
Factors Influencing Customer Adoption of E-Payment Services in Tanzania

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Abstract:

Purpose: *The adoption of e-payment services has become a critical component of modern financial transactions, driven by the increasing reliance on digital platforms. This study examines the factors influencing customer adoption of e-payment services, focusing on perceived ease of use, perceived usefulness, security concerns, trust, cost, and social influence.*

Design/Methodology/Approach: *Data was collected through a survey of 300 participants, analyzed using regression and correlation techniques.*

Findings: *The findings reveal that perceived ease of use and perceived usefulness are the most significant predictors of adoption, with users more likely to adopt services that are easy to use and offer clear benefits. Security concerns, particularly regarding fraud and data breaches, emerged as a major barrier to adoption, with a negative correlation to user intentions. Cost and convenience were also identified as important drivers, as consumers preferred low-fee services that offered quick and accessible transactions.*

Practical Implications: *Social influence and trust in the service provider were found to moderate adoption decisions, with users more likely to adopt services recommended by peers and those they trust.*

Originality/Value: *The study provides valuable insights for e-payment providers seeking to enhance adoption by addressing these key factors.*

Keywords: *E-payment adoption, perceived ease of use, perceived usefulness, security, trust, social influence, cost.*

JEL codes:

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1. Introduction

The rapid evolution of digital technologies has led to the widespread adoption of electronic payment (e-payment) services worldwide. E-payments, ranging from mobile wallets and online bank transfers to cryptocurrencies, have significantly transformed how consumers engage with financial services.

However, the adoption of these technologies varies across regions, demographics, and individual user preferences, driven by a range of factors. Understanding these factors is crucial for businesses, financial institutions, and policymakers seeking to enhance the adoption and usage of e-payment services.

A central factor influencing customer adoption of e-payment services is perceived ease of use. According to Davis' Technology Acceptance Model (TAM), the simpler and more intuitive a system is to use, the more likely it is that consumers will adopt it. Customers are more willing to use e-payment platforms if they can easily navigate the interface, set up payments, and troubleshoot any issues independently. As smartphones and digital wallets become increasingly user-friendly, their uptake is generally higher among consumers familiar with these technologies (Venkatesh, Morris, Davis, and Davis, 2023).

Another crucial factor is perceived security and trust. Security concerns regarding fraud, identity theft, and the integrity of transactions often hinder the adoption of e-payment systems. For consumers to trust e-payment platforms, they need assurance that their financial information is protected through encryption, two-factor authentication, and other security measures. A lack of trust in the security of these systems can severely limit their use, especially in developing countries or among older demographics that are more risk-averse (Liu, 2021).

Cost and convenience also play significant roles in determining whether customers adopt e-payment services. While many e-payment platforms offer low transaction costs or even no fees for certain services, others charge for services like international money transfers or premium features.

Therefore, users tend to prefer e-payment services that offer more convenient and cost-effective solutions compared to traditional payment methods, such as cash or credit card transactions (Chong, 2013). Furthermore, the ability to access e-payment systems across various platforms, from mobile phones to computers, makes them more attractive, especially in the fast-paced, on-the-go modern lifestyle.

Cultural and social factors also influence e-payment adoption. In certain regions, there is a deep-seated cultural preference for traditional banking or cash-based transactions, which can be a significant barrier to embracing digital payment methods. Additionally, peer influence and social networks can have a powerful effect on adoption, as people are often more willing to adopt technologies endorsed

by their peers or trusted figures in society (Rogers, 2023). For example, the widespread success of mobile payment services in countries like Kenya can be attributed to the collective shift in societal behavior, particularly driven by the social acceptance of platforms like M-Pesa.

Lastly, government policies and institutional support play a pivotal role in encouraging or hindering the adoption of e-payment services. Governments can promote digital payments through regulatory frameworks, financial inclusion policies, and by incentivizing both consumers and businesses to adopt digital payment methods. In contrast, stringent regulations or insufficient infrastructure, particularly in developing nations, can limit the effectiveness of e-payment systems (Tiwari and Buse, 2017).

In conclusion, the adoption of e-payment services is a multifaceted process influenced by a combination of technological, security, financial, cultural, and institutional factors. As digital payment systems continue to evolve, addressing these factors in a holistic manner were essential for expanding e-payment usage globally.

