

Effect of Mobile Banking on Financial Inclusion among Small-Medium Enterprises in Kakamega County, Kenya

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ABSTRACT

At the end of 2016, adults to the tune of 25 percent had not attained inclusion in financial matters. The general objective was to determine the effect of mobile banking on financial inclusion among SMEs in Kakamega County, Kenya. This study was founded on the diffusion-innovation theory. The descriptive research design was adopted for a population of 9116, comprising 5108 small businesses and 4008 small-medium businesses in Kakamega County, Kenya. This study sampled 369 SMEs, who formed the respondents for the study. This study used questionnaires, so primary data was obtained. Data analysis was done using descriptive and inferential statistics. The study found a positive correlation coefficient of financial innovation parameter, mobile banking ($t=5.060$, $p<0.005$) on financial inclusion among small-medium enterprises. The study findings have shown that mobile banking is significant; hence, banks should subscribe to small-medium enterprises to enable convenient operations and timely transactions. The study findings have shown that mobile banking is significant; hence, banks should subscribe small-medium enterprises to mobile banking to enable affordable access to funding and easier operational transacting, thereby promoting financial inclusion among small-medium enterprises.

Keywords: Financial Inclusion, Mobile Banking, Small and Medium Enterprises

I. INTRODUCTION

The success of small and medium enterprises (SMEs) is critical for achieving greater economic equality and for sharing the fruits of economic growth. It is critical to find innovative solutions to their financing challenges. Financial inclusion for disadvantaged groups, including small and medium-sized businesses, has become a key priority for a number of countries around the globe (Asian Development Bank [ADB], 2014).

Digital technologies offer a powerful solution for financial inclusion for the estimated two billion adults globally by enabling innovative business models. According to the World Bank (2022), access to bank accounts is limited to the entire globe, with few people owning bank accounts. An increasing number of countries have introduced comprehensive measures to improve fund attainability. In many countries, this has involved focusing on the adoption of technology to innovate financial products.

Scholars Goldfarb and Tucker (2019) have compounded financial innovation into mobile banking, agency banking, and internet banking. Economists have assessed the range of specific costs that decrease with digital technologies (Goldfarb & Tucker 2019). Lack of financial accessibility has negatively affected the economy (Biju & Joseph, 2016). The affordability and accessibility of funds have become global issues, prompting inclusion criteria in the financial sector (Argamo, 2016). Banks have therefore devised new measures to reach out to clients (Idowu et al., 2020).

According to the World Bank (2022), the number of account owners using mobile banking has greatly grown. This is seen in the number of transactions conducted through the mobile phone. Currently, one can deposit and withdraw funds using a mobile phone. Loan application and disbursement have also been enabled. Therefore, financial inclusion has clearly been evidenced through mobile banking.

The Central Bank of Kenya [CBK] (2022) reported that financial innovation has accelerated the rate at which financial transactions take place; bank deposits have gone high, and equally, withdrawals have gone high. From 19.19 million in 2019 to 34.77 million in 2020, there was a significant shift from traditional banking to mobile banking (Central Bank of Kenya, 2022). As a result, forces of supply and demand now govern cash flow as opposed to the past, when other factors like accessibility and affordability were major obstacles (Kambua, 2015). Banking agencies rose from 9,748 to 41,746 in 2019 and 2020, respectively, as bank deposits rose from Ksh. 3,575,502 to Ksh. 36,395,378, and withdrawals rose from Ksh. 2,960,692 to Ksh. 26,821,097. Generally, the net transactions went up from 8,761,703 to 79,889,383 (CBK, 2015).

There are various mobile phone lending platforms that have contributed to financial inclusion among small-medium enterprises; for instance, the Mshwari credit facility offered by Safaricom Telco Company and M-coop Cash for Cooperative Bank of Kenya, which provide mobile bank credit services in Kenya. However, mobile banking financial innovation has led to a financial crisis with the mushrooming of lenders, who aim at frustrating borrowers through manipulation of their hard-earned funds. The CBK (2022) was forced to put in place stringent measures to curb the unnecessary growth of mobile lenders who charge especially vulnerable borrowers as they please without following set-out procedures and guidelines. Financial inclusion in the study was measured using access to soft loans, affordability of loans, and timely loans.

