

Analysis on Cashless Transactions using E-Wallet among Adults in Malaysia: A Correspondence Analysis Approach

Tan Ye Wen¹, Norziha Che Him^{1, 2, *}, Noor Azliza Abd Latif¹, Yusliandy Yusof³

¹ Department of Mathematics and Statistics, Faculty of Applied Sciences and Technology, UTHM Kampus Cawangan Pagoh, Hab Pendidikan Tinggi Pagoh, KM 1, Jalan Panchor, 86400 Pagoh, Muar, Johor, MALAYSIA.

² Computational Intelligence and Data Science Focus Group (CIDaS), Faculty of Applied Sciences and Technology, UTHM Kampus Cawangan Pagoh, Hab Pendidikan Tinggi Pagoh, KM 1, Jalan Panchor, 86400 Pagoh, Muar, Johor, MALAYSIA.

³ Kolej Kemahiran Tinggi MARA Sri Gading, Batu 11, Jalan Kluang, 86400 Parit Raja, Batu Pahat, Johor, MALAYSIA.

*Corresponding Author: norziha@uthm.edu.my

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Abstract

The rapid advancement of technology and the rise of digital transformation have shifted consumer behaviour toward cashless payment systems, particularly e-wallet. This study aims to identify the most preferred e-wallet platform and determine usage purposes by descriptive analysis and examining factors influencing adoption using correspondence analysis (CA). A survey conducted at Universiti Tun Hussein Onn Malaysia (UTHM) collected data from 396 respondents via convenience sampling. The results revealed that Touch 'n Go eWallet as the most preferred platform (89.9%), with convenience cited as the primary usage purpose (95.49%). A strong association between factors and agreement levels was examined and confirmed by employing CA, with a p -value of less than 0.001 from the Chi-Square test of independence. Meanwhile, the first two dimensions explain 99.86% of the total variation in the data. Notably, Perceived Usefulness (PU) contributes most to Dimension 1 (56.58%) and Perceived Risk (PR) to Dimension 2 (40.61%). These findings highlight the dominance of Touch 'n Go eWallet and underscore the importance of addressing security concerns to further encourage e-wallet adoption in Malaysia. They also provide actionable insights for e-wallet service providers and policymakers to improve app features, enhance user experience and address user challenges by understanding usage purposes and identifying key issues faced by users.

1. Introduction

The advancement of digitalization and mobile technology has revolutionized how people manage their finances, including ways to make payments and transfer money. One of the innovations driving this transformation is e-wallet, also known as a digital wallet, which is designed to facilitate financial activities by providing secure and

convenient transactions. It functions as a digital version of a credit or debit card, without the need for physical cash. In Malaysia, e-wallet adoption has increased in recent years due to technology advancements, changing consumer behaviors, and government initiatives that promote cashless transactions. As of 2024, 63% of Malaysians use mobile wallets for transactions [1]. According to Bank Negara Malaysia's annual report 2023, e-wallet transactions grew by 20% within a year, with total transaction value exceeding RM6 billion in the first half of 2023 [2]. This highlights a growing shift towards digital payments, with consumers using e-wallet for everything from grocery shopping to transfer money, driven by attractive discounts and rewards programs [3].

However, some users remain hesitant to fully embrace e-wallet due to concerns about security and trust. Technologies such as electronic know your customer (e-KYC) have emerged as a solution to tackle these issues. Biometric technologies such as fingerprint scanning, facial recognition or voice recognition help to verify customer identities in a short period of time [4]. Several factors influence e-wallet adoption, with perceived usefulness (PU) being one of the most important. PU refers to the extent to which individuals believe that using a particular system can improve their performance [5]. If people believe that using e-wallet will make their lives easier, they are more likely to adopt it [6]. Meanwhile, [7] further confirms the positive relationship between PU and the intention to use mobile payment services.

