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User Resistance to Use E-Parking System in Indonesia from the Status Quo Bias Theory Perspective:

Evidence from Padang City, West Sumatera Province

Henri Agustin, Ade Elsa Betavia
Accounting Department, Faculty of Economics
Universitas Negeri Padang
Padang, Indonesia
henri_feunp@yahoo.co.id, elsabetavia@gmail.com

***Abstract*—E-parking system offers four advantages than conventional parking system, which are transparency, accountability, improving the quality of public services, and quality design. Unfortunately, the implementation of the e-parking system in Padang City failed, because it only runs less than 1 year. This study aims to explain user resistance to e-parking system in Padang City using the status quo bias theory. The sample of the study were 113 vehicle owner who parked their vehicles on Pondok, Permindo and Niaga roads; which designated as pilot project of e-parking system in Padang city. A field survey was conducted to collect data and multiple regression analysis was used to analyze the data by using SPSS. This study found that switching cost had positive influence on user resistance to use e-parking system. On the other hand, mimetic pressure has negative influence on user resistance to use e-parking system in Padang city.**

Keywords—e-parking system; user resistence; status quo bias; Padang city

I. INTRODUCTION

The E-parking system is one of the breakthroughs to increase local revenue from parking fees. Vehicle owners pay parking fees using parking machines that have been installed on certain roads by the local government partner companies. The E-parking system is an electronic device that functions to process payment of vehicle parking fees based on parking rates and parking duration. This tool is installed in a number of points on a particular road, so that every parked vehicle will be recorded through a camera installed on the device. In the e-parking system tool, a database is installed that will automatically show the amount of parking rates that must be paid by the vehicle owner in accordance with the duration of the vehicle parking at that location [1].

An electronic parking policy (e-parking system) allows local governments to maximize the amount of receipt of parking retribution from the parking sector, rather than maintaining parking fees using tickets. This is because the e-parking system offers four advantages. First, transparency. Parking attendants no longer hold cash, because all money payments are entered into the e-parking system or enter the local government bank account through the account transfer mechanism (auto debit). Second, accountability. All payments for parking fees are recorded on a database installed on the e-parking system tool. The database can also be accessed online by the local government administration parking unit through an internet network connection. Third, improving the quality of public services. The e-parking system tool has been designed to be user friendly and can be designed to accept cash or auto debit payments using debit cards issued by certain banks that become partners of the local government. In addition, the construction of the e-parking system is usually accompanied by structuring the sidewalk so that the parking area becomes more beautiful and orderly. Fourth, quality design. The e-parking system tool is made of materials that are resistant to all weather, resistant to vandalism, and do not need electricity because it is operated using solar panels [2].

The e-parking system policy has been in a number of big cities in Indonesia. For intance DKI Jakarta, Bandung, Surabaya, and Solo. the implementation of the e-parking system has provided a positive contribution to the local government. For example, the increasing number of parking levies, reducing the leakage of parking receipts, and increasing the quality of public services and accountability in regional financial management, as well as the better governance of parking systems [3-5].

But, in Padang, the capital of west sumatera provice, Not even a year, a number of online mass media in the city of Padang reported that the e-parking system was not running as expected (failed). This is due to the lack of parking attendant initiative directing vehicle owners to pay parking fees through the e-parking system, additional fees after paying parking fees through the e-parking system, as well as the presence of illegal parking attendants other than PT MATA parking attendants as the official e-parking operator system.

Those facts are according to the research team is an indication of user resistance to information technology as described by Hirschheim and Newman, namely the attitude of

users who always avoid avoiding interacting or using a particular information technology system or product (in this case e- parking system). Therefore, it is urgent to conduct research that empirically explained user resistance to use the e-parking system to pay parking fees [6].

The status quo bias theory is a theory initiated by Samuelson and Zeckhaueser to explain the behavior of resistance or the rejection of the use of technology [7]. Kim and Kankanhalli which defines resistance as opposed to system users to change with respect to implementing a new system [8]. Resistance to the system is shown by the user in a variety of negative behaviors. Hirschheim and Newman reveal that user resistance to the system is shown through 3 types of attitudes, namely aggression (in the form of attack or destruction of the system), projection (in the form of user attitudes that always blame the system for the difficulties they face while using the system), and avoidance (in the form of an attitude the user always avoids interacting or using the system) [6].

