. Therefore, we concluded that the model sufficiently matched the covariance matrix from the data.

Regarding each path in the model, we found that Attitude, Subjective Norms, and Perceived Usefulness of MRT by potential users are proven significant in increasing their Intention to Adopt MRT. Subsequently, Intention to

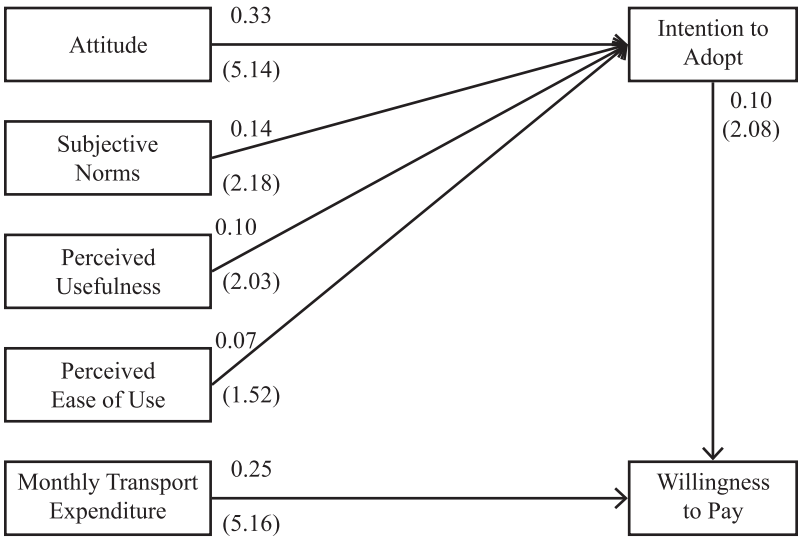

Figure 2. Path Diagram of Hypothesis Test

Table 9. Mean Comparison between Sample Group

Variables	Group	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Attitudes	Private	5.80	0.94	0.06	0.832
	Public	5.78	1.02	0.08	
Subjective Norms	Private	5.60	1.01	0.07	0.369
	Public	5.50	1.04	0.08	
Perceived Usefulness	Private	5.58	0.93	0.06	0.767
	Public	5.61	0.90	0.07	
Perceived Ease of Use	Private	5.39	0.99	0.07	0.655
	Public	5.44	1.00	0.07	
Intention to Adopt	Private	5.10	1.09	0.07	0.008
	Public	5.37	0.93	0.07	
Monthly Transport Expenditure	Private	507,696.68	601,982.07	41,442.15	0.005
	Public	358,734.81	418,357.70	31,096.28	
Willingness To Pay	Private	7,023.70	7,128.04	490.71	0.166
	Public	6,165.75	4,605.87	342.35	

Adopt MRT proved as important in influencing Willingness to Pay. On the other hand, the result rejected the hypothesis that Perceived Ease of Use influence Intention to Adopt. Additionally, out of several demographic variables included initially, only the monthly transportation expenditure of potential users is proven significant in affecting their Willingness to Pay for a one-way trip fare of the longest route.

In general, the R^2 for Intention to Adopt MRT was 0.75 with Attitude as the largest path coefficient and Perceived Usefulness as the smallest significant path coefficient. Conversely, the R^2 for Willingness to Pay was only 0.27 with Monthly Transport Expenditure as the largest significant path coefficient and Attitude as the smallest significant path coefficient. This value means that our model only explains 75% variation of Intention to Adopt and 27% variance of Willingness to Pay. We show the final path diagram from the overall sample in Figure 2.

Alternatively, we also compared the path coefficient between current users of private transportation (cars and motorcycle) and public transportation (bus and train) using a multi group approach. First, we divided the data into two separate data set, one consisted of 211 private vehicles users while the other composed of 181 public transportation users. Then, we estimated the parameters of the overall model simultaneously for both user groups. Finally, we compared the path coefficient and R^2 from each user group with those from the overall sample.

In general, for users of private transportations, the R^2 for Intention to Adopt MRT was 0.77 with Attitude as the largest path coefficient and Perceived Usefulness as the

