

Adoption Barriers and Usage Frequency: Insights into Digital Wallets and Cryptocurrencies

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ABSTRACT

In the era of the digital revolution, digital wallets (Google Pay, Phone Pay, and Apple Pay, etc.) and cryptocurrency are two transforming innovations that enable users to perform secure and more convenient transactions by using fiat currency. This system used internet connectivity and encryption to perform secure transactions. This technology eliminates the need for physical currency and plastic cards. This study explores what makes people use these technologies. We'll look at things like age, where people live, and how they use these payment methods. A survey of 150 respondents was conducted, and analyzed by ANOVA and chi-squared test. The results reveal that key barriers to adoption include limited awareness, complexity, regulatory uncertainties, and trust and security concerns. Furthermore, age, education, and income influenced preferences for features like transaction speed, accessibility, and reward incentives. Notably, strong correlations were observed between usage frequency and duration for both digital wallets and cryptocurrencies, highlighting the importance of maintaining user engagement.

KEYWORDS: Digital wallets, financial technology (FinTech), Cryptocurrencies, and Blockchain technology.

INTRODUCTION

Digital wallets and cryptocurrencies are revolutionizing the financial landscape, offering innovative ways to manage, store, and transfer money. This system used internet connectivity and encryption to perform secure transactions. This technology eliminates the need of physical currency and plastic cards. Now you can do seamless financial transactions, such as online shopping, peer-to-peer transfer, and contactless payments without using physical currency and plastic cards.

On the other hand, cryptocurrency with the help of its advanced features, such as Bitcoin, Litecoin, and Ethereum applies a decentralized and transparent approach to finance. The decentralization approach means everyone connects with this technology. This system not only enhances security & privacy but also reduces the cost and time of performing financial transactions. These technologies reflect a shift of the traditional banking system towards a more digital and inclusive financial landscape.

The integration of digital wallets with cryptocurrencies has further enhanced their adoption. Crypto wallets like MetaMask, Coinbase Wallet, and Trust Wallet allow users to store, send, and receive digital currencies effortlessly. Advanced features of these wallets, like staking, decentralized finance, and non-fungible tokens offer convenience, security, and a universally accessible system for the users.

The convergence of digital wallets and cryptocurrencies is promoting financial inclusion, empowering individuals, and boosting global commerce without access to traditional banking services, technological advancements are revolutionizing how we think about finance and the execution of financial transactions. However, challenges such as regulatory scrutiny, security concerns, and market volatility remain critical areas for continued development and user awareness.

While both digital wallets and cryptocurrencies aim to enhance financial accessibility and efficiency, they differ significantly in their adoption rates, usage patterns, and consumer appeal. Digital wallets are generally embraced for their simplicity and integration into existing financial systems, while cryptocurrencies attract users seeking decentralized and investment-oriented alternatives.

REVIEW OF LITERATURE

(Asmaa et.al. 2024) analyses the evolution of digital wallets from 2008 to the present, forecasting a future where cryptocurrencies merge with decentralized finance (DeFi) and utilize quantum-resistant encryption for enhanced security. (Becca and Erika, 2023) examine user-facing issues impacting Central Bank Digital Currency (CBDC) wallet adoption. Their research identifies 11 key user-centred challenges, including access, usability, security, privacy, and interoperability. Solutions are proposed to improve the design of CBDC wallet for underserved populations. Similarly, (Ratnawita, 2024) compares digital wallet usage between millennials and Generation Z, highlighting generational differences and the overall convenience offered by digital wallets for anytime, anywhere transactions. (Nieves, 2024) emphasizes the crucial role of digital wallets in the global economy's future while identifying research gaps in blockchain and AI integration. Integrating these technologies can enhance security and user experience. (Pritam, 2024) explores innovative technologies like gamification and peer-to-peer (P2P) lending to improve user engagement in digital wallets. Additionally, AI and Augmented Reality (AR) can potentially enhance user experience and promote financial inclusion. (Samer, 2022) compares the security and user-friendliness of hardware and software wallets, highlighting the trade-off between security and convenience. (Ayashree, 2023) analyses E-wallet trends from the user's perspective, revealing a growing interest in cryptocurrency and blockchain transactions. Understanding user preferences can guide E-wallet development and innovation.

Research Gap

While digital wallets and cryptocurrencies are becoming more popular, we still don't fully understand how people choose between them. While studies have looked at why people use each one, we need more research on how they compare to each other and why people might use both.