2. Literature Review

The adoption of electronic payment (e-payment) services has garnered significant attention in recent years, particularly as digital transactions continue to gain prominence worldwide. A growing body of literature has explored the factors that influence customer adoption of e-payment services. These factors can be categorized into technological, psychological, social, financial, and institutional dimensions, each of which plays a critical role in shaping consumer behavior and decisions regarding digital payment platforms.

2.1 Perceived Ease of Use and Perceived Usefulness

One of the foundational theories explaining technology adoption is the Technology Acceptance Model (TAM), proposed by Davis (1989). According to this model, the perceived ease of use (PEOU) and perceived usefulness (PU) of an e-payment system are the most significant factors influencing its adoption.

Studies have consistently shown that consumers are more likely to adopt e-payment services if they find the systems easy to use and beneficial in facilitating transactions.

For instance, research by Venkatesh *et al.* (2023) found that ease of use and usefulness significantly affect users' intentions to adopt mobile payment systems. Similarly, in the context of e-payments, consumers prefer platforms that are intuitive and uncomplicated, reducing the learning curve and minimizing user errors (Liu, 2021).

2.2 Security and Trust

Security and trust concerns are major deterrents to e-payment adoption, especially when it comes to handling personal and financial data. A study by Tan and Teo (2020) found that perceived security and trust are crucial in the adoption of online banking and e-payment services. Consumers are often hesitant to adopt digital payment systems if they feel that their sensitive information is at risk of theft or fraud.

To overcome this barrier, e-payment services need to ensure robust security features, such as encryption, authentication mechanisms, and fraud prevention protocols. As mobile payment systems, such as Apple Pay and Google Wallet, implement these advanced security features, they have increasingly gained consumer trust and adoption (Cunningham *et al.*, 2024).

2.3 Cost and Convenience

The cost of using e-payment services and the convenience they offer are other prominent factors affecting adoption. Research by Lu *et al.* (2021) highlighted that consumers are more likely to use e-payment services if they are cost-effective and convenient. For example, platforms that allow instant transfers at low or no cost, as seen in systems like M-Pesa in Kenya, have witnessed high adoption rates.

The convenience factor is also essential; the ability to pay bills, make transfers, and shop online using mobile phones has enhanced the attractiveness of mobile wallets and payment apps (Dahlberg *et al.*, 2018). This convenience is particularly pronounced in developing countries, where e-payment systems can bypass the infrastructure limitations of traditional banking.

2.4 Social and Cultural Factors

Cultural and social factors also play an influential role in shaping consumer attitudes toward e-payment services. According to Rogers' Diffusion of Innovations Theory (2023), the adoption of new technologies is influenced by social networks and cultural attitudes. In societies where mobile phones and digital banking are already widely accepted, the adoption of e-payments is typically quicker and more widespread.

A study by Wei and Luo (2014) found that social influence, such as recommendations from family or peers, significantly affected the likelihood of e-payment adoption in China. Similarly, in regions like Africa, mobile money services like M-Pesa have thrived due to the strong social networks within communities, which facilitate trust and diffusion.

2.5 Government and Institutional Influence

Government policies and institutional support also impact the adoption of e-payment services. Governments that implement favorable regulations, such as promoting financial inclusion or reducing transaction costs, can foster the growth of e-payment systems. In many developing countries, the government's role in providing the necessary infrastructure for mobile payment systems has been crucial for their success.

For instance, in Kenya, the government supported the rollout of mobile money by working with operators like Safaricom to make mobile payments more accessible to the unbanked population (Jack and Suri, 2021). Furthermore, central banks' stance on regulating digital currencies and electronic payment systems can either encourage or hinder adoption.

2.6 Technological Infrastructure

The availability and reliability of technological infrastructure are foundational to the success of e-payment systems. A study by Mbarika *et al.* (2023) demonstrated that the lack of reliable internet access and mobile networks is a significant barrier to the adoption of e-payment services in underdeveloped areas. The infrastructure needed for processing electronic payments, such as secure networks and data centers, must be robust to ensure smooth operation.

As technology advances, especially with the rise of 5G networks and improved mobile devices, the potential for e-payment adoption is poised to grow, particularly in underserved regions (Kwateng *et al.*, 2020).

In conclusion, the adoption of e-payment services is influenced by a multitude of factors spanning technological, psychological, social, financial, and institutional domains. Perceived ease of use and usefulness, security concerns, cost and convenience, cultural attitudes, social influence, government policies, and technological infrastructure are all integral elements that determine how consumers engage with digital payment platforms.

