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Impact of Government Incentive and Social Influence in the Consumer Adoption of E-Wallets in Malaysia

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Abstract: Despite Malaysia having a young and predominantly tech-savvy workforce, consumers are yet to fully embrace the digital culture. In January 2020, the Malaysian government had launched the E-Tunai Rakyat incentives to prepare for a cashless society in Malaysia. This study aims to explore the E-Tunai Rakyat incentive and other factors affecting the consumer adoption of e-wallets in Malaysia. The factors considered in this research are perceived usefulness, perceived ease of use, perceived security, E-Tunai Rakyat incentive and social influence. 275 questionnaires were collected from the respondents and analysed. The results show that all the independent variables have a significant relationship with the behavioural intention except for social influence and behavioural intention has a significant relationship with the consumer adoption of e-wallets. In addition, except for social influence, BI partially mediates the relationship between all the independent variables and consumer adoption of e-wallets. The findings of this study provide insights which would prove useful for the Malaysian government, e-wallet developers and future researchers.

Key Term: E-wallets, E-Tunai Rakyat incentive, perceived usefulness, perceived ease of use, perceived security, social influence, Malaysia

Introduction

Cashless payment is a rapidly growing phenomenon in the developing countries. Although Malaysia has a young, and mainly tech-savvy, workforce comprising of more than 70% of the population but Malaysians are yet to fully embrace the digital culture (Tan, 2019). As Malaysia is moving towards a cashless society, the people and merchants must consider using cashless payment methods (Malay Mail, 2020). An e-wallet is also known as a digital wallet (Kagan, 2020). E-wallets can immediately transfer money to another person who uses the same e-wallet application (Tan, 2019).
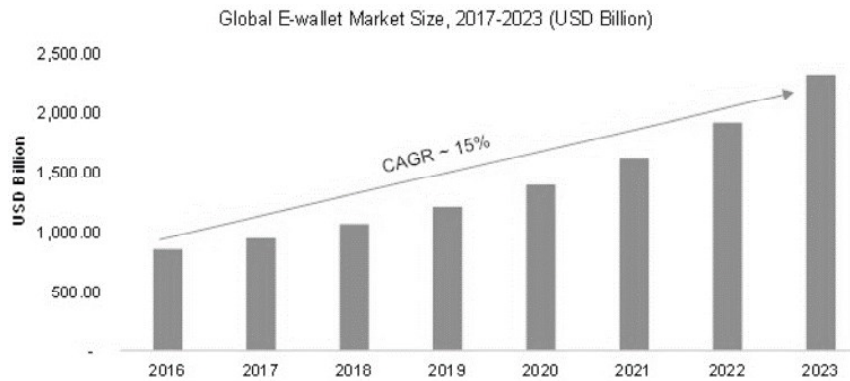
Figure 1: Global E-wallets market size (Market Research Future, 2020)

According to Figure 1, the global e-wallets market is expected to grow at a compound annual growth rate of 15 % during the forecast period from 2017 to 2023.

E-wallets have been developing rapidly in Malaysia over the last couple of years and Bank Negara Malaysia, the Malaysian Central Bank, has issued more than 40 e-wallet licenses. The cashless payments platforms are already available with companies that offer e-wallet services such as Boost, Touch n' Go (TNG) Sdn Bhd, Grab, and many others. There are more and more local merchants who are accepting cashless transactions across the country. Thus, it is not difficult for Malaysia to go cashless (Malay Mail, 2020). Overall, e-wallet payments still have a more optimistic growth prospect but it needs some government impetus. The government is preparing for the country's movement towards a cashless society by launching the E-Tunai Rakyat initiative (The Star, 2020). Ex-Finance Minister Lim Guan Ying said that E-Tunai Rakyat aims to reduce barriers while accessing digital technology and make the digitalization process inclusive. It also targets to speed up the use and adoption of e-wallets and digital payments among Malaysian consumers and merchants (Malay Mail, 2020).

Problem Statement

Malaysia is currently lagging behind due to its low adoption of the e-wallets. Malaysia is still in its infant stage, with digital payments primarily being used in transportation as well as food and beverage (F&B) sectors, where many e-wallet players are spending heavily to acquire customers and merchants. As claimed by a survey conducted by PwC, 22% of the respondents are e-wallet users and a majority of them expect to use their e-wallets between 1 to 5 times in a week (Tan & Cheong, 2018). According to TMO Group, e-wallet is not popular in Malaysia, as 50% of the consumers

are worried about the security and fraud pertaining to e-wallets (Liew, 2019). This ultimately creates a technological gap between the e-wallet services and the consumers (Cheng, Lee, Lim, Cheong, & Mok, 2018). Although Malaysia has become a demonetizing economy, the adoption of e-wallets remains unfavourable (Yapp, 2018). Cash circulation in Malaysia is still high because the amount of cash in circulation continue to increase despite efforts being made towards going cashless between 2014 to 2018 (Pikri, 2019). Most of the previous studies, focusing on Malaysia, explored the mobile payment acceptance by adopting Technology Acceptance Model (TAM) (Leong *et al.*, 2013; Tan *et al.*, 2014) as the theoretical base. Recently, the government of Malaysia has implemented E-Tunai Rakyat incentive scheme to encourage Malaysians to adopt e-wallets, thereby changing consumers' living habits invisibly and allowing them to continue to adopt e-wallets. This incentive is likely to emerge as a new factor which influences consumer adoption toward e-wallet. Past researches have provided limited study and understanding of the factors influencing the customer's acceptance of e-wallet in Malaysia (Liew, 2019). Therefore, this study aims to further explore E-Tunai Rakyat and the other factors affecting consumers to use e-wallet in Malaysia. Apart from E-Tunai Rakyat incentive, perceived security and social influence factors have been added to extend the TAM model.