Conversely, perceived risk (PR) is often a barrier to adoption. PR is defined as the potential for loss associated with using an e-service, arising from uncertainty and the possibility of negative consequences [8]. Users who feel that using an e-wallet could threaten their financial security or expose personal information to risks are less likely to use the technology. Studies by [9], [10] show that high perceived risk can deter e-wallet adoption. Government support also plays a major role in encouraging e-wallet usage. In Malaysia, the government has introduced various initiatives, such as the e-Tunai Rakyat and eBelia programs, to encourage the shift to digital payments [11], [12]. Research by [13] suggests that government policies, public awareness campaigns, and financial incentives significantly boost the adoption of e-wallet.

Social influence (SI) also plays a key role in adoption as it represents the degree to which individuals are influenced by others who are significant to them, such as family, colleagues or peers, who believe they should perform a particular action [14]. Positive recommendations or experiences from trusted individuals can help change attitudes toward e-wallet [15], [16]. This study aims to identify the most preferred e-wallet platform and determine the usage purposes among the adult users in Malaysia using descriptive analysis. This will provide insights into current trends and preferences in e-wallet usage. Additionally, the study investigates the potential factors that influence e-wallet adoption among adults in Malaysia through correspondence analysis, offering insights into the dynamics of e-wallet usage in Malaysia.

2. Data and Methods

This part describes the data and methods used in this study to collect and analyse data on e-wallet usage among adults in Malaysia.

2.1 Data Description

The data for this study was collected through an online survey using Google Form. The survey was distributed to adults in Malaysia, particularly focusing on university students and staff at UTHM Parit Raja and UTHM Pagoh. The questionnaire is constructed in five parts which are aligned with the objectives of the study. Part A contains 8 multiple choice questions about the demographic information of the respondents. Part B addresses the first objective which is to identify the most preferred e-wallet platform used by adults in Malaysia using descriptive analysis. It includes 10 questions to access the respondents' e-wallet preferences. Then, Part C includes 12 questions designed to measure the perceptions of the respondents regarding the usage purpose of e-wallet by adults in Malaysia, using 5 points of Likert scale. Part D addresses the third objective, which is to investigate the factors that encourage the adults in Malaysia to use e-wallet by using correspondence analysis. Finally, Part E includes 4 questions to gather public opinions about e-wallet.

2.2 Sampling Design

Sampling design is important to ensure that the findings for this study are reliable and trustworthy.

2.2.1 Sampling Method

In this study, a non-probability sampling method is employed to select sample size for this study. Non-probability sampling does not give every individual an equal chance of being selected, and it normally relies on non-randomized methods and subjective judgements for sample selection [17]. The convenience sampling technique was chosen as it allows the researcher to gather data from respondents who are readily available, particularly within the university community [18]. This method allows for efficient data collection, without the constraints of time and budget, but it does not provide the same level of generalizability as probability sampling method.

2.2.2 Sample Size Determination

Determination of sample size is important for research to get reliable and valid results [19]. This process involves selecting an appropriate number of respondents to be included in a study, and then using this sample to conduct analysis to get results which can represent the population interest. The sample size selected must be appropriate so that the sampling error and bias can be minimized [20]. The sample size is calculated by using the formula in equation (1), with sample size, n , population size, N , critical value of desired level of confidence, Z , degree of variability, p and desired level of precision, e . For this study, a 95% confidence level and a 5% precision level were used. Based on these parameters, the calculation suggests a sample size of 384 respondents.

$$n = \frac{\frac{Z^2 pq}{e^2}}{1 + \frac{e^2}{N}} = \frac{\frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}}{1 + \frac{1.96^2 \times 0.5 \times 0.5}{23130000(0.05)^2}} = 384.15 \approx 384 \quad (1)$$

2.3 Pilot Study

Referring to [21], pilot study is a preliminary small-scale investigation to evaluate the feasibility and validity of the research design and survey instrument before the main study. This allows the researchers to identify potential issues with the survey design and anticipate any problems that might arise during the main data collection. It will also provide an advance warning about where the main study might fail [22]. This helps to prevent wasting time, money and resources by identifying weaknesses early in the process. In this study, a sample of 30 participants was selected to represent a subset of the target population. Based on the results of pilot study, adjustments were made to improve clarity and minimize errors.

