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A Leapfrog to Financial Inclusion: The Role of Mobile Money and Digital Financial Services on Financial Inclusion in Botswana and Its Implications for Other Developing Economies

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ABSTRACT

Purpose: This study offers a thorough empirical analysis of Botswana's current financial inclusion situation, aiming to measure and evaluate the direct impact of mobile money and digital financial services offered by mobile network operators (MNOs) and commercial banks on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana. These study objectives are expected to have possible implications for other developing nations or economies.

Design/methodology/approach: The study adopted a pragmatic philosophy, combining positivist (qualitative) and interpretivist (qualitative) philosophies, and a mixed-methods approach to explore the experiences of the unbanked population in Gaborone, Botswana.

Findings: Mobile money and digital financial services have significantly impacted the financial behaviour of the unbanked population in Botswana, providing an accessible and affordable financial platform. Additionally, there are still areas that require further research and intervention to ensure that these gains are sustainable and inclusive. This study contributes to academic knowledge in business studies and financial technologies, providing practical guidance to MNOs, regulators, banks, and policymakers, and offering marketing insights.

Paper type: Research paper

Keyword: Adoption, Digital Financial Services, Financial Inclusion, Mobile Money, Mobile Network Operators.

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I. INTRODUCTION

This study aims to determine if Botswana's unbanked population is financially included using mobile money, digital payments, and digital money, considering their unique financial behaviours and challenges. Financial inclusion initiatives worldwide prioritise this population segment, as traditional banking institutions frequently underserve them. Digital financial services, provided by Mobile Network Operators (MNOs) and commercial banks, have emerged as a viable solution to address this gap, offering a range of financial services from basic money transfers to more complex financial products such as savings, loans, and insurance (Sharma & Rani, 2019).

This study investigates the impact of digital financial innovations on the unbanked population of Botswana, examining whether these innovations promote financial inclusion. Additionally, concentrating on this specific group of people provides an opportunity to examine the particular difficulties and obstacles they encounter when utilizing and gaining access to these services, offering insights that may help future financial products and services to be more inclusive and successful (Mooney & Garber, 2019).

A. Study objectives

1. Evaluate Impact on Financial Inclusion

Measure and evaluate the direct impact of mobile money and digital financial services offered by MNOs and commercial banks on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana.

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2. Research Question

What is the measurable impact of mobile money and digital financial services, provided by MNOs and commercial banks, on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana?

B. Hypotheses of the study

Hypothesis 1 (H1): The utilisation of mobile money and digital financial services offered by MNOs and commercial banks has a positive and statistically significant impact on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana.

Null Hypothesis 1 (H0): The utilisation of mobile money and digital financial services offered by MNOs and commercial banks does not have a positive and statistically significant impact on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana. The study's direction involves defining the theoretical framework, reviewing literature to identify research gaps, defining methodology, analysing data, presenting results and findings, and concluding.

C. Theoretical Framework

The theoretical framework is crucial for a research study's integrity and coherence, as it sets the foundation for research queries, hypotheses, and methodology. Stahl (2002) defines a theoretical framework as a comprehensive set of interconnected concepts, definitions, and assertions used to define and predict specific phenomena.