Research Objective

The main objective of this study is to analyse the Malaysian government's E-Tunai Rakyat incentive and the factors affecting consumer adoption of e-wallets in Malaysia. The following are the specific objectives of the study:

1. To explore the relationship between perceived usefulness and the behavioural intention to adopt e-wallets.

2. To examine the relationship between perceived ease of use and the behavioural intention to adopt e-wallets.

3. To analyse the relationship between perceived security and the behavioural intention to adopt e-wallets.

4. To investigate the relationship between E-Tunai Rakyat incentive and the behavioural intention to adopt e-wallets.

5. To explore the relationship between social influence and the behavioural intention to adopt e-wallets.

6. To investigate the relationship between the behavioural intention to adopt and consumer adoption of e-wallets.

7. To investigate the mediation effect of behavioural intention between the relationship of perceived usefulness, perceived ease of use,

perceived security E-Tunai Rakyat incentive, social influence and consumer adoption of e-wallets

Literature Review

Theoretical Support

Technology Acceptance Model (TAM) is the most widely used framework for predicting the adoption of information technology (Chua, Lim, & Aye, 2019). TAM was developed by Fred Davis and Richard Bagozzi in 1986. TAM is designed to measure the consumer's acceptance of information systems and technologies (Malik & Annuar, 2019). TAM also helps scholars and experts to distinguish why certain technologies or systems can be accepted or rejected (Lai, 2018). The fundamental implication of the TAM is attitudes predict intentions, and intentions predict behaviour (Nyoni, 2018). The original TAM model is shown in Figure 2.
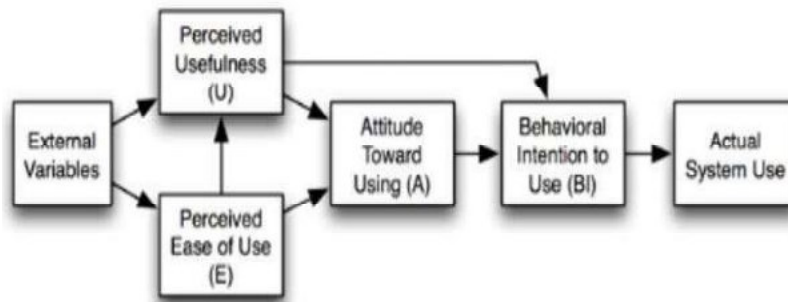

Figure 2: Original TAM model (Davis, 1989)

In this study, perceived security, the newly introduced E-Tunai Rakyat incentive by the Malaysian government and social influence are also included to have a better understanding of consumer adoption of e-wallets by Malaysians.

Relationship between Perceived Usefulness (PU) and Behavioural Intention to Use (BI)

Perceived usefulness is defined here as "the degree to which a person believes that using a particular system can improve his/her work performance" (Davis, 1989). With the increased perceived usefulness of advanced technologies for payment methods, consumers have developed the trust and habit of using electronic payment.

According to Chern, Kong, Lee, Lim, and Ong (2018), the rate of adopting an e-wallet will increase when the e-wallet is more useful. Further, Yap and Ng (2019) concluded that convenience had the greatest influence

among other independent variables in influencing consumers' perceived usefulness to use M-wallets in Klang Valley, Malaysia. The researchers conclude that more the convenience in using M-wallets, the more likely one would perceive it as useful (Yap & Ng, 2019). Therefore, the first hypothesis is suggested below:

> *H*1: There is a significant relationship between perceived usefulness and the behavioural intention to use e-wallets.

Relationship between Perceived Ease of use (PEOU) and Behavioural Intention to Use (BI)

Davis (1989) defined perceived ease of use as the degree to which a person believes that using a particular system will not be difficult. Using e-wallet payment system does not take much effort as it is very easy and convenient (Bakar, Aziz, Muhammud, & Muda, 2017).

Malik and Annuar (2019) examined the factors that influence the intention of the youths in Malaysia to use e-wallets and reviewed the literature related to perceived ease of use. A study conducted by Chua, Lim, and Aye (2019) concluded that the respondents would have a positive relationship between perceived ease of use and behavioural intention to use if the registration of the mobile wallet application is easy. According to Lai (2018), perceived ease of use is instrumental in influencing consumers' intention to use a single platform e-payment system. Based on Trivedi (2016), perceived ease of use will play an important role in this adoption of the modern payment system. Thus, the second hypothesis is proposed:

> *H*2: There is a significant relationship between perceived ease of use and the behavioural intention to use e-wallets.

Relationship between Perceived Security (PS) and Behavioural Intention to use (BI)

Perceived security is the biggest factor affecting consumer adoption of e-wallets (Punwatkar & Verghese, 2018). Perceived security is defined as the degree in which a customer believes that using a particular procedure will be safe (Yenisey, Ozok, & Salvendy, 2005). The majority of respondents consider that the major obstacle of e-wallets is network connectivity and security threat (Nandhini & Girija, 2019) and perceived security becomes the most considered factor (Punwatkar & Verghese, 2018).

