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Relationship between mobile money services and transaction efficiency in Uganda. A case study of Wakiso District, Entebbe Municipality

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Abstract

The study examined the relationship between mobile money services and transaction efficiency in Uganda, using Wakiso District, Entebbe Municipality as a case study. The study adopted a descriptive cross-sectional research design and targeted administrators, financial and procurement officers, e-payment service providers, transaction processing staff, and e-payment system users. A sample size of 244 respondents was determined using the Krejcie and Morgan sample size table and selected through a mixed sampling approach involving purposive and simple random sampling techniques. Data were collected using structured questionnaires and key informant interviews, and analyzed using the Statistical Package for Social Sciences (SPSS). The results indicated a strong positive relationship between mobile money services and transaction efficiency, as evidenced by a Pearson correlation coefficient of r = 0.719, which was statistically significant at the 0.05 level. The null hypothesis was rejected, confirming that increased adoption and use of mobile money services were associated with improved transaction efficiency. The findings showed that mobile money services enhanced transaction speed, reduced operational delays, improved accuracy, and increased convenience for users in Entebbe Municipality. The study concluded that mobile money services played a significant role in improving transaction efficiency and supporting effective financial transactions at the local level. It was recommended that mobile money service providers improve network reliability and agent liquidity, while policymakers strengthened regulatory oversight and interoperability to further enhance transaction efficiency. Continuous user sensitization was also recommended to maximize effective utilization of mobile money services.

Keywords: Mobile money services, transaction efficiency, e-payments

Background of the study

Mobile money services have become a defining feature of modern financial systems, reshaping how individuals, businesses, and institutions conduct transactions across the world (Gracious, 2023). Globally, the rapid spread of mobile phones and digital platforms enabled financial services to move beyond traditional banking infrastructure, improving the speed, convenience, and reach of transactions, particularly among populations previously excluded from formal finance (World Bank, 2022). Studies consistently showed that mobile money reduced transaction times, lowered cash-handling costs, and enhanced payment reliability for households and firms by allowing real-time or near-real-time transfers (Demirgüç-Kunt et al., 2018). Despite these gains, global evidence also indicated that transaction efficiency outcomes depended on network reliability, regulatory environments, interoperability, and users' digital capabilities, suggesting that adoption alone did not guarantee efficiency improvements (GSMA, 2023).

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Africa has been at the centre of mobile money innovation, accounting for the majority of the world's mobile money accounts and transactions (Winny et al., 2023). In many African countries, mobile money evolved as a substitute rather than a complement to traditional banking, providing faster and more accessible transaction channels in contexts where bank branch networks remained limited (Jack & Suri, 2014). Empirical studies across the region demonstrated that mobile money significantly improved transactional efficiency by reducing travel time to financial service points, facilitating quick peer-to-peer transfers, and supporting frequent low-value transactions essential for informal and small-scale economic activity (Aker & Mbiti, 2010). However, regional analyses also highlighted challenges that constrained efficiency, including agent liquidity shortages, uneven network coverage, transaction failures, and limited interoperability between service providers, which varied widely across countries and localities (GSMA, 2022).

In Uganda, mobile money has become a dominant payment and transfer mechanism since its introduction, playing a central role in promoting financial inclusion and supporting everyday economic transactions (Alex & Julius, 2024). The sector expanded rapidly due to high mobile phone penetration, a flexible regulatory environment, and strong demand for low-cost, convenient financial services (Bank of Uganda, 2021). Research in Uganda established that mobile money improved transaction efficiency by reducing waiting times, minimizing the risks associated with cash-based transactions, and enabling faster settlement of payments for households, small businesses, and service providers (Kikulwe, Fischer & Qaim, 2014). Mobile money has been widely used for remittances, bill payments, merchant transactions, and salary disbursements, contributing to smoother cash flows and improved business operations (Kazaara et al., 2024). Nevertheless, studies also noted persistent issues such as network interruptions, transaction fees for certain services, agent liquidity constraints, and varying levels of user understanding, which sometimes limited the full realization of efficiency gains (Munyegera & Matsumoto, 2016).