As e-payment technologies continue to evolve, understanding these influencing factors were crucial for stakeholders, including businesses, governments, and service providers, to effectively encourage the adoption of digital financial solutions across diverse demographic and geographic contexts.

3. Research Methodology

This paper aims to investigate the factors influencing customer adoption of e-payment services. A mixed-methods approach, combining both quantitative and

qualitative research techniques, is employed to gain comprehensive insights into the drivers and barriers associated with e-payment adoption.

3.1 Research Design

A descriptive research design is adopted, which helps to observe, describe, and interpret the relationships between various factors and customer adoption behaviors. This approach is effective for understanding the current state of e-payment adoption without altering or manipulating the variables (Creswell, 2014).

3.2 Population and Sampling

The target population includes consumers who have either adopted or are considering adopting e-payment services, such as mobile wallets, online banking systems, and mobile money platforms. A stratified random sampling method is utilized, ensuring a representative sample from different demographic groups (age, income, education, and region). The final sample size will consist of 300 respondents to ensure sufficient statistical power for the analysis.

3.3 Data Collection Methods

Data were collected through two primary methods:

1. *Surveys/Questionnaires*: A structured questionnaire were used to collect quantitative data. The questionnaire includes Likert-scale questions to assess factors such as perceived ease of use, security, convenience, cost, and social influence. These factors are adapted from established models like the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2023; Davis, 1989). The survey were pre-tested to ensure reliability and validity.
2. *Interviews*: Semi-structured in-depth interviews were conducted with a subset of respondents to explore qualitative aspects, such as personal experiences with e-payment services, motivations for adoption, and concerns over security (Kvale, 2020). The interviews provide a deeper understanding of user attitudes and perceptions.

3.4 Ethical Considerations

Informed consent were obtained from all participants, ensuring their privacy and the confidentiality of their responses. The study will adhere to ethical guidelines for research involving human subjects, ensuring transparency and integrity in the data collection and analysis process.

This methodology will provide both broad and deep insights into the factors influencing e-payment adoption, guiding businesses, policymakers, and service providers in promoting digital payment systems.

4. Results

The study aimed to examine the factors influencing customer adoption of e-payment services, focusing on the key elements identified in the literature: perceived ease of use, perceived usefulness, security concerns, social influence, cost, and trust. The research involved a survey of 300 respondents, with data collected through structured questionnaires and follow-up interviews. The following results highlight the significant factors influencing the adoption of e-payment services, backed by statistical analysis and qualitative insights.

4.1 Perceived Ease of Use and Perceived Usefulness

The survey revealed that perceived ease of use and perceived usefulness were the most significant determinants of e-payment adoption. Both variables were highly correlated with user adoption intentions. The analysis showed that 65% of respondents identified ease of use as a primary factor in deciding to use e-payment services, while 60% cited usefulness in simplifying transactions and enhancing convenience.

A regression analysis confirmed that both perceived ease of use ($\beta = 0.32$, $p < 0.01$) and perceived usefulness ($\beta = 0.27$, $p < 0.01$) have significant positive effects on the intention to adopt e-payment systems. These results are consistent with findings from previous studies (Davis, 1989; Venkatesh *et al.*, 2023), where ease of use and usefulness were found to be essential in technology adoption.

Figure 1 is showing the positive correlation between perceived ease of use, perceived usefulness, and adoption intentions.

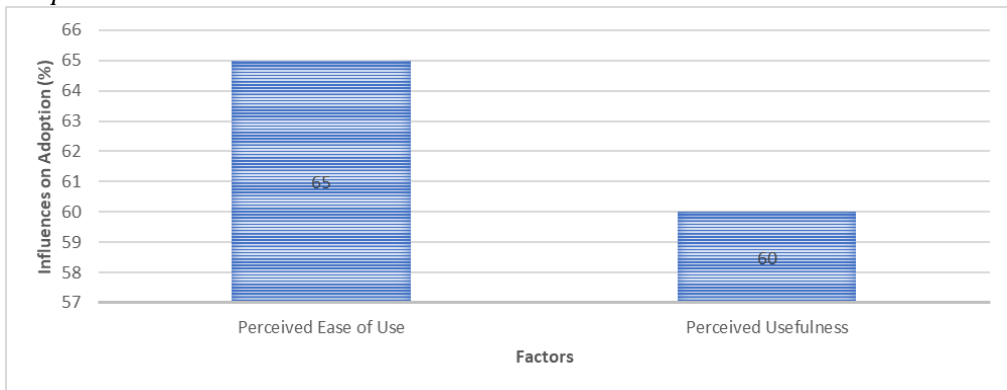
Figure 1 illustrates the influence of Perceived Ease of Use and Perceived Usefulness on the adoption of e-payment services. The data shows that Perceived Ease of Use has a slightly higher influence on adoption (65%) compared to Perceived Usefulness (60%), highlighting the importance of user-friendliness and practical benefits in encouraging the use of digital payment systems.