The study conducted by Punwatkar and Verghese (2018) shows that 94.66% of the respondents said that the limiting factors were lack of security and safety, lack of infrastructure, and illiteracy. Doan (2014) shows how influential factors affect adoption by consumers. Security issues in

transaction and privacy are the most important concerns for users. 86% of the respondents take secured transactions as a very important factor and 79% of them consider secured privacy a very influential element. More consumers will only start using mobile wallets when there are effective solutions to solve these problems. Thus, the third hypothesis is formulated:

> *H*3: There is a significant relationship between perceived security and the behavioural intention to use e-wallets.

Relationship between E-Tunai Rakyat Incentives (ET) and Behavioural Intention to Use (BI)

E-Tunai Rakyat incentive is a new factor that is considered to influence the adoption of e-wallet and will be included in the research model. The Malaysian government is promoting a shift towards a cashless society by launching the E-Tunai Rakyat incentive, which was announced in January 2020. E-Tunai Rakyat is an initiative to provide one-time RM30 e-wallet credit to eligible Malaysians. It aims to encourage Malaysians to adopt safer, more secure cashless and digital payments (Grab, 2019). The E-Tunai Rakyat incentive is available to all Malaysians aged 18 years and above with an annual income of less than RM100, 000 (Wong, 2019). This incentive was made available from 15 January 2020 until 14 March 2020 (Wong, 2019) to three popular e-wallets users in Malaysia which are Touch 'n Go, Boost and Grab (Chew, 2019).

The government had chosen these three apps as the partner of the E-Tunai Rakyat incentive. This study also investigated which app amongst these is the most popular e-wallet to redeem the E-Tunai Rakyat incentives. Based on Tan and Chong (2018), the incentive is the top three reason for respondents to use an e-wallet. The researchers also concluded that incentives will remain the key driver of consumer adoption of e-wallets. In short, if the adoption of e-wallet requires an intensive strategy or program for its promotion, consumers will be more willing to use an e-wallet. Thus, the fourth hypothesis is proposed:

> *H*4: There is a significant relationship between the E-Tunai Rakyat incentive and the behavioural intention to use e-wallets.

Relationship between Social Influence (SI) and Behavioural Intention to use (BI)

Social influence is defined as "the degree to which an individual perceives that important others believe he or she should use the new" (Venkatesh, Morris, Davis, & Davis, 2003). A study examined that social influence is the factor that affects the adoption of e-payment because it has a beta weight

of 0.502 as compared to other variables (Shafie, *et al.*, 2018). Yap & Ng (2019) examined that social influence had a positive effect on influencing consumers' perceived usefulness to use M-wallets in Klang Valley (Yap & Ng, 2019). The more people such as families, friends, or other consumers use e-wallets, the more likely one would perceive it as useful. Therefore, the fifth hypothesis is formulated:

> *H*5: There is a significant relationship between social influence and the behavioural intention to use e-wallets.

Relationship between Behavioural Intention to use (BI) and Consumer Adoption of E-wallets (CA)

Behavioural intention is defined as a person's intention to perform a given act; it can predict the corresponding behaviour when a person acts voluntarily (Kuan, Ann, Emeilee, & Tang, 2014). In this study, behavioural intention is a mediating variable that could help to estimate the actual use of certain things, which can cause attitude formation (Liew, 2019). A study conducted in Central India examined that the intention to use has a positive influence on the adoption of a digital payment system. Punwatkar and Verghese (2018) mentioned that the intention to use again depends on how proficient the person is in handling technology. Technical knowledge is considered important before the use of digital payment systems, as for young people it is easy to understand and adopt, but becomes a Herculean task for older consumers (Punwatkar & Verghese, 2018). Thus, the sixth hypothesis is suggested:

> *H*6: There is a significant relationship between behavioural intention to use and the consumer adoption of e-wallets.

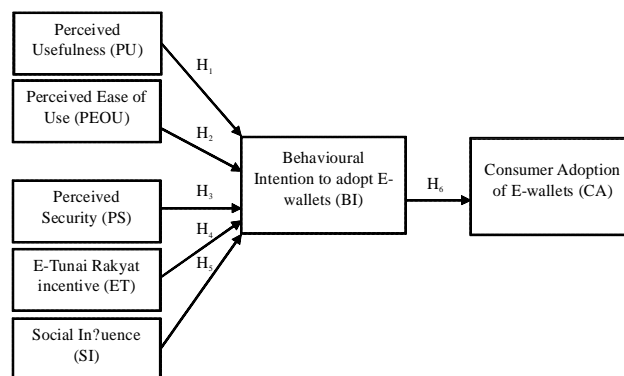Based on the above literature review, the research framework is presented in Figure 3.

Figure 3: Proposed Research Framework

Research Methodology

Data Collection

For the purpose of the study, the primary data has been collected through a self-administered questionnaire. This is a cross-sectional study. It focuses on the factors affecting consumer adoption of e-wallets in Malaysia at a single point of time. According to Cheng, Cheong, Lee, Lim, and Mok (2018), a cross-sectional study is quick, cheap and easy to execute. However, the information collected only explains the appropriate situation at one point of time (Kuan, Ann, Emeilee, & Tang, 2014).