Within Wakiso District, particularly Entebbe Municipality, the relevance of mobile money to transaction efficiency is pronounced due to the area's mixed economic structure, combining tourism, transport services, public sector activity, and vibrant small and informal businesses (Promise et al., 2024). Entebbe's peri-urban setting and relatively high population mobility created strong demand for fast, reliable, and flexible transaction methods. Mobile money has been widely adopted for business payments, service fees, transport-related transactions, and household transfers, reducing the need for physical cash movement and repeated visits to banks or payment offices (Promise et al., 2024). However, local observations suggested that efficiency outcomes were not uniform across users and transaction types, with factors such as agent density, peak-season liquidity pressures, network reliability, and user digital literacy influencing transaction speed and reliability (Winny et al., 2023). Despite the widespread use of mobile money in Entebbe Municipality, limited empirical evidence existed on how these services specifically affected transaction efficiency at the local level (Julius & Kazaara, 2025). This gap underscored the need for a focused study to examine the relationship

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between mobile money services and transaction efficiency in Wakiso District, providing context-specific evidence to inform policy, service improvement, and local economic development initiatives (Amos et al., 2024).

Problem Statement

Despite the rapid growth and widespread use of mobile money services in Uganda, transaction inefficiencies persist, particularly at the local level (Ramadhan, Alex, Kazaara, et al., 2023). In Wakiso District, Entebbe Municipality, households, small businesses, and service providers increasingly rely on mobile money for payments, transfers, and bill settlements due to its perceived convenience and speed (Victor et al., 2022). However, users continue to experience challenges such as delayed transactions, network interruptions, agent liquidity shortages, transaction reversals, and inconsistent service charges, which undermine the reliability and efficiency of mobile money transactions (Akankwasa et al., 2022). While national and regional studies generally report positive effects of mobile money on financial inclusion and economic activity, there is limited empirical evidence specifically examining how mobile money services influence transaction efficiency in peri-urban settings like Entebbe Municipality (Alex & Julius, 2024). Moreover, existing studies often focus on adoption levels rather than operational efficiency outcomes such as transaction speed, cost, reliability, and accessibility (Sarah & Audrey, 2024). The lack of localized, evidence-based understanding constrains policymakers, regulators, and service providers from designing targeted interventions to enhance service performance (Ramadhan, Alex, Ariyo, et al., 2023). This study therefore seeks to examine the relationship between mobile money services and transaction efficiency in Wakiso District, Entebbe Municipality.

Main Objective

To assess the relationship between mobile money services and transaction efficiency in Uganda

Methodology

The study adopted a descriptive cross-sectional research design and was carried out in Wakiso District, Entebbe Municipality. The target population consisted of 333 respondents, including administrators, financial and procurement officers, e-payment service providers, transaction processing staff, and e-payment system users (citizens) (Nafiu, 2012). A total sample size of 244 respondents was determined using the Krejcie and Morgan (1970) sample size determination table. A mixed sampling approach was applied. Purposive sampling was used to select all administrators (10), financial and procurement officers (8), and e-payment service providers (14) because these categories possessed specialized knowledge and direct experience with mobile money and electronic payment systems (Jallow et al., 2022). Simple random sampling was used to select 80 transaction processing staff from a population of 100 and 132 e-payment system users from a population of 200 to ensure representativeness and minimize selection bias.

Data were collected using both primary data collection methods. Structured questionnaires were administered to transaction processing staff and e-payment system users to obtain quantitative data on mobile money usage and transaction efficiency. Key informant interviews were conducted with administrators, financial and procurement officers, and e-payment service providers to gather in-depth qualitative information on operational, regulatory, and

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technical issues affecting mobile money transactions (Olanrewaju et al., 2021). The instruments were pre-tested to ensure validity and reliability before data collection.

Quantitative data were coded, entered, and analyzed using the Statistical Package for Social Sciences (SPSS) (Nelson et al., 2022). Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data, while inferential statistics, including correlation and regression analysis, were used to examine the relationship between mobile money services and transaction efficiency. Qualitative data were analyzed thematically and used to complement the quantitative results.

