



FINANCIAL INNOVATION AND FINANCIAL INCLUSION AMONG REGISTERED SMALL AND MEDIUM ENTERPRISES IN TRANS-NZOIA COUNTY, KENYA

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ABSTRACT

This research assessed the effect of monetary advancement in financial innovations and their impact on financial inclusion in Kenya. In particular, the study targeted to establish; the effect of mobile banking, agency banking, internet banking and electronic card banking on financial inclusion among Registered SMES in Trans-Nzoia County. The theories informing the study included; disruptive innovation theory, Constraint theory of innovation and financial intermediation theory. Descriptive research design was used in this study. The study was conducted in Trans-Nzoia County targeting 2246 registered SMEs. The study's sampling frame included Light Industries, boutique and saloon shops, electronic and spare shops, hardware shops, bookshops, restaurant and hotels, chemists' shops, groceries, butcheries, wholesale and retail shops. The study sampled three hundred and forty (340) registered SMEs using stratified random sampling. Primary data was collected using a well-designed semi-structured questionnaire. Pilot study was conducted to establish validity using content validity and reliability using Cronbach Alpha Coefficient. Quantitative data was analyzed using descriptive and inferential statistics. The data was presented in form of tables and models. The findings indicated that electronic banking constructs (Mobile banking $R=0.616$, $P=0.000$, internet banking $R=0.528$, $p=0.000$, electronic card banking $R=0.530$, $p=0.000$ and agency banking $R=0.638$, $P=0.000$) has significant influence on the financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Financial inclusion significant accounts for 58.2% variation in the performance of commercial banks. The study recommended that financial institutions need to decrease electronic banking bill payment services so as to enable customers to undertake transaction through electronic banking. Financial institutions should also enhance electronic banking customer security and privacy to reduce fraud and cyber-crime associated with electronic banking.

Key Words: Mobile Banking, Agency Banking, Internet Banking, Electronic Card Banking

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INTRODUCTION

Financial inclusion is becoming an essential concern for many developed and developing countries worldwide (Mader, 2016). Purpose of financial inclusion is to provide the affordable financial services to the deprived population. Affordable financial services such as loans, savings, pensions, insurance, payment systems, remittances and deposit services through E-banking, agency banking, ATMs, M- banking advantages the entire banking system by reducing cost, increasing profits, enhance quality of services offered to the consumers, eliminating spatial and temporal constraints, expand the domain of banking system. The improved profitability of the banks depends on the higher utilization of the M- banking, agency banking, ATMs and E-banking.

In the past Kenyan commercial banks have been accused of not reaching out in areas where the transaction or deposit size is very low (Dzombo, Kilika & Maingi, 2017). In places with low deposits, the volumes are usually low, and the costs of serving are high. The banks did not see any sense to open up branches in areas with low volumes and the high cost of operation. The above situation has changed though, and most firms have embraced the concept of financial inclusion where they strive to open up to the new areas. This practice has opened up access to financial services even in the remotest areas of the country. Thus, Kenya has attracted worldwide acclaim by expanding financial services to millions of poor households via financial inclusion strategies (Ndambuki, 2016). The rise of modern banking has prompted many commercial banks that were previously faced by financial crisis such as; lack of capital adequacy; increasing ratios of non-performing loans and increased competition that were resulting to low returns on investment and loose of credit; to venture into financial innovations to enhance financial inclusion.

Globally, financial innovations are known as digital finance. Yan Shen and Yiping Huang (2016), research on digital finance in China concluded that digital finance significantly lowers the transaction

costs; enhance credit risk scoring through data that helps pin risk-based pricing; reduces information asymmetry and expands the set of feasible transaction. Internet finance in China refers to the new business model that allows financial service providers to use the internet and information communication technologies to accomplish a wide range of financial activities, which include direct sale of funds, crowdfunding and mutual funds' investments, pension, sale of online insurance, and credit facilities.