Target Population

The target population defines those units for which the findings of the survey are meant to generalize (Lavrakas, 2008). The main objective of this study is to find out the factors affecting consumer adoption of e-wallets and analyse E-Tunai Rakyat incentives. Therefore, the target population of this study is Malaysian citizens who are above 18 years old and a smartphone user.

Sampling Technique

Since, researchers neither have time nor the resources to analyse the entire population, they apply sampling technique to reduce the number of cases (Taherdoost (2016). There are three types of sampling techniques, namely, probability sampling, nonprobability sampling, and mixed sampling. The sampling technique for this study is a non-probability sampling. There are four types of non-probability sampling which include judgmental sampling, convenience sampling, snowball sampling and quota sampling. This study used judgmental sampling because the researcher can choose a more representative sample which can bring more accurate results rather than using other probability sampling techniques.

Sampling Size

The sample size measures the number of individual samples measured or observations used in a survey or experiment (Zamboni, 2018). According to Hinkin (1998), an ideal sample size should possess item-to-response ratios, as low as 1:4 and as high as 1:10. There are 26 items to measure in this study, the ideal range of sample size is from 104 to 260. Thus, a sample size of 275 was considered good for this descriptive exploration.

Research Instrument

The questionnaire used for the study was separated into three sections, which are Section A, Section B and Section C. In section A, the questions were mainly

pertaining to the demographic information, which included gender, age, and the general information about the usage of e-wallets of each respondent. Section A in the questionnaire had been prepared using an ordinal scale.

Section B and C of the questionnaire consisted of the questions on independent variables, mediating variable and dependent variable. Section B consisted of questions on five independent variables (Perceived Usefulness, Perceived Ease of Use, Perceived Security, E-Tunai Rakyat incentives, and Social Influence). Section C comprised of questions on the mediating variable and dependent variable, which are the behavioural intention to adopt e-wallets and consumer adoption of e-wallets respectively. Likert scale was applied in sections B and C of the questionnaire, which consisted of a five-point scale, ranging from strongly disagree to strongly agree.

Variables and Measurement

The definition and the scale of measurement of each variable are shown in the table 1 below.

Table 1: Definition and scale of measurement of each variable

Concept	Definition	Scale of Measurement	Sources
Perceived Usefulness	Perceived Usefulness is defined as the degree to which a person believes that using a particular system can improve their work performance (Davis, 1989).	Likert Scale	Adapted and modified from Chern, Kong, Lee, Lim, and Ong (2018); Kuan, Ann, Emeilee, and Tang (2014)
Perceived Ease of Use	Perceived ease of use is defined as the degree to which a person believes that using a particular system will not be difficult (Davis, 1989).	Likert Scale	Adapted and modified from Chern, Kong, Lee, Lim, and Ong (2018); Cheng, Lee, Lim, Cheong and Mok (2018)
Perceived Security	Perceived Security is defined as the degree to which a customer believes that using a particular procedure will be safe (Yenisey, Ozok, & Salvendy, 2005).	Likert Scale	Adapted and modified from Chern, Kong, Lee, Lim, and Ong (2018)
E-Tunai Rakyat incentive	E-Tunai Rakyat incentive is an impetus provided by the government to encourage the public to adopt e-wallet.	Likert Scale	Adapted and modified from Bothun, Glisson, Haas, Isaac, and Lieberman (2013)

Social Influence	Social influence is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh, Morris, Davis, & Davis, 2003).	Likert Scale	Adapted and modified from Chern, Kong, Lee, Lim, and Ong (2018); Liew (2019)
Behavioural Intention to adopt e-wallet	Behavioural intention is defined as a person's intention to perform a given act (Kuan, Ann, Emeilee, & Tang, 2014).	Likert Scale	Adapted and modified from Kuan, Ann, Emeilee and Tang (2014); Liew (2019)
Consumer adoption of e-wallet	It means the attitude and action of accepting new things.	Likert Scale	Adapted and modified from Chern, Kong, Lee, Lim, and Ong (2018)

Results

Descriptive Analysis

Out of 276 questionnaires, 275 questionnaires were usable. The majority of respondents are females, which consists of 159 responses (58%) and the remaining 116 (42%) respondents are males. In addition, the age of respondents from 18 to 25 years has the largest proportion which consists of 189 responses (68.7%). Followed by age between 26 to 30, 31 to 40, 41 to 50, 51 and above which consists of 30 (10.9%), 24 (8.7%), 18 (6.6%) and 14 (5.1%) respondents respectively.

Most of the respondents, that is, 123 (44.85%) have pursued at least a degree. Followed by graduates, the respondents who have completed high school, Diploma, Master and above consists of 98 (35.6%), 42 (15.3%), and 7 (2.5%) respondents respectively. There are 5 (1.8%) respondents who have completed primary education. The majority monthly income level of the respondents is below RM 1000 which contains 153 respondents (55.6%). This was followed by monthly income between RM 1001 and RM 3000, RM 3001 and RM 5000 and above RM 5000 which consists of 55 (20%), 48 (17.5%), and 19 (6.9%) respondents respectively.

All the respondents are smartphone users. There are 241 (87.6%) respondents who were already using an e-wallet. However, 34 (12.4%) respondents were not using an e-wallet. In addition, most of the respondents have claimed the E-Tunai Rakyat Incentive which consists of 221 (80.4%) respondents. The remaining 54 (19.6 %) respondents did not claim the E-Tunai Rakyat incentive.