- 1. Theory and the Process of Developing Theories in Research
 - A theory is a structured set of interconnected concepts used in academic research to explain or predict specific events or behaviours by deciphering the intricacies of various variables. Weible (2023) suggests theories are developed through a cyclic process of inductive and deductive analysis, hypothesis validation, and empirical observations.
- 2. Theories Advanced to Justify the Relationship between Mobile Money or Digital Money and the Unbanked Population
 - The Financial Inclusion Framework, Technological Adoption Model, Innovation Diffusion Paradigm, and Societal Transaction Theory are key theoretical frameworks examining the relationship between digital financial solutions and the unbanked demographic.
- 3. Benefits of Mobile Money or Digital Money to the Unbanked Population of Botswana and Other Various Parties in the Economy
 - Various theoretical frameworks have been presented to delineate the advantages of digital financial tools for Botswana's unbanked individuals and other economic stakeholders (Chitimira & Warikandwa, 2023; Mashamba & Gani, 2023).
- 4. Financial Inclusion Framework
 - This posits that digital financial mediums can bolster financial inclusivity by extending financial service accessibility to the unbanked (Demirguc-Kunt et al., 2018).
- 5. Theoretical Models
 - This study uses four theoretical models: Financial Inclusion Theory, Technology Acceptance Model (TAM), Diffusion of Innovation Theory, and Social Exchange Theory to explore the role of mobile money services in promoting financial inclusion in unbanked populations.
 - a. The Financial Inclusion Theory: This theory posits that financial inclusion is key to achieving inclusive development (Demirguc-Kunt et al., 2018). In this study, mobile money or digital money services provided by MNOs and commercial banks are posited as mechanisms promoting financial inclusion by making financial services accessible to the unbanked population.
 - b. The Technology Acceptance Model (TAM): According to Davis (1989), two critical elements that affect users' acceptance of technology are its perceived usefulness and its perceived ease of use. According to the study's hypothesis, the unbanked population will be more likely to adopt mobile money or digital money if they perceive it to be convenient and advantageous.
 - c. The Diffusion of Innovation Theory: Rogers (2003) theory explains the spread of new ideas and technology, focusing on the adoption of mobile money in Botswana, influenced by innovation characteristics, communication channels, and social systems.
 - d. The Social Exchange Theory: This theory postulates that social behavior is the result of an exchange process, with individuals weighing the potential benefits and costs of social interactions (Blau, 1964; Kiburu, Njiraini, & Boso, 2023). The theory suggests that the unbanked population will adopt mobile money or digital money technologies if they believe the benefits outweigh the costs.

This research explores the influence of mobile money adoption, financial inclusion, literacy, perceived usefulness, ease of use, benefits, and costs on financial inclusion in Botswana.

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6. The conceptual framework for this study can be visualized as follows:

The study suggests that digital financial services from MNOs and commercial banks can enhance financial inclusion and access for the unbanked population in Botswana, despite challenges like regulatory support. It also helps to identify the key variables to be measured and the relationships to be explored, providing a roadmap for the research project (Pramani & Iyer, 2023).

The Social Exchange Theory is utilized in research on Botswana's unbanked communities, guiding inquiries into digital finance adoption and identifying strategies to increase its prevalence among MNOs and banks.

D. Research Gap

The literature offers valuable insights into the impact of mobile money and digital financial services on financial behavior, access, and overall financial inclusion in Botswana.

Long-term Impact: While numerous studies have examined the immediate effects of mobile money and digital financial services on financial inclusion, there is a lack of research on their long-term impact on the financial behaviour of the unbanked population (Bongomin et al., 2023; Skogqvist, 2019). Future research should focus on understanding the sustainability of these impacts over time. Role of Regulation and Security: Further research is needed to understand how regulatory frameworks and security measures can support the safe and effective use of mobile money and digital financial services (Mishchenko et al., 2022; Mogaji & Nguyen, 2022; Shaikh et al., 2023).

Financial Literacy: Research on strategies to improve financial literacy among unbanked Botswana's population is limited, highlighting the need for further investigation to ensure the effective use of financial services (Ansari et al., 2022; Khan et al., 2022; Lo Prete, 2022).

Comparative Studies: Research on mobile money and digital financial services is limited to individual countries, necessitating comparative studies to understand their effectiveness in promoting financial inclusion (Chang et al., 2023; Ediagbonya & Tioluwani, 2023; Mpofu, 2022; Ozili et al., 2023).

Role of Commercial Banks and MNOs: Research is needed on collaborating between mobile network operators and commercial banks to maximise the impact of mobile money and digital financial services (Agyemang et al., 2024; Khan et al., 2022; Perlman, 2022; Senyo et al., 2023; Svotwa et al., 2023).

Research gaps in Botswana's unbanked population will be addressed to understand the impact of mobile money and digital financial services and develop effective strategies for financial inclusion.