The use of status quo bias theory in explaining resistance to system products or information technology can be in a number of studies. Research by Kim and Kankanhalli found empirical evidence that switching costs, perceived values, and organizational support for change have a significant effect on the resistance of IT service company employees in Singapore to use the New Office Plus (NOP) system [8]. Hsieh et al. research found empirical evidence that the resistance of hospital patients in Taiwan to use health cloud services is influenced by switching costs and perceived value [9]. Similar findings were also found in the research of Klocker et.al, who found empirical evidence that external pressure (ie mimetic pressure and coercive pressure) had an equally significant effect on perceived value and switching costs in explaining resistance to resident medical doctors in Germany to german programs electronic health card [10]. Whereas in Indonesia, publications on the use of status quo bias theory to explain user resistance to information technology can be seen in the research of Halmawati and Agustin, who found the absence of sanctions in the Instruction of the Minister of Home Affairs number 1888.52/1797/2012 concerning the transparency of local budget management led to the lack of documents to the management of regional budgets uploaded to a special feature called “transparansi pengelolaan anggaran/TPA” on the official website of the local government in west sumatera province [11].

Until this article was written, research publications concerning implementation of electronic parking system in Indonesia is still limited. For instance Rizki Pradipta and Dyah Hariani in Jakarta [12] and also Ega Sri Rahayu, Firdaus, and Salman Asshary in Padang [13]. This research differs from previous research by Rizki Pradipta and Dyah Hariani in terms of both research purpose and research methods [12]. First, if previous research aims to evaluate the effectiveness of a meter-based parking system in jalan Sabang Jakarta, this research focused in finding causes failure of e-parking system implementasion. Second, if previous research was a qualitative research, this research is a quantitative research.

This research also differs from previous research by Ega Sri Rahayu, Firdaus, and Salman Asshary in terms of both theoretical and research methods [13]. First, in this study the research team used the status quo bias theory, while previous research used a sociology approach. Second, the respondents of this study were vehicle owners who parked their vehicles in 3 road sections that had been designated as pilot project e-parking systems (permindo, niaga, and pondok roads), while previous research respondents were parking attendants. Third, previous research is qualitative research where research data is in the form of interviews, while this research is quantitative research where research data is obtained through questionnaires.

This study aims to find empirical evidence that the resistance of vehicle owners in the city of Padang using e-parking system to pay parking fees is influenced by dimensions in the status quo bias theory; namely switching costs, mimetic pressure, organizational support, coercive pressure, self-efficacy to change, and people opinion. In this case, the research team proposed six research hypotheses to be tested, namely switching cost has a positive effect on user resistance to e-parking system (hypothesis 1), mimetic pressure negatively affects the user resistance to e-parking system (hypothesis 2), organizational support has a negative effect on user resistance to e-parking systems (hypothesis 3), coercive pressure negatively affects the user resistance to e-parking system (hypothesis 4), self-efficacy to change negatively affects the user resistance to e-parking system (hypothesis 5), and positive people opinion negatively affects the user resistance to e-parking system (hypothesis 6).

The finding of this research is expected to be useful for both city government of Padang and academicians. For the city government of Padang, the findings of this study are expected to provide answers to the failure of the implementation of the e-parking system in the permindo, pondok, and niaga roads that have been established as a pilot project e-parking system in Padang. As for academicians, the findings of this study are expected to enrich the literature on research on e-government practices in Indonesia, especially regarding e-parking systems.

II. METHOD

The research sample was vehicle owners who parked their vehicles on 3 roads that had been designated as pilot project e-parking systems in Padang city, namely Niaga, Pondok, and Permindo road. The research sample was chosen randomly according to the balance of the proportion of sex and age. The number of samples needed ranges from 100-150 people.

To obtain data, the research team distributed a research questionnaire containing 32 items of questions to respondents. The questionnaire was designed using a Likert scale, with the assessment weight consisting of strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The Systematics research questionnaire can be seen in the table 1 below:

TABLE I. RESEARCH QUESTIONNAIRE AND SOURCES

No.	Variables	N of item	Sources
1.	*Switching cost*	4	Jones et.al (2000), Kim dan Kankanhalli (2009)
2.	*Mimetic pressure*	4	Klocker et.al (2014)
3.	*Organizational support*	5	Kim dan Kankanhalli (2009), Sirdeshmukh et.al (2002)
4	*Coercive pressure*	5	Klocker et.al (2014)
5.	*Self ecfficacy to change*	4	Taylor and Todd (1995)
6.	*People opinion*	4	Kim dan Kankanhalli (2009), Bovey dan Hede (2001)
7.	*User resistance*	6	Kim dan Kankanhalli (2009), Bovey dan Hede (2001)
Total		**32**	

The research team collected data by submitting questionnaires directly to respondents. To get rid of doubts and credibility of the research, the research team showed a research recommendation letter from Kesbangpol Office Padang City before allowing the respondents to fill out the research questionnaire. The collected data was then analyzed using multiple regression analysis methods, by using SPSS version 22.