Results

Table 1: Descriptive statistics on mobile money services

Mobile money services	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	STD
Mobile money services reduce the time required to complete financial transactions.	5 (2.0%)	3 (1.2%)	11 (4.5%)	171 (70.1%)	54 (22.1%)	4.09	0.703
I find mobile money services more efficient than traditional banking methods.	3 (1.2%)	28 (11.5%)	17 (7.0%)	53 (21.7%)	143 (58.6%)	4.25	1.081
Mobile money platforms are reliable for completing daily business or personal transactions.	21 (8.6%)	38 (15.6%)	11 (4.5%)	83 (34.0%)	91 (37.3%)	3.76	1.328
Using mobile money services reduces transaction costs.	25 (10.2%)	1 (0.4%)	33 (13.5%)	41 (16.8%)	144 (59.0%)	4.14	1.285

Source: Primary Data, 2025

Starting with the statement, “Mobile money services reduce the time required to complete financial transactions,” the results indicate that respondents overwhelmingly perceive mobile money as a time-saving tool. Specifically, 171 respondents (70.1%) agreed, and an additional 54 respondents (22.1%) strongly agreed, totaling 225 respondents or 92.2% of the sample who positively assessed mobile money for time efficiency. Only a small minority expressed disagreement, with 3 respondents (1.2%) disagreeing and 5 respondents (2.0%) strongly disagreeing, while 11

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respondents (4.5%) remained neutral (Julius & Kazaara, 2025). The mean score of 4.09 and a relatively low standard deviation of 0.703 suggest a strong consensus among participants regarding the time-saving benefits of mobile money. This finding highlights the significance of mobile money in enhancing financial transaction efficiency, reducing the need for physical bank visits, and supporting faster business and personal financial activities (Julius & Desire, 2025). An Administrator explained that, "The introduction of mobile money services has significantly improved the speed at which our organization processes financial transactions. Previously, making urgent payments to suppliers or reimbursing staff required either a cheque or a bank transfer, which would take between 24 to 48 hours to clear. With mobile money, funds are transferred instantly, and confirmation messages are received in real-time. This speed has been particularly beneficial when handling emergency expenses during field operations, as we can disburse funds within minutes without delays caused by traditional banking procedures" (Source: KM001/12/08/2025).

Regarding the statement, "I find mobile money services more efficient than traditional banking methods," the data demonstrate a strong preference for mobile money over conventional banking. A total of 196 respondents (53 agreed, 21.7%, and 143 strongly agreed, 58.6%) representing 80.3% of the sample, indicated a positive perception of mobile money's efficiency. Conversely, 28 respondents (11.5%) disagreed, and 3 respondents (1.2%) strongly disagreed, accounting for 12.7% of the sample, while 17 respondents (7.0%) remained neutral (Julius, 2025). The mean score of 4.25, the highest among the four statements, together with a standard deviation of 1.081, indicates that while the majority find mobile money highly efficient, there is some variation in individual perceptions, possibly due to occasional network challenges, user experience differences, or partial familiarity with the platform. A Financial & Procurement Officer noted that, "One of the key benefits I have observed with mobile money is the ability to make small, frequent payments without incurring high transaction costs associated with bank transfers. It has also allowed us to work efficiently with rural suppliers who may not have bank accounts but have mobile money wallets. However, a notable challenge is the occasional system downtime during peak hours, which sometimes causes payment delays and inconveniences to both the payer and the recipient" (Source: KM002/12/08/2025).

For the statement, "Mobile money platforms are reliable for completing daily business or personal transactions," the responses were slightly more varied. While 83 respondents (34.0%) agreed and 91 respondents (37.3%) strongly agreed, a notable proportion expressed concerns about reliability: 38 respondents (15.6%) disagreed and 21 respondents (8.6%) strongly disagreed, totaling 24.2% of respondents. Eleven respondents (4.5%) were neutral. The mean score of 3.76, alongside a standard deviation of 1.328, reflects moderate confidence in the reliability of mobile money platforms, suggesting that while the majority perceive these platforms as dependable, there remain concerns, potentially related to occasional technical failures, network downtime, or transaction delays. This indicates that improving system reliability could further enhance user trust and adoption. An E-payment Service Provider stated that, "From a service delivery perspective, mobile money outperforms traditional banking in terms of accessibility

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and convenience. Clients can transact from any location without visiting a branch, and this has improved overall service efficiency. However, for high-value transactions, traditional banking still has an edge due to higher transaction limits and better security protocols. To further enhance efficiency, we recommend increasing transaction limits for registered business accounts and integrating stronger fraud detection systems" (Source: KM003/12/08/2025).