1.1 Statement of the Problem

Small and medium-sized enterprises (SMEs) have played a considerable role in employment creation, poverty reduction, and globally advancing economic development. Yet despite these achievements, 25% of SMEs in Kenya totally failed to get access to financial funding (Kenya National Bureau of Statistics [KNBS], 2019). According to Dermiguc and Klapper (2016), approximately 20% of SMEs remain without a bank account, which indicates exclusion criteria in the banking system. A World Bank report (2022) found that 80% of SMEs have bank accounts but cannot access financial services. Solutions on financial inclusion are still needed since the majority of SMEs are financially excluded across the globe (Grandolini, 2015). Many SMEs in Kenya do not reach the growth stage of their life cycle due to a lack of timely and affordable access to financial services (KNBS, 2021). This is one of the key problems that have been affecting SMEs' output performance (KNBS, 2021). Scholarly, Mwanja (2018) examined technology adoption but failed to incorporate agency banking and a moderator. Njagi and Njoka (2021) conducted research on financial inclusion in microfinance institutions. Based on the above discrepancies, the current study ascertained the effect of mobile banking on financial inclusion among SMEs in Kakamega County, Kenya.

1.2 Objective of the Study

To determine the effect of mobile banking on financial inclusion among SMEs in Kakamega County, Kenya

Research Hypothesis

- i. *H₀₁*: Mobile banking has no significant effect on financial inclusion among SMEs in Kakamega County, Kenya.

II. LITERATURE REVIEW

2.1 Diffusion Innovation Theory

Rogers (2003) proposed the diffusion innovation theory, which explains the idea of new ideas, how they develop, and how to apply them in a business context. Technology is taken to be on a growth trajectory, which clearly explains the need for business people to apply technology for purposes of maximum performance. Small and medium enterprises need technology to help yield financial empowerment. The use of mobile innovative technology ideas to facilitate access to funding and even gaining financial literacy makes the aspect of mobile innovation of essence in the study. Furthermore, the innovation of mobile banking makes operations faster and more efficient. The use of mobile banking to enable timely and affordable access to funding is a clear sign of growth in the business sector, especially for SMEs.

Rogers (2003) attributes that relative advantage, compatibility, trialability, complexity, and observability make sense in the inclusion criteria. Mobile and internet banking practices are of relative advantage to a business, as they are compatible with the business dynamics, complex in the business environment, and easily observable skills to apply. SMEs have in recent years experienced financial inclusion through mobile banking; hence, Diffusion Innovation Theory (DIT) is the main theory guiding the study.

2.2. Conceptual Review

Independent variables

Dependent variable

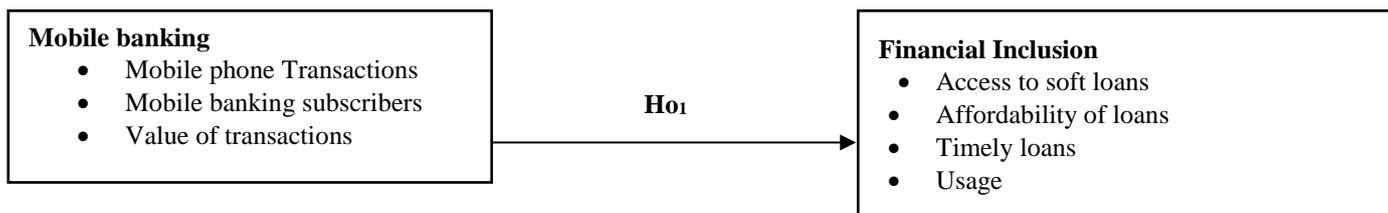


Figure 1

Conceptual Framework for Effect of Mobile Banking on Financial Inclusion among Small-Medium Enterprises in Kakamega County, Kenya

2.2.1 Mobile Banking

Mobile banking refers to financial services handled through the use of mobile phones, such as executing savings, deposits, and withdrawals of funds (Oburu, 2018). Pierrakis and Collins (2013) examined technological advances in financial growth, where online cash transactions, online credit financing, and other digital funding were identified as having highly improved financial inclusion among small-medium enterprises. Mobile banking was measured by the number of financial transactions done by the use of mobile phones, the frequency of mobile financial transactions done, and the value of the mobile banking transactions.