III. RESULT AND DISCUSSION

A. Profile of Respondent

The research data collection process began in August 2018 and ended in mid-October 2018. The research team managed to obtain data from 113 respondents, but only 103 were included in the data processing process due to incompleteness in filling out the questionnaire. The profile of respondents was shown in table 2. From the table 2 below, it could be seen that 49,9% of the respondents was female, and the other 51,1% was male. The majority of respondent's education levels are senior high school (50,1%) and undergraduate (35,9%). The majority of respondents work as university student (43,6%), private employee (23,3%), and civil servant (12,9%). The majority age of respondents were proportionally distributed to 21-30 years old (28,2%) and 15-20 years old (27,2%). The youngest respondent is 14 years old while the oldest is 52 years old.

TABLE II. PROFILE OF RESPONDENTS

Data Profile of Respondent	Total
Gender Female : 51 (49,5%) Male : 52 (50,1%)	103
Education Level Junior high school (SMP) : 6 (6,3%) Senior high school (SMA) : 52 (50,1%) Diploma (D3) : 7 (6,8%) Undergarduate (sarjana) : 37 (35,9%) Doctor : 1 (0,9%)	103
Occupation University student : 45 (43,6%) Civil servant : 13 (12,9%) Private employee : 24 (23,3%) Entrepreneur : 11 (10,6%) Student : 5 (4,8%) House wife : 5 (4,8%)	103
Age 14-20 years old : 28 (27,2%) 21-30 years old : 29 (28,2%) 31-40 years old : 21 (20,4%) 41-50 years old : 18 (17,5%) >50 years old : 7 (6,8%)	103

B. Adjusted R Square Score Result

The result of adjusted R square score was shown in table 3. As shown on table 3 below, the results of data processing using SPSS version 22 showed that the adjusted R^2 score of this study was quite low, which was only 17.6%. This means that the 6 variables tested in this study (switching cost, mimetic pressure, organizational support, coercive pressure, self-efficacy to change, and people opinion) were only able to explain 17.6% of the resistance factor of vehicle owners to pay parking fees using the e-parking system. While the other 82,4% is explained by other variables outside the research model.

TABLE III. ADJUSTED R SQUARE SCORE MODEL SUMMARY[B]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.475[a]	.226	.176	.52869	2.048

[a.] Predictors: (Constant), po, se, sc, os, mp, cp

[b.] Dependent variabele: ur

Source: primary data, 2018

C. Result of Hypothesis Test

The result of research hypothesis test using SPSS version 22 could be seen on table 4.

TABLE IV. RESULT OF HYPOTHESIS TEST

COEFFICIENTS[A]

Model	Unstandardized Coefficients		Standarized Coefficients	T	Sig.	Collinearity Statistics	
	B	***Std. Error***	***Beta***			***Tolerance***	***VIF***
(Constant)	2.015 .379	.606 .086	.432	3.324 4.431	.001 .000	.876	1.142
Sc	-.248 .056 .152	.107 .098 .102	-.241 .063 .168	-2.316 .569 1.494	.023 .571 .138	.772 .688 .656	1.295 1.454 1.525
Mp1	-.017 .023	.108 .119	-.015 .019	-.155 .191	.877 .849	.847 .876	1.181 1.141
Os							
Cp							
Se							
Po							

[c.] Dependent variabel: ur

Source: primary data, 2018

As shown on table 4 above, there were only two independent variables, which were switching (Sc) and mimetic pressure (Mp), that had significant value on the partial test less than α 0,05. Switching cost (Sc) had significant value on the partial test of α 0.000 with the direction of positive coefficient, while mimetic pressure (Mp) also had significant value on the partial test of α 0.023 with the direction of negative coefficient to user resistance. As the result, **hypothesis 1 and hypothesis 2 were supported**.

But, the other four independent variables, which were organizational support (Os, p = .571), coercive pressure (Cp, p = .138), self-efficacy to change (Se, p = .877), and people opinion (Po, p = *.849*) didn't prove had significant value on the partial test to user resistance. The result of the linear regression test for all those independent variables showed significant value were more than the required α of 0.05. As the result, **hypothesis 3, 4, 5, 6 were not supported**.