Research Problem

The adoption and use of digital wallets and cryptocurrencies are not widely understood across demographics, geographical areas, and behavioral contexts. Among the important questions are: What promotes or inhibits adoption? What differences exist between demographic characteristics and preferences for use cases such as everyday transactions, savings, or investments?

Objectives of the Study

The following are the objectives of the study: -

- I. To analyse the impact of the demographic variables on the factors influencing digital wallet/cryptocurrency choice and adoption barriers.
- II. To assess the relationship between digital wallet usage frequency and duration of use.
- III. To examine the relationship between cryptocurrency usage frequency and duration of use.

Hypothesis

- i. H_{0a} : Demographic variables do not significantly impact the factors in the choice of digital wallets/cryptocurrencies and the barriers to their adoption.
- ii. H_{1a} : Demographic variables significantly impact the factors influencing the choice of digital wallets/cryptocurrencies and the barriers to their adoption.
- iii. H_{0b} : Digital wallet usage frequency is independent of the duration of use.
- iv. H_{1b} : Digital wallet usage frequency is independent of the duration of use.
- v. H_{0c} : The frequency of cryptocurrency use is independent of the duration of using digital wallets or cryptocurrencies.
- vi. H_{1c} : The frequency of cryptocurrency use is related to the duration of using digital wallets or cryptocurrencies.

Research Methodology

- ❖ **Research design:** A descriptive and analytical research design was used in this study to describe the phenomenon and analyse the facts.
- ❖ **Sample size:** To achieve the objectives of the study, data was collected from 150 respondents in Ambala.
- ❖ **Sampling Technique:** A convenience sampling technique was used to collect the primary data.
- ❖ **Data Collection:** This study is based on both primary and secondary data. Secondary data was collected from national and international journals, reports, and newspapers. The primary data was collected from 150 respondents in Ambala Cantt.
- ❖ **Data Analysis Technique:** The one-way ANOVA and the Chi-Square test were employed to examine the primary data.

Analysis of the data

Objective:1 To analyse the impact of the demographic variables on the factors influencing digital wallet/cryptocurrency choice and adoption barriers.

Table:1 The results of the ANOVA based on education

Factors	F	Sig.
Lack of trust in technology	5.705	0.001
Security concerns	5.705	0.001
Complexity of use	5.629	0.001
Regulatory uncertainties	5.705	0.001
Limited acceptance in stores	5.629	0.001

(Source: Primary data)

A significant F value from the ANOVA test indicates a significant impact of educational qualification on all factors influencing digital wallet/cryptocurrency choice and adoption barriers, including regulatory uncertainties, security concerns, a lack of trust in technological advances, limited acceptability in shops, and complicated usage.

Table:2 The results of the ANOVA based on Income

Factors	F	Sig.
Lack of trust in technology	10.978	.000
Security concerns	10.978	.000
Complexity of use	10.951	.000
Regulatory uncertainties	10.978	.000
Limited acceptance in stores	10.951	.000

(Source: Primary data)

Table 2 demonstrates the impact of income on the barriers to adopting the technology. Complexity of usage and limited adoption in stores have slightly lower F-statistics (10.951) than lack of trust, security issues, and regulatory uncertainty, which have the highest F-statistics (10.978).

Table:3 The results of the ANOVA based on income

Factors	F	Sig.
Convenience	9.39	.000
Security	6.207	.003

Transaction speed	4.88	.009
Fees/charges	8.291	.000
Accessibility	10.951	.000
Cashback offer	10.978	.000

(Source: Primary data)

The p-value for all factors shows significance ($p < .05$). It means that there is a significant impact of the income on all factors such as (Convenience, Security, Transaction speed, Fees/charges, Accessibility & Cashback offers) influencing the adoption of technology.

Table:4 The results of the ANOVA based on education

Factors	F	Sig.
Convenience	2.047	0.11
Security	0.656	0.58
Transaction speed	2.753	0.045
Fees/charges	3.153	0.027
Accessibility	5.629	0.001
Cashback offer	5.705	0.001

(Source: Primary data)

Based on the ANOVA results, educational qualification is a significant impact on the factors- cashback offers ($p = .001$) and accessibility ($p = .001$), transaction speed ($p = 0.045$), and fees/charges ($p = 0.027$). However, there is no significant difference between convenience ($F = 2.047$, $Sig. = 0.11$) and security ($F = 0.656$, $Sig. = 0.58$).