2.4 Reliability Test

Reliability indicates the degree to which a measurement of a phenomenon generates a constant and consistent result. It is important for ensuring the consistency and stability of the survey instrument. To assess the reliability of the survey, Cronbach's alpha coefficient will be calculated for each of the survey's scales. Cronbach's alpha is a widely used measure of internal consistency that evaluates how well the individual items in a scale correlate with each other [23]. A coefficient of 0.70 or higher is typically considered acceptable for demonstrating that the survey items are reliably measuring the same underlying concept [24], [25]. If the Cronbach's alpha value falls below this threshold, the survey items will be reviewed and revised to improve their consistency. The results of the reliability test will help to ensure that the data collected through the survey is dependable, providing a solid foundation for analysis and interpretation of results. Table 1 shows the rule of thumb for interpreting Cronbach's Alpha.

Table 1 Rule of Thumb for Cronbach's Alpha

Cronbach's Alpha	Interpretation of Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

2.5 Descriptive Analysis

Descriptive analysis is a statistical technique that is often used to describe or summarize a dataset. The purpose of descriptive analysis is to provide a clear and concise overview of the data. It helps the researcher easier to identify underlying trends and patterns [26]. For this study, the analysis will focus on frequencies to examine the demographic distribution of respondents, identify the most preferred e-wallet platform and determine the usage purposes. Visualization tools such as bar charts, pie charts and doughnut charts will be used to present the results of Part A to Part C in an accessible way.

2.6 Correspondence Analysis

Correspondence Analysis (CA) is a multivariate statistical method used to examine the relationship between two or more categorical variables in a contingency table. The data was organized into a contingency table, with rows representing categorical factors and columns representing levels of agreement [27]. Each cell contained the frequency of occurrences for a specific combination of variables. Before performing the analysis, data cleaning ensured accuracy by addressing any missing values, handling outliers, and standardizing categorical labels. The Chi-square test of independence was applied to determine if there was a significant relationship between the row and column variables. A significant p -value < 0.05 indicates an association between the categorical variables, rejecting the null hypothesis of independence. Then, decomposing the contingency table into dimensions using Singular Value Decomposition (SVD). Eigenvalues were calculated to measure the variance explained by each dimension, helping to determine the number of dimensions to retain. Dimensions with higher eigenvalues explained more variation in the data. The relationships between the categorical variables can be visualized in a two-dimensional space by using a biplot [28]. In this study, CA is applied to examine whether there are significant associations between factors influencing e-wallet usage and respondents' agreement level. This method is being selected because it is an effective method for examining relationships between categorical variables and provides a clear visual representation of these associations. Besides, it can reduce data complexity while retaining key information, making it easier to focus on the most significant factors influencing e-wallet adoption.

3. Results and Discussion

This part presents the results of the data analysis and discusses the results.

3.1 Demographic Profile

Table 2 Demographic Profile

Profile	Categories	Frequency	Percentage(%)
Gender	Male	198	50
	Female	198	50
Age	18 - 22	207	52.27
	23 - 32	166	41.92
	33 - 42	14	3.54
	43 and above	9	2.27
Marital Status	Single	364	91.92
	Married	30	7.58
	Divorced	2	0.50
	Widowed	0	0
Race	Chinese	206	52.02
	Malay	148	37.37
	India	38	9.60
	Sikh	1	0.25
	Melanau	1	0.25
	Bumiputera Sarawak	1	0.25
Occupation	Bajau	1	0.25
	Lecturer	21	5.30
	Student	362	91.41
Education Level	Staff	13	3.28
	Diploma	39	9.85
	Degree	315	79.55
	Master	24	6.06
	PHD	18	4.55

Monthly Income	Less than RM1000	280	70.71
	RM1000 – RM2999	70	17.68
	RM3000 – RM4999	19	4.80
	More than RM5000	27	6.82
Faculty	Faculty of Applied Sciences and Technology (FAST)	109	27.53
	Faculty of Civil Engineering and Built Environment (FKAAB)	29	7.32
	Faculty of Electrical and Electronic Engineering (FKEE)	14	3.54
	Faculty of Mechanical and Manufacturing Engineering (FKMP)	42	10.61
	Faculty of Technology Management and Business (FPTP)	74	18.69
	Faculty of Technical and Vocational Education (FPTV)	15	3.79
	Faculty of Computer Science and Information Technology (FSKTM)	52	13.13
	Faculty of Engineering Technology (FTK)	21	5.30
	Centre for Diploma Studies (CEDS)	40	10.10