2.2.2 Financial Inclusion

Financial inclusion entails the ease of loan accessibility, savings ability, and safety of business through insurance, affordability of loaning services, and quality and quantity of financial services given. Accessibility to loans, affordability of loans (quality), and timely loans (quality) served as metrics for financial inclusion in the study. According to the FinAccess Survey (2021), financial inclusion is based on access, usage, quality, and impact/welfare.

2.3 Empirical Review

Mobile banking explains the provision of bank services through mobile phone operations such as deposits and withdrawals (Oburu, 2018). According to Demirgüç and Klapper (2013), financial inclusion refers to accessing quality and quantity of financial services with ease and affordability. Financial inclusion facilitates the timely delivery of financial services from a formal financial institution at an affordable cost to large sections of vulnerable groups, such as SMEs. Nair (2017) advocates for inclusivity for marginalized groups or groups with less access to financial services, such as SMEs. According to KBS (2019), out of 65% of Kenyan residents in rural settings, only 5% have access to banking facilities, thereby giving grounds for more financial inclusion measures to be put in place.

Mwania (2018) studied mobile technology usage and financial inclusion in SMEs in Machakos County. The study used an experimental research design among SMEs. Technological advancements were noted in the financial growth of SMEs, where online cash transactions, online credit financing, and other digital funding mediums highly improved financial inclusion among SMEs. Machakos County had therefore improved its SMEs sector financial inclusion through the use of mobile technology. The study found that the use of mobile technology positively affected financial inclusion. The study recommended further studies on innovation strategies.

Njagi and Njoka (2021) analyzed the impact of mobile banking on the bottom lines of Kenya's microfinance organizations. Both the public interest theory and the financial theory of intermediation were used in the research. Stratified sampling was used to choose microfinance institutions for this descriptive survey study. Microfinance institutions' bottom lines benefited significantly from the introduction of new financial innovations.

Samuel and Mbugua (2019) did research on financial inclusion programs for women-owned small businesses in Nairobi City County. Key issues that needed to be addressed in order to achieve financial inclusion included licensing, capital generation, and access to finances. Purposive sampling was utilized to choose female-owned businesses for this cross-sectional study. The research found that efforts to increase financial inclusion followed trends of increased licensing, capital formation, and financial accessibility.

Marus et al. (2021) established the financial inclusion dynamics of the growth of SMEs in Uganda. The study conducted correlation and regression analyses. The contribution of information technology was examined, which showed that mobile banking had a significant positive influence on the performance of SMEs.



Qamruzzaman and Wei (2019) examined the growth of mobile banking in Asia and its impact on financial inclusion. In addition to other areas of financial innovation, this study examined the effect of mobile and internet banking on the inclusion matrix. The study concluded that the introduction of mobile banking significantly improves people's access to financial services.

Oshora et al. (2021) identified the factors that influence financial inclusion in SMEs in Ethiopia. The research, which employed an experimental approach, linked financial inclusion favorably to the success of SMEs.

Access to soft loans for SMEs has been the key norm in the quest for financial innovation. Many lenders prefer mobile lenders because they provide timely loans. The affordability of loans becomes another factor with diverse attention to affordability (Grandolini, 2015). SMEs are at the crossroads of financial inclusion based on financial accessibility, financial affordability, and financial usage.

III. METHODOLOGY

This study used a descriptive research design as it captured possible behaviors, attitudes, values, and characteristics of the subject matter (Kothari, 2013). That is why it was the choice of the researcher, as it described financial innovation and financial inclusion among SMEs in Kakamega County. The study used descriptive and inferential statistics. Descriptive analysis involved frequencies and percentages. Inferential analysis involved Pearson correlation analysis and simple linear regression.

The research targeted a population of 9,116 respondents, comprising 5,108 small businesses and 4,008 medium businesses (Kakamega County Ministry of Trade, 2022).