II. METHODS

This study uses a mixed-methods approach, incorporating positivist and interpretivist perspectives, to understand the impact of mobile and digital financial services on the unbanked population in Botswana. Creswell & Creswell (2018); Morgan (2014) support mixed-methods approaches, arguing that combining quantitative and qualitative methods provides a comprehensive understanding of research problems.

The study utilized a convergent parallel design, combining quantitative and qualitative data collection and analysis simultaneously, enabling a more comprehensive interpretation and triangulation of findings. The use of surveys and interviews allows for a comprehensive examination of the study issue. Fetters et al. (2013), who contend that the convergent parallel design can produce deeper insights by merging quantitative and qualitative data, support the selection of this design. The research utilized stratified random sampling for quantitative data representation, ensuring diverse demographic categories, and purposeful sampling for qualitative data, enhancing generalizability and subgroup analysis.

The study chose a structured questionnaire for quantitative data and semi-structured interview guides for qualitative data, for the purpose of providing an in-depth examination of unique experiences and viewpoints for statistical evaluation. The selection of these data gathering instruments is consistent with the goals and inquiries of the research, and it has been endorsed by academics like (Creswell & Creswell, 2018). Quantitative data analysis examines correlations and tests research hypotheses through descriptive and inferential statistics, while qualitative data analysis codes and categorises data to identify patterns and themes.

The study's validity, reliability, and trustworthiness are ensured through rigorous statistical analysis, rigorous survey instrument design, and rigorous piloting, while the qualitative element's trustworthiness is enhanced through established methods, member verification, and thorough descriptions. The study prioritises ethical issues, adhering to guidelines, ensuring participant freedom, informed consent, and confidentiality, and obtaining ethical approval from a university review board before data collection.

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A. Presentation of Quantitative Results

To ensure the validity and reliability of the study, it was crucial to achieve a high response rate from the sampled population. The response rate indicates the proportion of respondents who completed the survey out of the total number of individuals approached.

III. RESULTS AND DISCUSSION

Table 1. Response Rate

Total Sample Size	Number of Responses	Response Rate (%)
385	385	100%

The study achieved a 100% response rate, which is exceptional. This indicates that every individual from the sampled population participated and provided their responses, ensuring a comprehensive representation of the unbanked population's perspectives in Botswana.

B. Impact of Financial Inclusion

This section examines the impact of mobile Money and Digital Financial services on the unbanked population in Botswana, focusing on their transformation in financial behaviour, access to services, and overall financial inclusion status, examining various aspects like transaction ease and trust.

Mobile Money Services Have Made It Easier for Me to Send and Receive Money. To gauge the impact of mobile money services on the ease of transactions, Table 2, presented below, captures the distribution of responses concerning this statement.

Table 2. Ease of Transactions with Mobile Money Services

	Frequency	Percent
True	365	94.8
False	20	5.2
Total	385	100.0

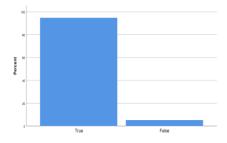


Figure 1. Distributions of Responses on Ease of Transactions with Mobile Money Services

From the data presented in Table 2, a vast majority, 94.8% (365 respondents), affirm that mobile money services have made it easier for them to send and receive money. A small fraction, 5.2% (20 respondents), disagree with this statement.

The data suggests an overwhelmingly positive impact of mobile money services on the ease of transactions among respondents. With 94.8% affirming the statement, it is evident that mobile money services have revolutionised the way transactions are conducted, offering unparalleled convenience and accessibility.

The study supports the literature on the transformative role of mobile money in enhancing financial inclusion, highlighting its well-documented potential in improving financial transactions. In many developing

divide, enabling individuals to conduct transactions seamlessly.

countries, including Botswana, mobile money has emerged as a pivotal tool in promoting financial inclusion, especially among the unbanked population (Global Findex Database, 2021; Anakpo, Xhate, & Mishi, 2023). The convenience and accessibility offered by mobile money services have been instrumental in bridging the financial

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Furthermore, the integration of mobile money services with traditional banking systems has been a cornerstone in the evolution of digital financial services. The study by Tobbin & Kuwornu (2011) found that mobile money transfer acceptance is influenced by users' perceptions of ease of use, usefulness, trust, and risk. The study in Botswana demonstrates that mobile money services effectively tackle financial inclusion barriers, improving accessibility and convenience for the unbanked population.