The demographic distribution for the study is summarized in Table 2. The sample includes an equal representation of males and females (198 respondents, 50%), with majority of respondents aged between 18 and 22 (207 respondents, 52.27%). Most respondents are single (364 respondents, 91.92%) and from the Chinese ethnicity (206 respondents, 52.02%). The majority of participants hold a degree (315 respondents, 79.55%) and have a monthly income of less than RM1000 (280 respondents, 70.71%). The most represented faculty is the Faculty of Applied Sciences and Technology (FAST), accounting for 109 respondents (27.53%). This demographic information provides context for the analysis of e-wallet usage patterns and preferences.

3.2 Most Preferred E-Wallet Platform Using Descriptive Analysis

Table 3 Most Preferred E-Wallet Platform Using Descriptive Analysis

Profile	Categories	Frequency	Percentage (%)
Awareness of E-Wallet Platform	Yes	396	100
	No	0	0
Usage of E-Wallet Platform	Yes	396	100
	No	0	0
Type of E-Wallet Platforms Used	Touch n' Go eWallet	391	98.74
	Boost	94	23.74
	Grabpay	171	43.18
	ShopeePay	227	57.32
	Alipay	59	14.90
	ApplePay	5	1.26
	SarawakPay	4	1.01
	WechatPay	4	1.01
	MAE	2	0.51
	Wise	2	0.51
Most Preferred E-Wallet Platform	Touch n' Go eWallet	356	89.90
	Boost	12	3.03
	Grabpay	11	2.78
	ShopeePay	10	2.53
	Alipay	5	1.26
	ApplePay	1	0.25

	SarawakPay	1	0.25
Usage Period for E-Wallet Services	Less than 1 year	15	3.79
	1 – 2 years	71	17.93
	2 – 3 years	115	29.04
	3 – 4 years	77	19.44
	More than 4 years	118	29.80
Most Preferred Payment Mode	Cash	35	8.84
	Credit or Debit Card	71	17.93
	E-Wallet	290	73.23
Frequency Using E-Wallet per Month	Less than 3 times	37	9.34
	3 – 5 times	91	22.98
	6 – 8 times	73	18.43
	More than 8 times	195	49.24
Top Up Amount per Month	Less than RM100	88	22.22
	RM101 – RM149	75	18.94
	RM150 – RM199	58	14.65
	More than RM200	175	44.19
Rating for E-Wallet Services	1	0	0
	2	1	0.25
	3	28	7.07
	4	164	41.41
	5	203	51.26

The analysis in Table 3 shows that Touch 'n Go eWallet is the most preferred e-wallet platform among respondents, with 98.74% of respondents using it (391) and 89.9% of respondents (356) choosing it as their preferred platform. This aligns with previous study by [29] that nearly 90% of Malaysian consumers reported using Touch 'n Go eWallet in 2023. This reflects its integration into daily activities such as transportation, retail purchases, and toll payments, making it a versatile and convenient choice for users. Other platforms, including Boost (12 respondents, 3.03%), GrabPay (11 respondents, 2.78%), and ShopeePay (10 respondents, 2.53%), recorded significantly lower preferences. Meanwhile, platforms such as Alipay, ApplePay, and SarawakPay show minimal preferences (less than 2%), suggesting limited usage among the respondents.

3.3 Usage Purposes of E-Wallet Using Descriptive Analysis

Table 4 Usage Purposes of E-Wallet Using Descriptive Analysis

Statement	Level of Agreement	Frequency	Percentage (%)
I use e-wallet because it is convenient.	Strongly Disagree	2	0.51
	Disagree	2	0.51
	Neutral	14	3.53
	Agree	104	26.26
	Strongly Agree	274	69.19
I use e-wallet because it is secure.	Strongly Disagree	3	0.76
	Disagree	20	5.05
	Neutral	62	15.66
	Agree	174	43.94
	Strongly Agree	137	34.60