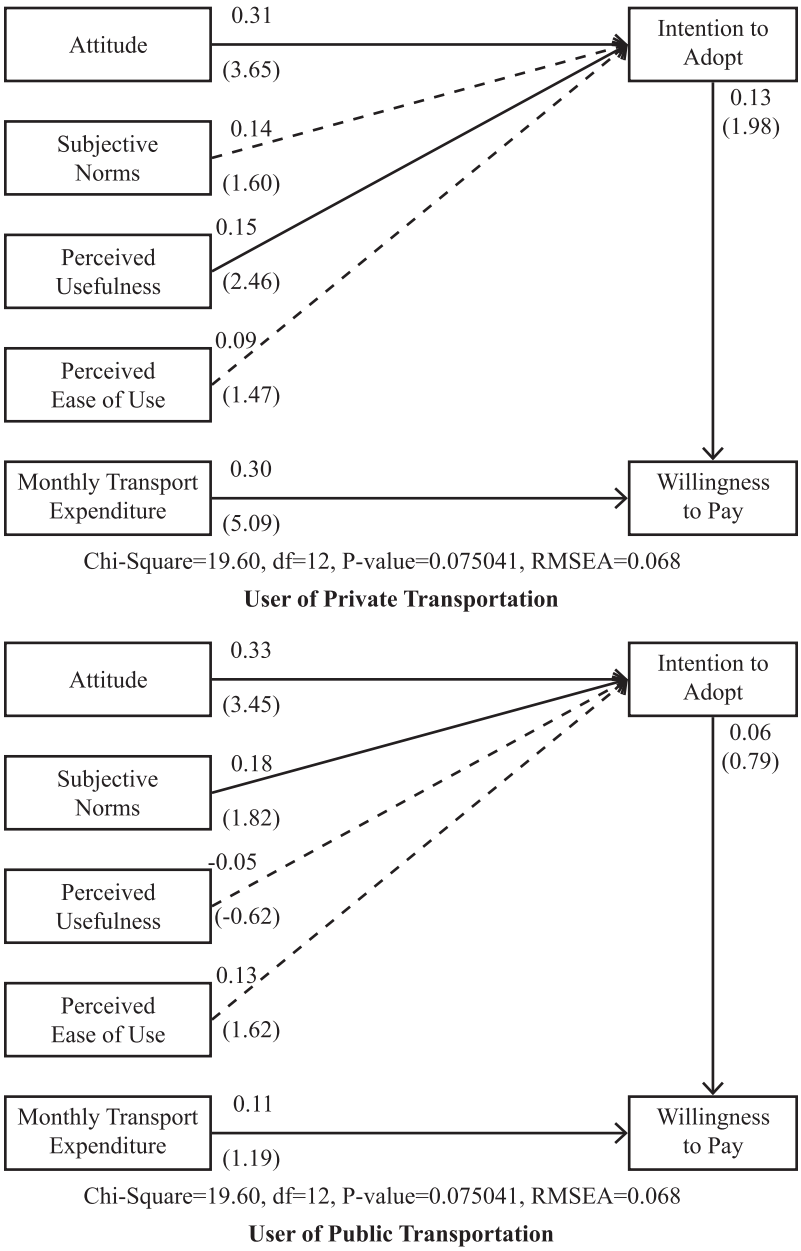

Figure 3. Final Path Diagram for Both Transportation User Groups

smallest significant path coefficient. Conversely, the R^2 for Willingness to Pay was 0.52 with Monthly Transport Expenditure as the greatest significant path coefficient and Attitude as the lowest significant path coefficient. This value means that the path coefficients for private transportation users did not differ much from path coefficient for the overall sample, albeit with greater R^2.

On the other hand, for users of public transportation, the result is slightly different. The R^2 for Intention to Adopt MRT was 0.78 with Attitude as the largest path coefficient. However, we found Perceived Usefulness as not significant. Instead, we found Subjective Norms to be the significant path albeit with smaller coefficient than Attitude. Conversely, the R^2 for Willingness to Pay was only 0.04 with no significant predictor. This value means that for public transportation model, other factors than those specified in the model may have greater influence on their willingness to pay. We show the final path diagram from the each user group in Figure 3.

Conclusions

The findings from this study indicated that, in general, the proposed model can explain the intention of the Jakarta MRT potential users to adopt the implementation

and their willingness to pay for the fare. Additionally, we found that potential users, in general, are supportive of the MRT. However, we found significant differences among groups of potential users that warrant more consideration.

First, there are discrepancies on the influence of Subjective Norms and Perceived Usefulness towards the Intention to Adopt between current users of public and private transportation. Subjective norms have a greater role in influencing adoption intention among public transportation users than with private transportation users. Conversely, perceived usefulness is more relevant in influencing adoption intention among private transportation users than with public transportation users.

Second, while the model has almost equal power to explain intention to adopt MRT among public and private transportation users, the model have a significantly greater ability to explain the willingness to pay among users of private transportation than public transportation users. Therefore, other models may be more suitable to explain the willingness to pay among public transportation users.

Third, even though both user groups have equivalent Attitudes, Subjective Norms, Perceived Usefulness, and Perceived Ease of use, we found that users of private transportation have less favorable intention toward adopting the MRT than users of public transportation. Therefore, it may be wise to prioritize this user group first for further efforts in generating adoption of MRT.

Additionally, this study has several limitations to be considered. First, this research used a non-probabilistic sampling method to select respondents. Therefore, generalization to a broader population is strictly limited. Nevertheless, scholars and policy makers may apply our findings to groups with similar context and characteristics to our sample group. Another limitation is the cross-sectional nature of this study which restricted our results to particular economic assumptions. One such assumption is the fuel price in Jakarta, Indonesia, which had fluctuated considerably since we conducted the study in late 2014.

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