Now Save More Money Due to the Convenience of Digital Financial Services (SMM). To understand the impact of digital financial services on savings behaviour, Table 3, presented below, captures the distribution of responses concerning this statement.

Table 3. Savings Due to the Convenience of Digital Financial Services

SMM	Frequency	Percent
True	370	96.1
False	15	3.9
Total	385	100.0

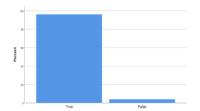


Figure 2. Distributions of Responses on Savings Due to the Convenience of Digital Financial Services

From the data presented in Table 3, an overwhelming majority, 96.1% (370 respondents), affirm that the convenience of digital financial services has enabled them to save more money. A small fraction, 3.9% (15 respondents), disagree with this statement. The data suggests a significant positive impact of digital financial services on the savings behaviour of respondents. With 96.1% affirming the statement, it is evident that the convenience offered by digital financial platforms has not only facilitated transactions but also promoted a culture of savings among users.

Digital financial services in Botswana have significantly boosted savings behavior, promoting a savings culture that is crucial for individual financial security and economic growth, with a high affirmation rate. Digital financial services, particularly mobile money and digital platforms, have the potential to significantly enhance savings behavior among the financially excluded, as highlighted by Mwende et al. (2019), particularly in Botswana, due to their convenience and ease of use.

Mobile Money has increased my access to financial services such as loans or insurance (MMI). To delve deeper into the impact of mobile money on broadening access to diverse financial services, Table 4., presented below, captures the distribution of responses concerning this aspect.

Table 4. Access to Financial Services through Mobile Money

MMI	Frequency	Percent
True	365	94.8

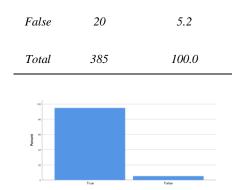


Figure 3. Distributions of Responses on Access to Financial Services through Mobile Money

From the data presented in Table 4, a dominant majority, 94.8% (365 respondents), confirm that mobile money has enhanced their access to financial services, including loans and insurance. Conversely, a minority, 5.2% (20 respondents), do not believe that mobile money has increased their access to these financial services.

Mobile money has significantly democratised access to financial services, with 94.8% of respondents recognizing its positive impact, particularly in loans and insurance. Mobile money platforms in Botswana have significantly expanded the financial services horizon for users, offering microloans and insurance products, and facilitating transactions. Their high affirmation rate indicates their role as a game-changer in providing previously out-of-reach financial services. The overwhelming affirmation by respondents in this study, with 94.8% acknowledging the positive impact of mobile money on their access to financial services, is consistent with findings from Anakpo, Xhate, & Mishi (2023). They highlighted the role of mobile money and digital financial services as significant contributors to financial inclusion, especially in sub-Saharan Africa. This study confirms the transformative potential of mobile money platforms in enhancing financial inclusion, aligning with Mpofu's,(2022) conclusion that MNOs and commercial banks play a crucial role.

Trust Mobile Money Services as Much as Traditional Banking (TMM). This section explores the trust factor in mobile money services compared to traditional banking methods, emphasising the importance of understanding users' trust levels in digital financial platforms.

Table 5. Trust in Mobile Money Services vs. Traditional Banking

ТММ	Frequency	Percent
True	385	100.0
99		
£ 00		
Percentage		_
20	True	

Figure 4. Distribution of Trust in Mobile Money Services vs. Traditional Banking

From the data presented in Table 5, every respondent, accounting for 100% (385 respondents), expressed trust in mobile money services at par with traditional banking. Respondents trust mobile money services as trustworthy as traditional banking due to robust security measures, user-friendly interfaces, efficient grievance redressal mechanisms, and consistent service delivery, aligning with broader literature.