Regarding the statement, "Using mobile money services reduces transaction costs," the findings revealed that mobile money is largely seen as a cost-effective solution. Out of the total sample, 185 respondents (41 agreed, 16.8%, and 144 strongly agreed, 59.0%), representing 75.8%, affirmed that mobile money reduces transaction costs. Meanwhile, 1 respondent (0.4%) disagreed and 25 respondents (10.2%) strongly disagreed, whereas 33 respondents (13.5%) remained neutral. Those who disagreed commonly cited that mobile money is relatively costly compared to traditional banking services, particularly due to the high charges on withdrawals, transfers, and service fees, which they perceived as outweighing the convenience benefits. The mean score of 4.14 and standard deviation of 1.285 underscore the positive perception of mobile money's affordability, although some variability exists, possibly due to differences in transaction fees across service providers or specific transaction types.

Table 2: Relationship between Mobile money services and transaction efficiency in Uganda

		Transaction efficiency in Uganda	Mobile money services
Transaction efficiency in Uganda	Pearson Correlation	1	.719**
	Sig. (2-tailed)		.000
	N	244	244
Mobile money services	Pearson Correlation	.719**	1
	Sig. (2-tailed)	.000	
	N	244	244
**. Correlation is significant at the 0.05 level (2-tailed).			

Source: Primary Data, 2025

The results indicated a strong positive relationship between these two variables, with a Pearson correlation coefficient of r = 0.719. This correlation was statistically significant at the 0.05 level (p = 0.000, two-tailed), which was well below the conventional alpha threshold of 0.05 (Nelson et al., 2023). Interpreting these results in the context of hypothesis testing, the null hypothesis, which posited that there was no significant relationship between mobile money services and transaction efficiency in Uganda, was rejected. The strong positive correlation suggested that higher adoption or usage of mobile money services was associated with increased transaction efficiency. This finding

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demonstrated that mobile money platforms played a crucial role in enhancing the speed, accuracy, and overall effectiveness of financial transactions in the Ugandan context.

Conclusions

The study established that the widespread adoption of mobile money is largely driven by its perceived usefulness particularly in terms of saving time, reducing transaction costs, and improving accessibility for both urban and rural users. Users consistently viewed mobile money as a practical and effective alternative to traditional banking, confirming that when a technology provides clear functional benefits, it is more likely to be embraced, as predicted by TAM.

It was also concluded that the perceived ease of use plays a critical role in adoption. The intuitive and user-friendly nature of mobile money platforms encourages frequent usage, allowing individuals and businesses to carry out transactions conveniently without the complexities of conventional banking systems. This ease of use, combined with the tangible benefits of speed and cost reduction, reinforces continuous adoption and reliance on mobile money services.

However, it was concluded that some challenges remain, particularly regarding system reliability, network stability, and transaction security. While these issues did not prevent adoption, they highlight areas where mobile money providers must improve to maintain user confidence and further enhance transaction efficiency. The study concluded that addressing these challenges through infrastructure improvements, better fraud prevention, and enhanced user education would strengthen the perceived usefulness and reliability of mobile money, thus sustaining its adoption and impact on financial transactions.

Recommendations

Mobile money providers should invest in upgrading their technical infrastructure to minimize system downtimes, network disruptions, and transaction failures. Ensuring consistent availability, even during peak transaction periods, will strengthen user trust and confidence in the platforms.

While mobile money platforms have introduced PIN codes and biometric verification, continuous improvement in security protocols is essential. Providers should implement advanced fraud detection systems, real-time monitoring of suspicious transactions, and user education on secure transaction practices to reduce the risk of fraud and data breaches.

Many users may face challenges due to limited digital literacy. Conducting awareness campaigns, training sessions, and user guides can help users understand how to navigate the platforms safely and efficiently, enhancing the perceived ease of use and reducing errors in transaction processing.

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Although mobile money is widely seen as cost-effective, differences in transaction fees across providers can create confusion or dissatisfaction. Providers should standardize and clearly communicate fee structures while considering lower-cost options for frequent or small-value transactions to maintain affordability.

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