I use e-wallet for online transactions.	Strongly Disagree	2	0.51
	Disagree	5	1.26
	Neutral	24	6.06
	Agree	117	29.55
	Strongly Agree	248	62.63
I use e-wallet for paying bills such as water bills, electric bills and others.	Strongly Disagree	30	7.58
	Disagree	47	11.87
	Neutral	54	13.64
	Agree	115	29.04
	Strongly Agree	150	37.88
I use e-wallet to top up my phone credit/ pay mobile bills.	Strongly Disagree	24	6.06
	Disagree	38	9.60
	Neutral	43	10.86
	Agree	123	31.06
	Strongly Agree	168	42.42
I use e-wallet to transfer money/funds to others.	Strongly Disagree	5	1.26
	Disagree	9	2.27
	Neutral	17	4.29
	Agree	102	25.76
	Strongly Agree	263	66.41
I use e-wallet for transportation purposes, such as Grab.	Strongly Disagree	11	2.78
	Disagree	30	7.58
	Neutral	42	10.61
	Agree	124	31.31
	Strongly Agree	189	47.73
I use e-wallet for dining at restaurants or cafes.	Strongly Disagree	6	1.52
	Disagree	12	3.03
	Neutral	21	5.30
	Agree	139	35.10
	Strongly Agree	218	55.05
I use e-wallet when buying groceries shopping at places like supermarket or shopping mall.	Strongly Disagree	5	1.26
	Disagree	17	4.29
	Neutral	32	8.08
	Agree	126	31.82
	Strongly Agree	216	54.55
I use e-wallet to track my spending.	Strongly Disagree	15	3.79
	Disagree	39	9.85
	Neutral	53	13.38
	Agree	116	29.29
	Strongly Agree	173	43.69
I use e-wallet to enjoy any discounts or promotions.	Strongly Disagree	11	2.78
	Disagree	46	11.62
	Neutral	56	14.14

	Agree	116	29.29
	Strongly Agree	167	42.17
I use e-wallet for entertainment, such as buying movie or concert tickets.	Strongly Disagree	16	4.04
	Disagree	46	11.62
	Neutral	42	10.61
	Agree	120	30.30
	Strongly Agree	172	43.43

Table 4 illustrates various usage purposes of e-wallet and the level of agreement using 5 points of Likert Scale, based on frequency and agreement levels. The results indicate that convenience is the most significant usage purpose, with 95.49% of respondents strongly agreeing or agreeing with it. This is because e-wallet helps people to simplify payment process and reduce transaction time. Furthermore, [30] concluded that convenience not only fosters a positive attitude towards e-wallet but also encouraged continued use. The second highest usage purpose is online transactions, with 92.18% of them indicating that they use e-wallet for digital payment without cash. Following closely, money transfers ranked as the third most important usage purpose, with 92.17% of respondents recognizing its significance. This reflects a growing reliance on e-wallet for seamless financial transactions, where consumers used digital platforms to transfer money to family members, peers or merchants. In terms of daily spending, both dining payments and grocery shopping received strong support, with 90.15% and 86.36% of respondents strongly agreeing or agreeing respectively. This highlights that e-wallet facilitate not only online transactions but also physical transactions, particularly in the retail and food industries. [34] found that many people use e-wallet for their daily transactions, including purchasing food and groceries. Other purposes, such as transportation (78.48%) and entertainment (75.18%) also garnered major agreement. Additionally, features such as expense tracking (76.67%) and discount and promotions (75.15%) reflects the interest of users to manage their finance in a more effective way. Meanwhile, mobile top up (74.48%) and bill payments (72.27%) received slightly lower agreement level as compared to others, but they still demonstrate the significant role of e-wallet play in facilitate daily financial activities.

3.4 Factors Influencing the Use of E-Wallet Among Adults in Malaysia Using Correspondence Analysis

Correspondence Analysis (CA) was employed to investigate the factors influencing the use of e-wallet among adults in Malaysia. The analysis examined the relationship between four key factors—Perceived Usefulness (PU), Perceived Risk (PR), Government Support (GS), and Social Influence (SI)—and respondents’ levels of agreement, which were categorized as Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree.