The study by Tobbin & Kuwornu (2011) in Ghana found that mobile money acceptance is influenced by user perceptions of its ease of use, usefulness, and trustworthiness. This trend is observed in various developing countries, highlighting the transformative role of mobile money services in financial inclusion.

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Digital financial services have improved my overall financial management skills (DFS). To understand the impact of digital financial services on the financial management skills of respondents, Table 6, presented below, captures the distribution of responses concerning this statement.

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Table 6. Improvement in Financial Management Skills Due to Digital Financial Services

	Frequency	Percent
True	385	100.0



Figure 5. Distributions of Responses on Improvement in Financial Management Skills Due to Digital Financial Services

From the data presented in Table 6, every respondent, accounting for 100% (385 respondents), believes that digital financial services have improved their overall financial management skills. The data reveals that digital financial services significantly improve financial management skills among respondents in Botswana, with 100% recognizing the improvement in their financial literacy.

Digital financial services, with their user-friendly interfaces, educational resources, and real-time feedback, empower users to manage their finances effectively. These transformative potential fosters financial literacy, essential for individual well-being and economic prosperity. Botswana has seen significant improvements in financial management skills. The unanimous belief among respondents that digital financial services have bolstered their financial management skills, as presented in Table 4, finds resonance in the broader academic discourse. The literature underscores the transformative potential of digital financial tools, especially in regions grappling with financial inclusion challenges. Johan et al. (2019) and Yeyouomo et al. (2023) delineate the developmental stages of digital financial services, emphasising their role in overcoming barriers like costs, geographical challenges, and information asymmetry. Furthermore, Khera et al. (2022) highlight how advancements in fintech, including Digital Financial Services (DFSs), are pivotal in expanding financial access.

The literature also emphasises the importance of a robust retail payment system for meaningful traction of these digital services, integrating the financially underserved into the formal financial milieu (Johan et al., 2019; Yeyouomo et al., 2023). This study highlights the significant role of mobile devices in transforming financial management skills, emphasising the positive impact of digital financial services on financial literacy.

C. Statistical Analysis

This section details analytical techniques for data analysis, focusing on research objectives, mobile money, and the impact of digital financial service impact on the unbanked population of Botswana.

Analysis of Descriptive Statistics for Impact on Financial Inclusion Variables

Table 7. Descriptive Statistics: Impact on Financial Inclusion

Statement	Mean	Std. Deviation	N
Mobile money services have made it easier for me to send and receive money.	1.05	0.222	385
I now save more money due to the convenience of digital financial services.	1.04	0.194	385
Mobile money has increased my access to financial services such as loans or insurance.	1.05	0.222	385

I trust mobile money services as much as traditional banking.	1.00	0.000	385
Digital financial services have improved my overall financial management skills.	1.00	0.000	385

The data set in Table 7 provides insights into the perceptions of 385 respondents regarding mobile money and digital financial services. Each statement is associated with a mean value and a standard deviation, reflecting the central tendency and dispersion of responses, respectively. For the statement, "Mobile money services have made it easier for participants to send and receive money," a mean of 1.05 and a standard deviation of 0.222 are observed. The majority of respondents find mobile money services to be helpful in their transactions, with a low standard deviation indicating high consistency in this positive sentiment.

Regarding the convenience of digital financial services leading to more savings, the data shows a mean of 1.04 and a standard deviation of 0.194. This implies that the participants predominantly agree that digital financial services have enhanced their ability to save money. The relatively low standard deviation reinforces that this view is commonly held among the respondents.

The statement, "Mobile money has increased my access to financial services such as loans or insurance," yields a mean of 1.05 with a standard deviation of 0.222. This demonstrates that respondents overwhelmingly believe that mobile money has expanded their accessibility to various financial services. The consistency in this sentiment is again indicated by the low standard deviation.

In terms of trust, the statement, "I trust mobile money services as much as traditional banking," has a mean of 1.00 and a notably low standard deviation of 0.000. This denotes a unanimous agreement among all respondents, suggesting that they place equal trust in mobile money services as they do in traditional banking methods.