Most of the respondents chose Touch n Go to claim the incentives which consists of 144 (65.2 %) respondents. This was followed by Grab Pay and Boost which is used by 57 (25.8 %) and 20 (9 %) respondents respectively. Out of the 54 (19.6 %) respondents not claiming the incentive, 19 (35.2 %) of the respondents were lazy to claim the incentive while 15 (27.8 %) respondents did not know that there was an incentive for them to claim. Further, 11 (20.4 %) respondents were not eligible to apply for the incentive and 9 (16.6 %) respondents had missed the chance to claim the incentive.

SEM_PLS Analysis

SEM-PLS is employed to analyse the data. Figure 4 below shows the measurement model.
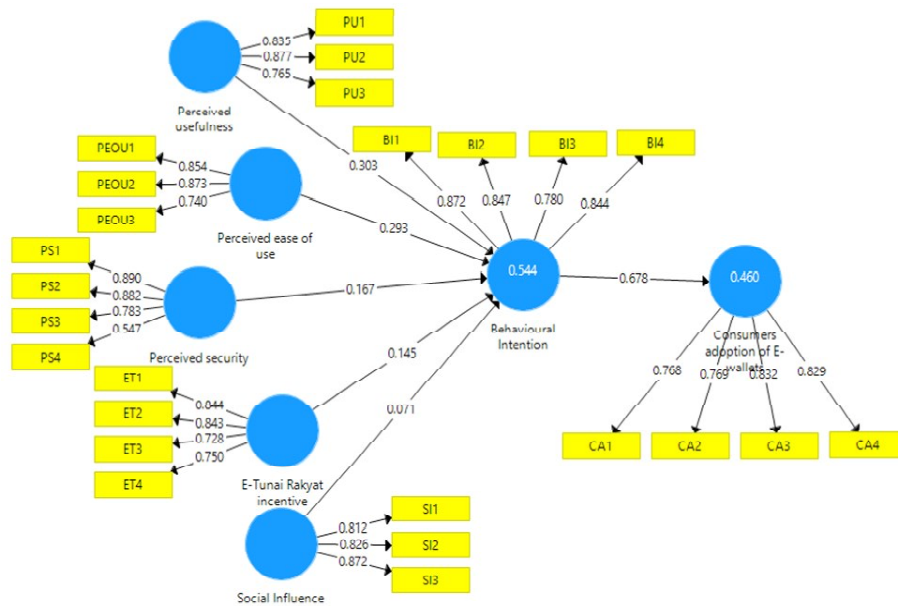

Figure 4: Measurement Model of SEM-PLS

Item reliability is acceptable by considering outer loading and, if it is greater than 0.708, it implies that the item explains more than half of the indicator's variance (Hair, Risher, Sarstedt, & Ringle, 2019). As showed in Figure 4, all item's outer loadings are above 0.708 except for PS4 which is 0.547. As suggested by Hair Hult, Ringle and Starstedt (2017), item with outer loadings between 0.50 and 0.70 may be considered for removal if they can improve the composite reliability or Average Variance Extracted (AVE). However, as shown in Table 3, since the composite reliability and AVE are within the threshold, item PS4 was not removed.

Table 2: R Square

	R Square	R Square Adjusted
Behavioural intention	0.544	0.536
Consumers adoption of E-wallets	0.460	0.458

Table 2 shows that the R Square is 0.544 for behavioural intention and 0.460 for consumers adoption of E-wallets. This indicates that 54.4% of the variation in Behavioural Intention to adopt e-wallets can be explained by the five independent variables, whereas the remaining 45.6% is explained by other factors that are not tested in this research. While 46.0% of the variation in Consumer Adoption of e-wallets can be explained by Behavioural Intention to adopt e-wallets, the remaining 54.0% is explained by other factors which were not not tested in this study.

Table 3: Construct Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Behavioural intention (BI)	0.857	0.903	0.700
Consumers adoption of E-wallets (CA)	0.812	0.877	0.640
E-Tunai Rakyat Incentive (ET)	0.802	0.871	0.629
Perceived ease of use (PEOU)	0.762	0.864	0.680
Perceived security (PS)	0.788	0.864	0.621
Perceived usefulness (PU)	0.768	0.866	0.683
Social Influence (SI)	0.786	0.875	0.701

To assess the internal consistency reliability, Cronbach's Alpha and Composite Reliability are used. As shown in Table 3, the Cronbach's Alpha and Composite Reliability of all variables are above 0.7 which indicates that all constructs have high level of internal consistency reliability (Hair *et al.*, 2017). Furthermore, the Average Variance Extracted (AVE) for all constructs are above 0.5, signifying high levels of convergent validity (Hair *et al.*, 2019).

Table 4: Fornell-Larcker Criterion

	BI	CA	ET	PEOU	PS	PU	SI
BI	**0.837**						
CA	0.678	**0.800**					
ET	0.457	0.421	**0.793**				
PEOU	0.629	0.572	0.396	**0.825**			
PS	0.427	0.382	0.340	0.289	**0.788**		
PU	0.639	0.591	0.348	0.697	0.320	**0.827**	
SI	0.402	0.378	0.467	0.265	0.408	0.387	**0.837**

The Fornell-Larcker criterion is used to assess the discriminant validity. As shown in Table 4, the diagonal values are greater than all the off-diagonal inter-construct correlation values suggesting that there was discriminant validity for all the variables (Fornell & Larcker, 1981).