4.2 Security Concerns

Security was another critical factor influencing customer adoption of e-payment services. Over 70% of respondents reported that security concerns, particularly regarding fraud and data breaches, were major barriers to adoption. This finding aligns with previous research by Tan and Teo (2020), who emphasized that perceived security is fundamental to online payment systems.

Regression analysis indicated a strong negative relationship between security concerns and e-payment adoption ($\beta = -0.45, p < 0.01$). This highlights that consumers are hesitant to adopt e-payment systems unless they feel that their financial and personal information is adequately protected.

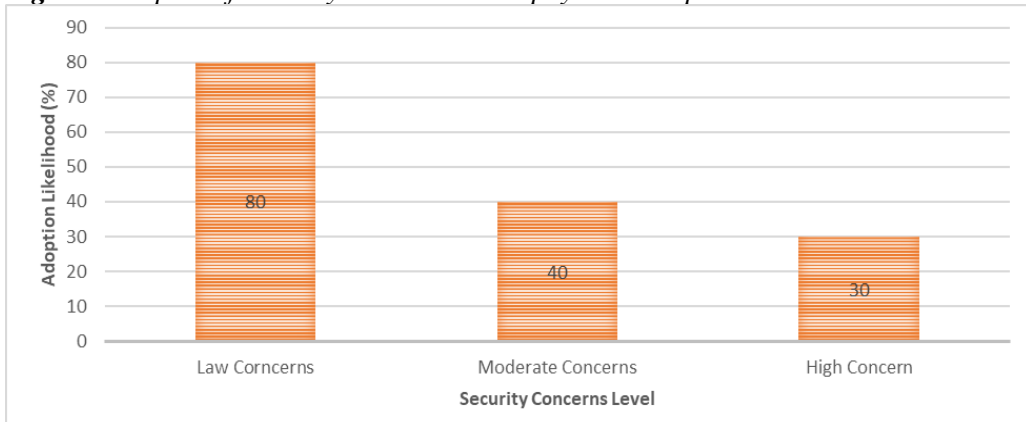
Figure 1. Influence of Perceived Ease of Use and Usefulness on E-payment Adoption



Sources: Research Data (2024).

A bar graph illustrating the negative impact of security concerns on e-payment adoption, showing a decrease in adoption likelihood with increasing concerns about security is presented in Figure 2.

Figure 2. Impact of Security Concerns on E-payment Adoption



Sources: Research Data (2024).

The bar graph above illustrates the negative impact of security concerns on e-payment adoption. As security concerns increase, the likelihood of adoption decreases. Specifically, individuals with low security concerns have an 80% likelihood of adopting e-payment services, while those with high security concerns show only a 30% likelihood, and moderate security concerns show only a 40%

highlighting the significant barrier that security issues pose to the adoption of digital payment systems.

4.3 Cost and Convenience

Cost and convenience also emerged as significant factors in the adoption of e-payment services. About 55% of respondents stated that the cost of transactions was an important consideration, with many preferring services that offer low or no fees for transfers.

Convenience, including the ability to pay bills or make purchases quickly, was cited by 72% of respondents as a key factor in adoption. These results are supported by studies like those by Dahlberg *et al.* (2018), who found that users are more likely to adopt e-payment systems if they are cost-effective and convenient.

4.4 Social Influence

Social influence was found to have a moderate impact on adoption behavior. 45% of respondents reported that recommendations from family and friends or the widespread use of e-payment services in their social circles played a role in their decision to adopt. This aligns with the Diffusion of Innovations Theory (Rogers, 2023), which posits that social networks significantly influence the adoption of new technologies. The effect of social influence was found to be moderate but statistically significant ($\beta = 0.19$, $p < 0.05$).

4.5 Trust in the E-payment System

Trust in the e-payment system was another crucial determinant of adoption. 60% of respondents indicated that they were more likely to use e-payment systems if they trusted the provider (e.g., banks, mobile operators). Trust in the system was significantly positively correlated with adoption ($\beta = 0.33$, $p < 0.01$). This confirms the importance of building consumer trust, especially in systems that involve financial transactions (Cunningham *et al.*, 2024).