Lastly, when assessing the impact on financial management skills, the statement, "Digital financial services have improved my overall financial management skills," reveals a mean of 1.00 and a standard deviation of 0.000. This indicates that every respondent believes that digital financial services have positively influenced their financial management capabilities.

The data in Table 7 underscores the positive reception and trustworthiness of mobile and digital financial services among the respondents. Mobile money services offer convenience, enhance savings, expand access to services, and improve financial management skills, with widespread trust in their transformative impact compared to traditional banking.

1. Correlations among Perceptions of Mobile Money and Digital Financial Services.

The analysis examines the correlation between different perceptions of mobile money and digital financial services.

Correlation Analysis among Mobile Money Services and Their Impacts

Table 8, relationship analytical insights

Statements/Services	Mobile Money Services for Sending and Receiving Money	I Now Save More Due to Digital Services	Mobile Money has Increased My Access to Financial Services	Trust in Mobile Money vs. Traditional Banking	Digital Financial Services Improved My Financial Management Skills
Mobile Money Services for Sending and Receiving Money	I (p=.000)	0.860** (p=.000)	1.000** (p=.000)	Cannot be computed	Cannot be computed
I Now Save More Due to Digital Services	0.860** (p=.000)	1 (p=.000)	0.860** (p=.000)	Cannot be computed	Cannot be computed
Mobile Money has Increased My Access	1.000** (p=.000)	0.860** (p=.000)	1 (p=.000)	Cannot be computed	Cannot be computed

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to Financial Services					
Trust in Mobile Money vs. Traditional Banking	Cannot be computed	Cannot be computed	Cannot be computed	1	1
Digital Financial Services Improved My Financial Management Skills	Cannot be computed	Cannot be computed	Cannot be computed	Cannot be computed	1

Note: The correlation is significant at the 0.01 level (2-tailed) while the "Cannot be computed" statement indicates variables with unanimous responses and constant values.

Table 8 offers an analytical insight into the relationships between different mobile money services and their perceived impacts on users. The Pearson correlation value of 0.860 shows a significant positive relationship between mobile money services and increased savings due to digital services, suggesting that convenience in using these services enhances financial management. With a correlation of 0.01 level, the study found a statistically significant link between the convenience of using mobile money services and improved savings abilities among individuals.

Furthermore, "Mobile Money Services for Sending and Receiving Money" and "Mobile Money has Increased My Access to Financial Services" have a perfect 1.000 positive correlation. This indicates that there was a direct rise in the accessibility of other financial services, such loans or insurance, for each person who found it simpler to transact using mobile services. Interestingly, The relationship between digital services and increased access to financial services is evident, with a value of 0.860 indicating a strong connection.

However, the correlations with other factors were not estimated for the variables "Digital Financial Services Improved My Financial Management Skills" and "Trust in Mobile Money vs. Traditional Banking." This could indicate that participants' answers were all in agreement, pointing to the possibility that respondents' opinions about these factors were generally held.

In conclusion, the data highlights the interconnected benefits of mobile money services, including increased savings and access to financial services. However, the consensus on trust in mobile money and its impact on financial management skills warrants further exploration.

Mobile money services significantly impact individuals' saving habits, due easier access to financial services like loans and insurance. The convenience of these services directly impacts individuals' saving habits, highlighting their pivotal role in financial inclusion.

The study suggests that respondents' confidence in mobile money and enhanced financial management abilities may be influenced by digital financial services, but the exact form of this belief is difficult to determine. The interdependence of these services and mobile money underscores their impact on financial practices and availability.

D. Hypotheses

1. Hypothesis 1 (H1)

The utilisation of mobile money and digital financial services offered by MNOs and commercial banks has a positive and statistically significant impact on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana.

Evidence from Data. For the dependent variable "Concerns about the security of transactions deter me from using digital financial services", the F-statistic is 4.498 with a significance level of 0.012.

Finding. The evidence supports H1. The utilisation of mobile money and digital financial services does have a significant impact on financial behaviour and access to financial services.

2. Null Hypothesis

Based on the findings from the research hypotheses: Null Hypothesis 1 (H0): Rejected in favour of H1. In conclusion, The regression statistics support the research hypotheses, indicating that digital financial services offered by MNOs and Commercial Banks significantly enhance financial inclusion.