The researcher applied the Krejci and Morgan (1970) formula to determine the population, obtaining a sample of 369 SME owners. A field visit was made to the 369 SMEs in Kakamega County. The research tools were administered to the respondents on their respective enterprise premises, providing a conducive environment for primary data collection. The questionnaires were given to the entire 369 SMEs as per the study sample size. Good rapport with the respondents was established through the assurance of confidentiality and anonymity of the information given. A follow-up with the respondents was done just to remind them of the questionnaires they answered and to make sure the study achieved a reliable response rate.

Econometric equation

$$Y = \alpha + \beta_1 X_1 + \varepsilon$$

Where, Y = SMEs financial inclusion, α = Constant, β_1 = the slope, X_1 = Mobile Banking and ε = error term

IV. RESULTS AND DISCUSSIONS

4.1 Response rate and Reliability

The response rate of 200 (54.2%) respondents was attributed to the nature of business and availability of respondents as well as literacy levels. The reliability value was 0.812, which was above the 0.7 minimum recommended value of the Cronbach alpha.

Table 1

General Information about Social Demographic Characteristics

Demographic Characteristics	Frequency (%)	Demographic Characteristics	Frequency (%)
Gender		Occupation	
Female	80 (40%)	Owner	84 (42%)
Male	120 (60%)	Manager	84 (42%)
Age Bracket		Employee	32 (16%)
18–24	74 (37%)	Business Experience	
25–35	80 (40%)	0-5years	18 (9%)
36–41	32 (16%)	6-10years	88 (44%)
42 and above	14 (7%)	11-15years	62 (31%)
Level of Education		16-20 years	32 (16%)
Secondary	26 (13%)	Type of business	
Diploma	64 (32%)	Agricultural activities	64 (32%)
Bachelors	100 (50%)	Other	50 (25%)
Postgraduate	10 (5%)	General Trade	86 (43%)

The respondents comprised 120 males (60%) while the females were 80 (40%), indicating that the majority of the respondents were male. The majority age group that existed in the response was between 25 and 35 years old, or 40%. Above 50% of the respondents had at least a bachelor's degree, followed by diploma holders (32%), and 13% only had a secondary school education, while only 10 respondents (5%) had postgraduate level training. Equal proportions of respondents were managers and business owners (42%). The majority of the respondents had business experience of between 6 and 10 years (44%), and 31% had business experience of 11 to 15 years. Most of the respondents (43%) conducted general business, with 32% majoring in agricultural activities. The education level of the respondent was of significance for the exposure of mobile banking as a financial innovation, while business experience was of value in indicating the knowledge acquired by the respondent in running the business enterprise.

Table 2*Mobile Banking and Financial Inclusion among Small Medium Enterprises*

Response	5	4	3	2	1	Mean Value	Std. Dev.
1. Our business has achieved a greater value from transactions of mobile banking services.	32 (16%)	100 (50%)	62 (31%)	4 (2%)	2 (1%)	3.41	0.89
2. Our business has increased the number of transactions from mobile banking services.	24 (12%)	104 (52%)	64 (32%)	4 (2%)	4 (2%)	3.68	0.80
3. Our business has increased the frequency of accessing financial services using mobile banking services.	36 (18%)	118 (59%)	32 (16%)	10 (5%)	4 (2%)	3.85	0.83
4. Our business is able to access timely and reliable financial services using mobile banking.	58 (29%)	104 (52%)	12 (6%)	20 (10%)	6 (3%)	3.94	1.02
5. Mobile banking has enabled affordable access to financial services in our organization.	28 (14%)	124 (62%)	8 (4%)	32 (16%)	8 (4%)	3.68	1.04

Results show that 50% of respondents agreed that their business had achieved a greater value from transactions of mobile banking services, as 31% were uncertain, and 3.41 was the mean value. A total of 52% agreed, and 12% strongly agreed that their business had increased the number of transactions from mobile banking services. When asked whether the business had increased the frequency of accessing financial services using mobile banking services, 59% agreed, 18% strongly agreed, 5% disagreed, and 16% were uncertain. Furthermore, the business was able to access timely and reliable financial services using mobile banking at a mean value of 3.94, and mobile banking enabled affordable access to financial services in the respondents' enterprises at a mean value of 3.68. These study findings agree with Mwanja (2018), who found mobile and internet banking to be positive and significant. It further agrees with Njagi and Njoka (2021), who found that small and medium-sized enterprises were significantly affected by mobile banking and financial inclusion. The study disagrees with Samuel and Mbugua (2019), who found mobile banking to be insignificant for financial inclusion initiatives among women-owned SMES in Nairobi County. The difference could be due to the relationship between women and small-business enterprises.