Table:5 The results of the ANOVA based on age

Factors	F	Sig.
Convenience	4.755	0.003
Security	11.221	0.000
Transaction speed	13.302	0
Fees/charges	4.178	0.007
Accessibility	2.008	0.115
Cashback offer	2.009	0.115

(Source: Primary data)

Based on the ANOVA results, age has a significant impact on the factors- convenience ($p = 0.003$), Security ($p = .000$), transaction speed ($p = .000$), and fee/ charges ($p = .007$). However, there is no significant difference between convenience ($p > .05$) and security ($p = 0.58$).

Objective:2 To assess the relationship between digital wallet usage frequency and duration of use.

Table:6 Relationship between digital wallet usage frequency and duration of use

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.031	9	.006
Likelihood Ratio	25.371	9	.003
Linear-by-Linear Association	5.321	1	.021
N of Valid Cases	150		

(Source: Primary data)

Table:7 Symmetric measures between digital wallet usage frequency and duration of use

		Value	Approx. Sig.
Nominal by Nominal	Phi	.392	.006
	Cramer's V	.226	.006
N of Valid Cases		150	

(Source: Primary data)

Table 6 &7 shows Pearson's Chi-Square tests result ($\chi^2 = 23.031$, $p = 0.006$). It reveals a significant relationship between digital wallet usage frequency and duration. Symmetric measures (Phi = 0.392, Cramer's V = 0.226, $p = 0.006$) indicate a moderate association between these variables.

Objective 3: To examine the relationship between cryptocurrency usage frequency and duration of use.

Table 8: Relationship between cryptocurrencies usage frequency and duration of use

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.132	9	.004
Likelihood Ratio	28.352	9	.001
Linear-by-Linear Association	4.806	1	.028
N of Valid Cases	150		

(Source: Primary data)

Table: 9 Symmetric measures between cryptocurrencies usage frequency and duration of use

		Value	Approx. Sig.
Nominal by Nominal	Phi	.401	.004
	Cramer's V	.232	.004
N of Valid Cases		150	

(Source: Primary data)

Both Pearson's Chi-Square ($\chi^2 = 24.132$, $p = 0.004$) and Likelihood Ratio ($\chi^2 = 28.352$, $p = 0.001$) tests result show a significant relationship exists between cryptocurrency usage frequency and duration. Symmetric measures (Phi = 0.401, Cramer's V = 0.232, $p = 0.004$) indicate a moderate to strong association between these variables.

The Findings of the Study

- I. The biggest obstacles to adoption are those related to trust, security, and regulations ($F = 5.705$, Sig. = 0.001).
- II. Complexity and store acceptance also impact adoption ($F = 5.629$, Sig. = 0.001).

- III. Income influences barriers like trust ($F = 10.978$) and factors like accessibility and cashback offers ($F = 10.951$).
- IV. Accessibility ($F = 5.629$), cashback offers ($F = 5.705$), fees/charges ($F = 3.153$), and transaction speed ($F = 2.753$) are significantly impacted by the educational level of the respondents.
- V. Age has a substantial impact on transaction speed ($F = 13.302$), security ($F = 11.221$), convenience ($F = 4.755$), and fees ($F = 4.178$).
- VI. Both digital wallets (Chi-Square = 23.031, Sig. = 0.006) and cryptocurrencies (Chi-Square = 24.132, Sig. = 0.004) demonstrate significant associations with usage frequency and duration.
- VII. Adoption is mostly dependent on trust, security, and accessibility, while adoption is influenced by education and income.

CONCLUSION

The study emphasizes how important demographic factors are to the use of cryptocurrency and electronic wallets. Along with complexities and low adoption, the primary obstacles are regulatory uncertainties, trust issues, and security concerns. While age and education influence preferences for elements like transaction speed, accessibility, and reward incentives, income has a significant impact on these barriers.

The remarkable correlations between usage frequency and duration highlight the necessity of maintaining user engagement. To achieve broader acceptance and a better user experience, it is imperative to address major obstacles and modify strategies to demographic demands.

IMPLICATION OF THE STUDY

Filling such research gaps will help stakeholders in financial technology and cryptocurrencies match their strategy with consumer needs by exposing meaningful insights into consumer behavior.

LIMITATIONS OF THE STUDY

- I. Other possible elements that can have a big impact on adoption, like social pressure, marketing strategies, and technology infrastructure, were not taken into consideration in this study.
- II. The outcomes may become less relevant over the years due to the rapid growth of financial technologies and modifications to regulatory frameworks, requiring more study.

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