Table 9. Summary of the Hypotheses and the Relevant Statistics:

Hypothesi s Number	Hypothesis Description	Relevant Dependent Variable	F- Statistic	Significance Level	Supported/N ot Supported
H1	Utilisation of mobile money and digital financial services offered by MNOs and banks impacts the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana.	Concerns about the security of transactions deter me from using digital financial services	4.498	0.012	Supported

IV. CONCLUSION

Findings: Mobile money and digital financial services have significantly impacted the financial behaviour of the unbanked population in Botswana, providing an accessible and affordable financial platform.

Literature Alignment: The positive impact observed aligns with the findings of various authors such as Anakpo, Xhate, & Mishi (2023), Mpofu (2022), and Mishra & Bvuma (2022), who have all emphasised the transformative role of digital financial services in promoting financial inclusion. However, a surprising discovery from our research is the long-term sustainability of these impacts, an area that Mwende et al. (2019) and others have noted is under-researched.

Objective and Research Question Addressed: This research aims to understand the objective, impact of Mobile Money and digital financial services on the financial behaviour, access to financial services, and overall financial inclusion status of the unbanked population in Botswana. The research has shown that while the immediate effects of mobile money and digital services are evident, there is a need for more in-depth studies on their long-term impact. Additionally, while the role of regulation and security in promoting financial inclusion is frequently discussed in the literature, more granular research is required to understand how these frameworks can be optimised for the safe and effective use of these services. The importance of financial literacy is acknowledged, but effective strategies to enhance it among the unbanked remain a gap in the literature.

In conclusion, while mobile money and digital financial services have made significant strides in promoting financial inclusion among the unbanked in Botswana, there are still areas that require further research and intervention to ensure that these gains are sustainable and inclusive.

REFERENCES

- Agyemang, A. O., Twum, A. K., Nyeadi, J. D., Amoah, J. O., & Appau, A. N. (2024). The role of mobile money banking service in financial development: Evidence from Ghana. *African Review of Economics and Finance*, 15(1). https://www.ajol.info/index.php/aref/article/view/270837
- Ansari, Y., Albarrak, M. S., Sherfudeen, N., & Aman, A. (2022). A Study of Financial Literacy of Investors—A Bibliometric Analysis. *IJFS*, *MDPI*, *10*(2), 1–16. https://ideas.repec.org/a/gam/jijfss/v10y2022i2p36-d816456.html
- Bongomin, G. O. C., Akol Malinga, C., Amani Manzi, A., & Balinda, R. (2023). Agent liquidity: A catalyst for mobile money banking among the unbanked poor population in rural sub-Saharan Africa. *Cogent Economics & Finance*, 11(1). https://doi.org/10.1080/23322039.2023.2203435
- Chang, L., Iqbal, S., & Chen, H. (2023). Does financial inclusion index and energy performance index co-move? *Energy Policy*, 174, 113422. https://doi.org/10.1016/j.enpol.2023.113422
- Chitimira, H., & Warikandwa, T. V. (2023). Financial Inclusion as an Enabler of United Nations Sustainable Development Goals in the Twenty-First Century: An Introduction (pp. 1–22). https://doi.org/10.1007/978-3-031-23863-5_1
- Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.).
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008
- Demirguc-Kunt, Klapper, L., Singer, D., Ansar, S., & Hess, J. R. (2018). *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution (English)*. World Bank, Washington, D.C.