Table 5 Contingency Table for E-Wallet Usage Factors and Level of Agreement

Factors	Levels of Agreement					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Perceived Usefulness	18	39	141	664	1118	1980
Perceived Risk	52	230	284	692	722	1980
Government Support	38	83	312	820	727	1980
Social Influence	30	108	249	728	865	1980
Total	138	460	986	2904	3432	7920

The contingency table in Table 5 shows the distribution of responses for each factor and level of agreement. This provides a basis for the subsequent analysis.

Table 6 Chi-Square Test of Independence

χ^2 value	Degree of Freedom	p-value
400.12	12	<0.001

The Chi-Square Test of Independence was conducted to determine if there is a significant relationship between the factors and levels of agreement. The result in Table 6 shows a chi-square value of 400.12 and a p-value of <0.001, which is much smaller than the significance level (0.05). Hence, the null hypothesis is rejected, can conclude that there is a significant association between the factors and the levels of agreement.

Table 7 Eigenvalues of Factors and Agreement Levels

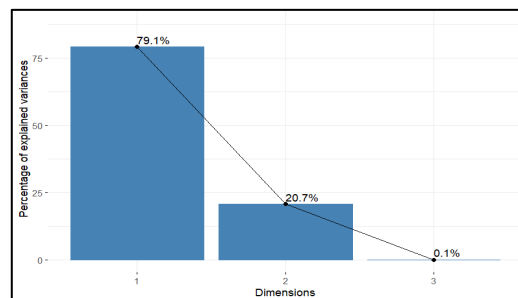
Dimension	1	2	3
Eigenvalue	0.040	0.010	0.000
Variance Percentage (%)	79.13	20.73	0.14
Cumulative Variance Percentage (%)	79.13	99.86	100

The eigenvalues presented in Table 7 show that the first two dimensions explained 99.86% of the total variation in the data, with Dimension 1 explaining 79.13% and Dimension 2 explaining 20.73%. This suggests that the first two dimensions adequately capture the variation in the data and confirms that the first two dimensions are sufficient for interpretation. Meanwhile, Dimension 3 accounts for only 0.14%, and does not significantly contribute to the explanation of the variation.

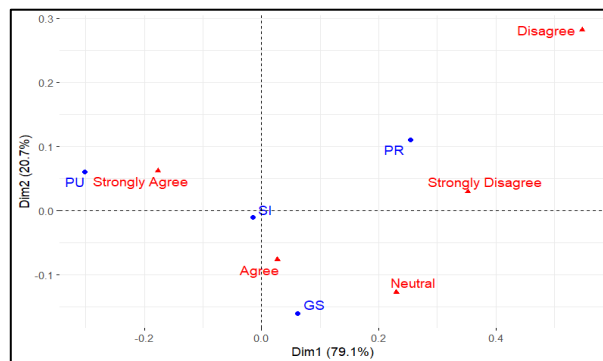
Table 8 Row Contribution to Dimensions

Factors	Contribution to Dimension 1 (%)	Contribution to Dimension 2 (%)	Contribution to Dimension 3 (%)
Perceived of Usefulness (PU)	56.85	8.85	9.29
Perceived Risk (PR)	40.61	29.15	5.25
Government Support (GS)	2.41	61.73	10.87
Social Influence (SI)	0.15	0.27	74.59

The contribution of each factor to the dimensions is shown in Table 8. PU and PR were the primary contributors to Dimension 1, with PU contributing 56.85% and PR contributing 40.61%. Meanwhile, GS predominantly contributed to Dimension 2 (61.73%), and SI had a minimal contribution to both Dimension 1 and 2 but contributed significantly (74.59%) to Dimension 3.

**Fig. 1** Scree Plot

Additionally, the scree plot in Fig. 1 shows that the elbow point of the plot lies at second dimension. It helps to further confirm that only 2 dimensions will be retained for further analysis and interpretation.

**Fig. 2** Biplot of Factors and Levels of Agreement

The biplot in Fig. 2 illustrates the relationships between factors and levels of agreement. PU is positioned near the “Strongly Agree” on Dimension 2, suggesting that many respondents strongly agree with the value of e-wallet in enhancing the adoption of e-wallet. This aligns with existing literature that highlights the significant positive

relationship between PU and the intention to use mobile payment services. Besides, the consumers are more likely to use e-wallet when they believe that it makes transactions easier, faster and more efficient.