The values of Variance Inflation Factors (VIFs) are used to determine whether there is any collinearity problem. The results show that the highest VIF is PS1 at 2.568. Since all the VIF values are below 3, it indicates that the structural model results are not affected by collinearity.

The standardized root mean square residual (SRMR) is found to be 0.067. According to Hu and Bentler (1999), SRMR of less than 0.08 is considered a good fit and, thus, it indicates a good model fit for the study.

The bootstrapping technique with 5,000 resamples was applied to test the significance of hypotheses. Figure 5 shows the structural model of SEM-PLS.
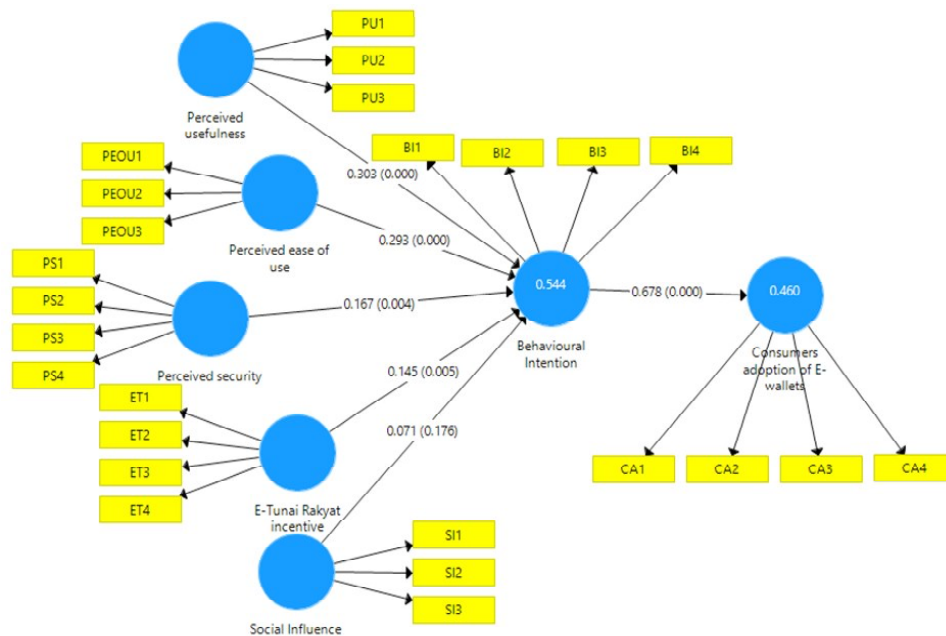

Figure 5: Structural Model of SEM-PLS

Table 5 shows the path coefficient and Table 6 shows the summary of the results of hypotheses testing.

Table 5: Path Coefficient

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
PU -> BI	0.303	0.302	0.060	5.058	0.000
PEOU -> BI	0.293	0.291	0.065	4.477	0.000
PS -> BI	0.167	0.168	0.058	2.896	0.004
ET -> BI	0.145	0.147	0.052	2.809	0.005
SI -> BI	0.071	0.075	0.053	1.352	0.176
BI -> CA	0.678	0.681	0.043	15.726	0.000

Table 6: Summary of the results of hypotheses testing

	Hypothesis	Result	Significant level
H1	There is a significant relationship between Perceived Usefulness and Behavioural Intention to adopt e-wallets.	Supported	0.000
H2	There is a significant relationship between Perceived Ease of Use and Behavioural Intention to adopt e-wallets.	Supported	0.000
H3	There is a significant relationship between Perceived Security and Behavioural Intention to adopt e-wallets.	Supported	0.004
H4	There is a significant relationship between E-Tunai Rakyat incentive and Behavioural Intention to adopt e-wallets.	Supported	0.005
H5	There is a significant relationship between Social Influence and Behavioural Intention to adopt e-wallets.	Not Supported	0.176
H6	There is a significant relationship between Behavioural Intention to adopt e-wallets and Consumer Adoption of e-wallets.	Supported	0.000

Mediation Analysis

To perform the mediation analysis, BI is excluded from the model to measure the direct effect of all variables to CA. The path coefficient excluding BI in the model is shown in Table 7. The results show that except for SI (p value = 0.169), all variables have significant relationship with CA (P-value < 0.05). Thus, SI is excluded from the mediation analysis.

Next, BI is incorporated back into the model to assess the significance of the indirect effects of PU, PEOU, PS and ET to CA through BI as per Table 8. All the indirect effects are found to be significant with P-value < 0.05.

Table 7: Path Coefficient Excluding BI

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
PU -> CA	0.294	0.292	0.061	4.806	0.000
PEOU -> CA	0.251	0.254	0.067	3.769	0.000
PS -> CA	0.154	0.156	0.058	2.660	0.008
ET -> CA	0.135	0.137	0.059	2.314	0.021
SI -> CA	0.078	0.080	0.057	1.374	0.169