ISSN: 2597-4785 (ONLINE)

Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. *Technological Sustainability*, 2(1), 100–119. https://doi.org/10.1108/TECHS-10-2021-0017

ISSN: 2597-4785 (ONLINE)

- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving Integration in Mixed Methods Designs— Principles and Practices. *Health Services Research*, 48(6pt2), 2134–2156. https://doi.org/10.1111/1475-6773.12117
- Khan, F., Siddiqui, M. A., & Imtiaz, S. (2022). Role of financial literacy in achieving financial inclusion: A review, synthesis and research agenda. *Cogent Business & Management*, 9(1). https://doi.org/10.1080/23311975.2022.2034236
- Lo Prete, A. (2022). Digital and financial literacy as determinants of digital payments and personal finance. *Economics Letters*, 213, 110378. https://doi.org/10.1016/j.econlet.2022.110378
- Mashamba, T., & Gani, S. (2023). Fintech, bank funding, and economic growth in Sub-Saharan Africa. *Cogent Economics & Finance*, 11(1). https://doi.org/10.1080/23322039.2023.2225916
- Mishchenko, V., Naumenkova, S., Grytsenko, A., & Mishchenko, S. (2022). Operational risk management of using electronic and mobile money. *Banks and Bank Systems*, *17*(3), 142–157. https://doi.org/10.21511/bbs.17(3).2022.12
- Mogaji, E., & Nguyen, N. P. (2022). The dark side of mobile money: Perspectives from an emerging economy. *Technological Forecasting and Social Change*, 185, 122045. https://doi.org/10.1016/j.techfore.2022.122045
- Mooney, S. J., & Garber, M. D. (2019). Sampling and Sampling Frames in Big Data Epidemiology. *Current Epidemiology Reports*, 6(1), 14–22. https://doi.org/10.1007/s40471-019-0179-y
- Morgan, D. L. (2014). Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry*, 20(8), 1045–1053. https://doi.org/10.1177/1077800413513733
- Mpofu, F. Y. (2022). Industry 4.0 in Financial Services: Mobile Money Taxes, Revenue Mobilisation, Financial Inclusion, and the Realisation of Sustainable Development Goals (SDGs) in Africa. *Sustainability*, *14*(14), 8667. https://doi.org/10.3390/su14148667
- Ozili, P. K., Ademiju, A., & Rachid, S. (2023). Impact of financial inclusion on economic growth: review of existing literature and directions for future research. *International Journal of Social Economics*, 50(8), 1105–1122. https://doi.org/10.1108/IJSE-05-2022-0339
- Perlman, L. (2022). The Role of Central Banks in Digital Financial Services. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4263015
- Pramani, R., & Iyer, S. V. (2023). Adoption of payments banks: a grounded theory approach. *Journal of Financial Services Marketing*, 28(1), 43–57. https://doi.org/10.1057/s41264-021-00133-w
- Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). Simon and Schuster.
- Senyo, P. K., Gozman, D., Karanasios, S., Dacre, N., & Baba, M. (2023). Moving away from trading on the margins: Economic empowerment of informal businesses through <scp>FinTech</scp>. *Information Systems Journal*, 33(1), 154–184. https://doi.org/10.1111/isj.12403
- Shaikh, A. A., Glavee-Geo, R., Karjaluoto, H., & Hinson, R. E. (2023). Mobile money as a driver of digital financial inclusion. *Technological Forecasting and Social Change*, *186*, 122158. https://doi.org/10.1016/j.techfore.2022.122158
- Sharma, A., & Rani, R. (2019). C-HMOSHSSA: Gene selection for cancer classification using multi-objective meta-heuristic and machine learning methods. *Computer Methods and Programs in Biomedicine*, *178*, 219–235. https://doi.org/10.1016/j.cmpb.2019.06.029
- Skogqvist, J. M. (2019). The effect of mobile money on savings behaviors of the financially excluded. https://www.diva-portal.org/smash/record.jsf?pid=diva2%3A1325787&dswid=-1316
- Stahl, G. (2002). Contributions to a theoretical framework for CSCL. *Proceedings of the Conference on Computer Support for Collaborative Learning Foundations for a CSCL Community CSCL '02*, 62. https://doi.org/10.3115/1658616.1658626
- Svotwa, T. D., Makanyeza, C., & Wealth, E. (2023). Exploring Digital Financial Inclusion Strategies for Urban and Rural Communities in Botswana, Namibia, South Africa and Zimbabwe (pp. 161–179). https://doi.org/10.1007/978-3-031-23863-5 8
- Weible, C. M. (2023). Theories Of The Policy Process. Routledge. https://doi.org/10.4324/9781003308201