In contrast, PR is placed near “Strongly Disagree” on Dimension 1, indicating that concerns about security, privacy, and financial risks are barriers to e-wallet adoption. This is same with the findings which concluded that users are less likely to adopt technologies if there are concerns about financial security and data privacy.

Next, GS is located between “Neutral” and “Agree” on Dimension 2, indicating mixed opinions on the effectiveness of government initiatives aimed at promoting e-wallet usage. While respondents acknowledge the role of GS, this finding suggests that simply promoting e-wallet usage may not be sufficient to drive adoption. The influence of GS on e-wallet usage is indirect and can be mediated by PU. This suggest that consumers are more likely to adopt e-wallet if they perceive clear benefit. Lastly, SI is situated between “Strongly Agree” and “Agree”, with minor contribution to the primary dimensions, suggesting that it has a moderate but positive impact on adoption. This result aligns with the research which suggest that SI from peers or family can encourage the use of e-wallet, but it plays a secondary role compared to PU.

These findings suggest that while social factors may encourage some users to adopt e-wallet, the primary factors driving adoption are PU and PR. This study shows that GS and SI play supportive role in encouraging adoption.

4. Conclusion

This study provides a comprehensive analysis of cashless transactions using e-wallet among adults in Malaysia, focusing on the most preferred e-wallet platform, usage purposes and factors that influence the intention to use e-wallet. The findings were obtained through descriptive analysis and correspondence analysis. The first objective was successfully achieved, as Touch ‘n Go eWallet emerged as the most preferred e-wallet platform using descriptive analysis, chosen by 89.9% of respondents. The widespread adoption is attributed to its user-friendly interface and earlier market existence. Boost and GrabPay also demonstrated moderate adoption and preference among respondents, driven by their reliability, widespread acceptance and user-friendly features.

The second objective which focused on determining the usage purposes of e-wallet among adults in Malaysia using descriptive analysis was achieved. The results revealed that convenience was the most significant purpose, with 95.49% of respondents agreeing that e-wallet can help to simplify transactions and save time. Additionally, e-wallet was extensively used for online transactions, money transfer, and dining, grocery shopping, transportation and entertainment expenses, discounts and promotions, bill payments and mobile top up. This indicates the versatility of e-wallet in both physical and digital realms and its integration into daily financial routine.

Lastly, the correspondence analysis identified four key factors influencing e-wallet adoption, which are perceived usefulness (PU), perceived risk (PR), government support (GS) and social influence (SI). PU was strongly associated with positive agreement, suggesting that convenience and efficiency in financial transactions are important in driving adoption. In contrast, PR which related to security and privacy concerns was associated with lower agreement level and acted as a significant barrier. Meanwhile, GS and SI played moderate roles in influencing the adoption but were much less impactful as compared to PU and PR.

In conclusion, this study successfully identifies the most preferred e-wallet platforms, determines the usage purposes and confirms that all the four factors (PU, PR, GS and SI) are significant to the adoption of e-wallet. The results may become a foundation for promoting e-wallet usage by enhancing usability and addressing user concerns. To further enhance e-wallet adoption, policymakers and developers should focus on addressing security and privacy concerns by implementing stronger encryption measures and transparent data policies to mitigate perceived risks. Besides, conducting awareness campaigns that highlight the convenience and time-saving benefits of e-wallets can enhance user perception of their usefulness. Lastly, expanding e-wallet acceptance in sectors like healthcare, education, and rural areas, along with strengthening security through AI-based fraud detection systems, will increase accessibility and user trust.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Tan Ye Wen, Norziha Che Him; **data collection:** Tan Ye Wen; **analysis and interpretation of results:** Tan Ye Wen, Norziha Che Him; **draft**

manuscript preparation: Tan Ye Wen, Norziha Che Him, Noor Azliza Abd Latif, Yusliandy Yusof. All authors reviewed the results and approved the final version of the manuscript.

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