D. Discussion

Our study confirmed a significant positive effect in the relation between switching cost and the resistance of vehicle owners to pay parking fees using the e-parking system. This research finding supported previous research by Klocker et.al related with e-health card programs in Germany [10], Kim and Kankanhalli related with new office Plus enterprise systems in South Korea and Singapore [8], and Imtikhanah related with the migration of the cash basis accounting system to the accrual basis in the SKPD of Pemalang, Batang, and Pekalongan districts [14]. It mean that vehicle owners in Padang city consider paying parking fees using an e-parking system more expensive than the previous system (automatic pay to parking attendants). Vehicle owners must pay parking fees more expensive than usual, given the amount of parking fees that must be paid by the hour, and the additional payment for the next 1 hour. The e-parking system is also troublesome because the vehicle owner must buy a parking card and must be filled with a certain nominal value before it can be used. This is considered burdensome, especially for those who rarely or occasionally park their vehicles

Our study also confirmed a significant negative effect in the relation of mimetic pressure and the resistance of vehicle owners to pay parking fees using the e-parking system. This research finding supported previous research by Klocker et.al related with e-health card programs in Germany [10]. It mean that in the perspective of the vehicle owner required an example or example from others is very necessary so that the public can consciously leave the payment of parking fees with the old way (pay directly to the parking attendant) and switch to using the e-parking system. When vehicle owners in Padang city pay their parking fees using the e-parking system, it will encourage other vehicle owners to take similar actions. Because they certainly do not want to be considered not as people who do not obey the rules, or are considered as technology stutterers.

On the other hand, our study confirmed that organizational support didn't have significant effect on the resistance of vehicle owners in Padang to pay parking fees using the e-parking system. This finding was not supported previous research by Kim and Kankanhalli [8] and Imkhanah [14]. It means that vehicle owners in Padang considering that as a new public policy, e-parking system in not yet accompanied by adequate support in the form of adequate personnel and socialization from department of transportation as the relevant institution. Department of transportation, perhaps because of limitation of budget, could not made optimal socialization to citizen of Padang to be participated in the new policy. As addition, the absence of satuan polisi pamong praja (Satpol PP) placed in the e-parking location, to give warning or solicitation to vehicle owners who are still trying to pay parking fees in the old way (pay directly to the parking attendant) also increase vehicle owner's reluctant in Padang to use e-parking system.

Our study confirmed that coercive pressure didn't have significant effect on the resistance of vehicle owners in Padang to pay parking fees using the e-parking system. This finding was not consistent with previous research Klocker et.al [10] and Halmawati and Agustin [11]. It means that vehicle owners in Padang considering that when a new policy such as e-parking system was not accompanied with adequate coercive pressure in the form administrative sanction or criminal sanction), it will cause vehicle owners in Padang reluctant to implement it because they reconsider for no fear of being exposed or harmed by such coercive pressure. In this case, after e-parking system was implemented the mayor of Padang didn't immediately issued new regional regulations governing parking meter policies, or revise previous regional regulations governing parking fees so that anyone who ignored it would be given more meaningful sanctions. For instance, vehicle owner who violate these regulations will receive administrative sanctions in the form of interest of 2% of the amount of the delinquent retribution.

Our study also confirmed that self-efficacy to change didn't have significant effect on the resistance of vehicle owners in Padang to pay parking fees using the e-parking system. This research finding wasn't consistent with previous research by Kim and Kankanhalli [8]. It means that it is not easy for the vehicle owners in Padang willing to change the way parking payment is paid from paying directly to the parking attendant to use the parking meter machine, even though they know that using parking meter machines to pay parking fees is more or less the same by paying utility fees or buying credit via ATM. This is because self-efficacy acts as a positive suggestion in a person not to be afraid of trying new things. But for several reasons, for instance fear of machine failure or machine security, vehicle owners in the city of Padang did not want to pay parking fees using the parking meter machine.

Our study also confirmed that positive people opinion didn't have significant effect on the resistance of vehicle owners in Padang to pay parking fees using the e-parking system. This research finding wasn't consistent with previous research by Kim and Kankanhalli [8]. It means that even though vehicle owner in Padang know from friends, family, or colleagues that pay parking fees through e-parking system is easy and safe, it was not automatically made them willing to leave the previous way paying parking fees from pay directly to the parking attendant to use a parking meter machine. Sometimes, the intention to use e-parking system to pay parking fee using e-parking system is already embedded in the vehicle owner, but it is not realized at all because of some negative consequences conflicting facts occurred on location. For instance, no real sanction for people who keep pay parking fee directly to parking attendant, or because they were being afraid that their vehicles would become victims of vandalism from parking attendant if they pay parking fees with e-parking system.

IV. CONCLUSION

Dimensions in the status quo bias theory cannot fully explain the resistance of vehicle owners in Padang City using the e-parking system to pay parking fees. This study highlights the significance of switching costs and mimetic pressure as key determinants of vehicle owner resistance in Padang city to use e-parking system to paid parking fee. While the other four variables, namely organizational support, coercive pressure, self-efficacy to change, and people opinion were not proven. The dimensions of the status quo bias theory proposed in this study are only able to explain 17.5% resistance of vehicle owners in the city to pay parking fees using the e-parking system. To get a comprehensive picture, research with similar topics in the future is recommended to include other variables in the research model. For example inertia or perceived of threats.

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