Table 8: Path Coefficient including BI

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
PU -> BI	0.300	0.299	0.061	4.911	0.000
Indirect effect					
PU -> BI -> CA	0.118	0.118	0.035	3.375	0.001
Total effect					
PU -> CA	0.309	0.309	0.056	5.466	0.000
PEOU -> BI	0.294	0.293	0.067	4.361	0.000
Indirect effect					
PEOU -> BI -> CA	0.115	0.115	0.034	3.405	0.001
Total effect					
PEOU -> CA	0.245	0.246	0.068	3.620	0.000
PS -> BI	0.169	0.169	0.058	2.903	0.004
Indirect effect					
PS -> BI -> CA	0.066	0.066	0.025	2.664	0.008
Total effect					
PS -> CA	0.157	0.157	0.060	2.612	0.009
ET -> BI	0.146	0.146	0.052	2.808	0.005
Indirect effect					
ET -> BI -> CA	0.057	0.057	0.022	2.541	0.011
Total effect					
ET -> CA	0.153	0.152	0.058	2.634	0.008
BI -> CA	0.393	0.394	0.072	5.451	0.000

The Variances Accounted For (VAF) in respect of PU, PEOU, PS, and ET are calculated to determine the mediation effect. (VAF = indirect effect/ total effect (Hair, *et al.*, 2017). All the VAF values are found to be between 20% and 80%: VAF for PU = 0.118/0.309 = 38.19%; PEOU = 0.115/0.245 = 46.94%; PS = 0.066/0.157 = 42.04%; and ET = 0.057/0.153 = 37.25%. According to Hair, *et al.* (2017), if VAF is between 20% and 80%, there is a partial mediation. Thus, it is concluded that BI partially mediates the relationship between PU, PEOU, PS and ET and CA.

Discussion

Based on the analysis, perceived usefulness has a significant relationship with behavioural intention to adopt e-wallet ($p < 0.05$). According to Chua, Lim, and Aye (2019), perceived usefulness has a significant influence on behavioural intention to use a mobile wallet if the overall usage of a mobile wallet is advantageous. The more useful and convenient, the more likely consumers adopt M-wallets (Yap & Ng, 2019).

The outcome of this study is consistent with the past studies of Malik and Annuar (2019), Chua, Lim, and Aye (2019), Lai (2019), Trivedi (2016), Seetharaman, Karippur, Palaniappan and Weber (2017), Nag and Gilitwala (2019) and Punwatkar and Verghese (2018).

Based on the results of this study, perceived ease of use has a significant relationship with the behavioural intention to adopt e-wallets ($p < 0.05$). According to Lai (2019), perceived ease of use is essential for a complex system such as an integrated single platform payment system. Thus, companies intending to implement such a system should examine perceived ease of use to enhance consumers' intention to use. If the registration of the mobile wallet application is easy, the public will have the behavioural intention to use an e-wallet (Chua, Lim & Aye, 2019). The finding of the study is in line with the past studies of Malik and Annuar (2019), Chua, Lim, and Aye (2019), Lai (2019), Trivedi (2016) and Nag and Gilitwala (2019). However, this result did not concur with the findings of Seetharaman, Karippur, Palaniappan, and Weber (2017). According to Lai (2019), perceived ease of use is essential for a complex system, such as, an integrated single platform payment system. Companies intending to implement such a system should, therefore, examine perceived ease of use to enhance consumers' intention to use.

The result shows the perceived security has a significant relationship with the behavioural intention to adopt e-wallets ($p < 0.05$). The security issues in transactions and privacy are the most concerning factors among users (Doan, 2014). There will be more consumers who will start adopting e-wallets when there is an effective solution to solve the issues. The outcome of this study is in line with the past studies of Doan (2014), Seetharaman, Karippur, Palaniappan, and Weber (2017), Nag and Gilitwala (2019), and Punwatkar and Verghese (2018). However, it is not consistent with the outcomes of Chern, Kong, Lee, Lim and Ong (2018), Voronenko (2018) and Chua, Lim and Aye (2019).

In addition, the E-Tunai Rakyat incentive has a significant relationship with the behavioural intention to adopt e-wallets ($p < 0.05$). The outcome of this study is consistent with the prior studies undertaken by Brahmbhatt (2018) and Chauhan and Shingari (2017). According to Brahmbhatt (2018),

most of the respondents were aware of the government's push for E-transactions. This shows that people have clarity regarding the benefits of digital transactions over the traditional payment system. Cashback offers and incentives are mostly considered while doing transactions/payment over e-wallets.

Based on the analysis, social influence has no significant relationship with the behavioural intention to adopt an e-wallet ($p > 0.05$). The findings of this study is consistent with the past studies by Voronenko (2018) and Kuan, Ann, Emeilee, and Tang (2014), Malik, Suresh, and Sharma (2019) and Cheng, Kim, and Thai (2018). However, this result is not consistent with the past studies undertaken by Chern, Kong, Lee, Lim, and Ong (2018) and Liew (2019). According to Kuan, Ann, Emeilee, and Tang (2014), e-wallet users are not influenced by the opinions, suggestions and recommendations of others who think they should adopt e-wallets. Besides, Cheng, Kim and Thai (2018) found that social influence does not have a strong impact on millennial consumers in adopting e-wallets because the adopters were among the innovators, early adopters and early majority, who were willing to take many risks in adopting new technology.

Behavioural intention to adopt e-wallet has a significant relationship with consumer adoption of e-wallets ($p < 0.05$). This finding is in line with the past research undertaken by Chua, Lim, and Aye (2019) and Punwatkar and Verghese (2018). According to Punwatkar and Verghese (2018), the intention to use again depends on how proficiently the person can use technology. Technical knowledge is considered to be an important prerequisite for the use of digital payment systems, which is easy for the young people to understand and adopt but become a huge task for the older consumers.