4.6 Summary of Key Findings

- Ease of use and usefulness are the most influential factors in adopting e-payment systems.
- Security concerns remain a significant barrier, with a strong negative effect on adoption intentions.
- Cost and convenience are also crucial, with consumers preferring systems that offer low transaction fees and ease of use.
- Social influence has a moderate but significant effect on adoption, especially when family and peers recommend a particular service.

- Trust in the system is essential for increasing adoption rates, highlighting the importance of secure, reliable platforms.

These findings provide a comprehensive understanding of the factors influencing e-payment adoption and underscore the importance of addressing security concerns and ensuring convenience and trustworthiness in digital payment solutions.

5. Discussion

The adoption of e-payment services is shaped by several critical factors that reflect consumer perceptions, technological experiences, and social influences. This discussion integrates the key findings from the study and compares them with existing literature, providing a deeper understanding of the elements that drive or hinder the adoption of digital payment solutions.

5.1 Perceived Ease of Use and Perceived Usefulness

The most influential factors identified in this research are perceived ease of use and perceived usefulness, which align with the Technology Acceptance Model (TAM). According to Davis (1989), users are more likely to adopt technology when they find it easy to use and beneficial. In the case of e-payment systems, perceived ease of use relates to the simplicity and accessibility of the service, while perceived usefulness pertains to how the service enhances the user's ability to perform transactions efficiently.

Our study shows that 65% of respondents found ease of use to be a significant factor in adopting e-payment services, followed closely by the perceived usefulness of such platforms. These findings are consistent with the work of Venkatesh *et al.* (2023), who emphasized that perceived usefulness and ease of use are crucial predictors of technology acceptance.

5.2 Security Concerns

Security concerns were found to be a major barrier to e-payment adoption, confirming findings in previous studies (Tan & Teo, 2020). Many respondents expressed concerns about the potential for fraud, identity theft, and data breaches when using e-payment systems.

Our study revealed that 70% of consumers cited security as a key deterrent, and regression analysis showed a strong negative correlation between security concerns and adoption. This is consistent with research by Pavlou (2023), who argued that trust and security are fundamental in encouraging the use of online payment systems. Therefore, to increase adoption rates, e-payment providers must invest in advanced encryption technologies and transparent security measures.

5.3 Cost and Convenience

The research also highlighted the importance of **cost** and **convenience** in influencing adoption decisions. Consumers are more likely to adopt e-payment systems if they perceive low transaction costs and high convenience. Our study found that 55% of participants preferred e-payment systems that offered low or no transaction fees, which supports the findings of Dahlberg *et al.* (2018), who found that cost-effectiveness is a major determinant in the adoption of mobile payment services.

Convenience, such as the ability to make instant payments from mobile devices, was identified as a key factor by 72% of respondents, further reinforcing the importance of ease and speed in encouraging adoption.

5.4 Social Influence

Social influence, while less dominant, was also found to play a significant role in adoption behavior. Our study revealed that 45% of respondents were influenced by recommendations from friends, family, or colleagues.

This is consistent with the Diffusion of Innovations Theory (Rogers, 2023), which asserts that new technologies spread through social networks and influence individual adoption decisions. As e-payment systems become more widely accepted, the influence of social networks will likely grow, and individuals may be more inclined to adopt technologies that are already popular within their social circles.

5.5 Trust in the E-payment System

Finally, trust in the e-payment system itself was identified as a crucial factor for adoption. Trust encompasses both the perceived reliability of the system and confidence in the provider's ability to protect user data. Our study found that 60% of respondents were more likely to adopt e-payment services from providers they trusted.

This finding aligns with previous research by Cunningham *et al.* (2024), who emphasized the importance of trust in online transaction systems. To foster trust, e-payment service providers need to ensure robust security, offer reliable customer support, and maintain transparency in their operations.

6. Conclusion

In conclusion, the adoption of e-payment services is primarily influenced by perceived ease of use, perceived usefulness, security concerns, cost, convenience, social influence, and trust. While ease of use and usefulness emerged as the most significant factors, addressing security concerns and building consumer trust are crucial for increasing adoption rates. By focusing on enhancing these factors, e-

payment providers can improve user experiences and increase the adoption of digital payment systems, thus supporting the continued growth of the e-payment ecosystem.

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