Table 3*Financial Inclusion among Small Medium Enterprises*

Response	5	4	3	2	1	Mean Value	Std. Dev.
1. Financial innovation has led to easy access to soft loans for our business	64 (32%)	94 (47%)	26 (13%)	8 (4%)	8 (4%)	3.96	1.01
2. Financial innovation has made access to loans affordable to our business	96 (48%)	74 (37%)	16 (8%)	6 (3%)	8 (4%)	4.22	1.02
3. Financial innovation has led to timely access to loans for our business	40 (20%)	74 (37%)	40 (20%)	24 (12%)	22 (11%)	3.40	1.26
4. Financial innovation has led to increase in usage of financial services in our business	96 (48%)	74 (37%)	16 (8%)	6 (3%)	8 (4%)	4.22	1.02

According to Table 3, 47% of respondents agreed and 32% of respondents strongly agreed that financial innovation had made it simple for their businesses to access soft loans, and 37% agreed and 48% strongly agreed that financial innovation had made access to loans affordable for their businesses. Further, 37% of the respondents were in agreement, as 20% strongly agreed that financial innovation had led to timely access to loans for their businesses.



Furthermore, 48% agreed that financial innovation had led to an increase in the usage of financial services in their businesses.

Table 4
Mobile Banking and Financial Inclusion among Small Medium Enterprises

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.651 ^a	0.423	0.414	0.38791	0	13.004	1	199	0.003	3.026
a. Predictors: (Constant), Mobile_Banking										
b. Dependent Variable: Financial_Inclusion										
ANOVA ^b										
Model			Sum of Squares	Df	Mean Square	F	Sig.			
1	Regression		20.001	1	0.001	13.004	.003 ^a			
	Residual		14.459	199	0.15					
	Total		34.46	200						
a. Predictors: (Constant), Mobile_Banking										
b. Dependent Variable: Financial_Inclusion										
Coefficients ^a										
Model	Unstandardized Coefficients			Standardized Coefficients		t	Sig.			
		B	Std. Error	Beta						
1	(Constant)	1.355	0.088			10.326	0			
	Mobile - Banking	0.603	0.056	0.504		5.06	0.003			

Linear regression shows that mobile banking significantly influences financial inclusion; $R^2 = .423$, $F = 13.004$, $p < 0.05$ significant level. This implies that mobile banking accounts for 42.3% of the change in financial inclusion. Financial inclusion had a $\beta = .504$. This indicates a unit increase in mobile banking led to a 0.504 unit increase in financial inclusion among small-medium enterprises.

$$Y = 1.355 + 0.603 X_1$$

Where;

Y = Financial inclusion

X_1 = Mobile banking

The study hypothesis (H_{01}) stated that mobile banking had no significant effect on financial inclusion among small-medium enterprises; however, results ($\beta = 0.504$; $p = 0.003$ at $P < .05$) showed it had a significant effect, leading to the rejection of the null hypothesis. These findings agree with Mwanja (2018), who found mobile and internet banking to be positive and significant for financial inclusion among the microenterprises in Machakos County. It further agrees with Njagi and Njoka (2021), who found that small and medium-sized businesses were significantly affected by mobile banking in terms of financial inclusion.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The study presented a conclusion with regard to the hypotheses. Mobile banking was found to have a significant effect on financial inclusion among SMEs, with the reason being that the availability of mobile banking services enables SMEs to access conveniently affordable financial services from financial institutions.

5.2 Recommendations

The study findings have shown that mobile banking is significant; hence, banks should subscribe small-medium enterprises to mobile banking to enable affordable access to funding and easier operational transacting, thereby promoting financial inclusion among small-medium enterprises.

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