Managerial Implication

The results of this study indicate that four out of five independent variables (PU, PEOU, PS, and ET) have a significant relationship between the mediating variable (BI). The mediating variable (BI) has a significant relationship with the dependent variable (CA). E-wallets are considered a very new and interesting payment service for Malaysian consumers. Perceived usefulness affects consumers' behavioural intention to adopt e-wallet. Thus, the e-wallet developer should focus on the perceived usefulness by improving the e-wallet to become more interesting and try to promote the e-wallet's benefits (Nag & Gilitwala, 2019). In addition, perceived ease of use affects consumers' behavioural intention to adopt e-wallet. The developer of e-wallet should consider making the registration of the mobile wallet application easy and the financial transactions simple

and fast. Thus, there will be an increase in the number of consumers adopting e-wallet. Perceived security is considered an important factor in consumers' behavioural intention to adopt an e-wallet. The e-wallet companies should increase the safety and security of e-wallet by protecting the data of the user and also ensuring that there is no threat of fraud during the transaction. Therefore, when the consumer opts to use an e-wallet to perform any transaction, they would feel secured and protected. E-Tunai Rakyat incentive is an incentive launched by the Malaysian government. This study shows how E-Tunai Rakyat incentive affects consumers' behavioural intention to adopt e-wallet. Since the government is promoting a move towards a cashless society and most of the respondents have claimed this incentive, the government should continue to roll out incentives or come up with newer strategies to increase the consumer adoption of e-wallet. In addition, the e-wallet companies may collaborate with the merchants to have promotions or cashback when the consumer pays with e-wallet. The e-wallet companies and the Malaysian government should take this opportunity to focus on the significant variables (PU, PEOU, PS, and ET) to promote and raise the awareness of the adoption of e-wallets amongst the consumer.

Theoretical Implication

The TAM model was used in this study. However, perceived usefulness and perceived ease of use are not enough to provide an in-depth understanding of the process of e-wallet adoption. Hence three additional variables, perceived security, E-Tunai Rakyat incentive and social influence were added into the research model to investigate the consumer adoption of e-wallets. The result indicates that all the independent variable has a significant relationship with behavioural intention to adopt e-wallet except for social influence. This shows a deeper understanding of the adoption of e-wallets by Malaysian consumers. Thus, future researchers will be able to utilize and apply this theoretical framework in their research efforts related to e-wallets or other technologies.

Limitations and Recommendations

Firstly, the target respondents for this study are Malaysians who are above 18 years old. 275 respondents participated in this research and the respondents are mostly aged between 18 to 25 years old and their income level is below RM 1000. Thus, the result may not fully represent the population of Malaysia. In addition, the imbalance of the number of respondents in terms of age and income level will lead to differences in consumer's ideas and perceptions about the adoption of e-wallets. Hence,

this study suggests the future investigators should balance the number of respondents in terms of different age groups and income levels. Thus, the result will be more accurate and fully represent the population of Malaysia.

Secondly, this study is a cross-sectional study. The authors only focused on the consumer adoption of e-wallets in Malaysia at a particular point. The study is only reflecting the current phenomenon and so this study will become obsolete over time. Thus, a longitudinal study may be conducted in the future. Compared with a cross-sectional study, a longitudinal study can detect the changes of independent variables and consumer adoption of e-wallets to get more accurate results in the long term.

Thirdly, this study has limited variables. The authors have focused on five factors which are perceived usefulness, perceived ease of use, perceived security, E-Tunai Rakyat incentive and social influence. The analysis only shows 53.3% of the variation in Behavioural Intention to adopt e-wallets. Thus, other factors are not included in this study. To achieve a higher R square, future researchers are recommended to add more independent variables into the conceptual framework to investigate the consumer adoption of e-wallets. Then the research outcome will be more accurate and provide deeper insights into consumer adoption of e-wallets.

Lastly, the data was collected by distributing questionnaires to the target respondents. The respondents can only choose the options in the survey and this will limit the respondents in expressing their opinion. Due to time constraints, respondents may simply fill up the questionnaire hastily which might have led to a wrong conclusion. To allow respondents to express their opinion, future researchers may include open-ended questions in the survey. Also, an interview is better to use instead of self-administered questionnaires. Through interviews, the researcher will get exact and complete data from the respondents.

Conclusion

In conclusion, TAM was applied in this study to investigate the consumer adoption of e-wallets in Malaysia. The independent and mediating variables which are perceived usefulness, perceived ease of use, perceived security, E-Tunai Rakyat incentive, social influence and behavioural intention to adopt e-wallets are tested and discussed in this study. The result shows perceived usefulness, perceived ease of use, perceived security and E-Tunai Rakyat incentive have a significant relationship with behavioural intention to adopt e-wallets but the social influence is found to be not significant. The R Square of 0.544 indicates that 54.4% of the variation in Behavioural Intention to adopt e-wallets can be explained by the five independent

variables, whereas the remaining 45.6% is explained by other factors that are not tested in this research. Moreover, behavioural intention to adopt e-wallets has a significant relationship with consumer adoption of e-wallets with 46.0% R square. In addition, except for social influence, BI is found to partially mediate the relationship between all the independent variables and consumers' adoption of e-wallets. The findings of this study have provided insights which would prove useful for the Malaysian government, e-wallet developers and future researchers.

Availability of data: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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