Locally, Kenya continues to experience a high and expanding demand for mobile phones attributed to the increasing use of mobile banking and electronic funds transfers both locally and internationally. According to the Communications Authority of Kenya (CA), the year-on-year for the past five years in Kenya is 65 percent; the statistics indicate that Kenya has more than 18 million mobile phone subscribers up from 6.5 million in the year 2006 (Nokia, 2010). In Africa, Kenya has spearheaded financial innovation in mobile banking through the intriguing procedure of M-Pesa that allows savings, transfers direct to and from a bank account, bills payment and buying of goods and services through agents in stores such as the buy goods and services option at the supermarkets and at the local shops. According to M'Amanja (2015), Kenya has advanced in money mobile technologies in a bid to improve scope, decrease exchange costs such as the monthly bank account charges; and the ability to capitalize on the available data from telecommunication companies for credit scoring through the credit reference authorities. However, as it might, in Kenya only a small populace transact through mobile banking because of client trust, interoperability issues of substituting paper money with virtual currency and platform integration issues (Parada & Greta, 2014).

Financial innovation can be defined as the creation and popularization of new financial products, processes, markets, and institutions (Lerner & Tufano, 2011). Financial innovation is divided into process, product and institution innovations.

Process innovation refer to new ways such as online banking, mobile banking, information technology, computing and transaction clearing methods that make financial institutions run better (Mugo, 2009). These advancements are expected to lower transaction costs, increase credit for borrowers and give financial institutions new and cheaper way of raising funds. In this study financial innovation include mobile banking, internet banking, electronic card banking and agency banking.

Mobile banking as defined by Porteous (2006) is a subset of electronic banking that allows customers to access a range of banking products such as credit instruments and savings via electronic channels. Porteous (2006), categorizes the aspects of mobile banking in two characteristics namely; additive and transformative. Mobile banking involves the use of mobile phone for settlement of financial transactions. It supports person to person transfers with immediate availability of funds for the beneficiary. Mobile payments use the card infrastructure for movement of payment instructions as well as secure Short Message Service (SMS) messaging for confirmation of receipt to the beneficiary. Mobile banking is meant for low value transactions where speed of completing the transaction is a key.

Agency banking is the arrangement of banking administrations by outsider offices to shoppers for the benefit of an authorized, prudentially regulated financial institution (Kerich, 2015). Agency banking is a segment of electronic banking that offers an interface for selected bank agents to be able to provide selected financial services for the banks through contractual agreements. The services offered through agency banking are cash deposits, card less deposits, balance enquiry, issuance of bank mini statements, forced pin change and disbursement and repayment of loans (Vutsengwa & Ngugi, 2013). Banking agents can be convenience stores, post offices or supermarkets that are furnished with a blend of standardized identification scanners for charge installment

exchanges, the retail location card readers and the personal identification number pads machines.

Internet banking involves conducting banking transactions such as account enquiry printing of statement of account; funds transfer payments for goods and services, on the internet (World Wide Web) using electronic tools such as the computer without visiting the banking hall. Ecommerce is greatly facilitated by internet banking and is mostly used to effect payment. Internet banking also uses the electronic card infrastructure for executing payment instructions and for final settlement of goods and service over the internet between the merchant and the customer, currently the most common internet payments are for consumer bills and purchase of air ticket through the websites of the merchants (Littler, 2006).Wireless penetration rates have been on the increase and thus making internet banking technology more appropriate for conducting various activities including business transactions.

An electronic card is a physical plastic card that uniquely identifies the holder and can be used for financial transactions on the internet. For instance, Automated Teller Machine (ATM) and Point-of Sales (PoS) terminal are used to authorize payment to the merchant or seller (James, 2009). The various types of electronic cards include debit, credit cards; releasable cards require visiting banks for replenishment. Debit cards are linked to local bank accounts and offer immediate confirmation of payment. Credit cards can be used to link a customer to a credit line and can also be used for accessing local and international networks and are widely accepted in most countries. The underlying infrastructure and operational rules are often provided by global trusted schemes (such as visa and master card) in addition to local lines.

Financial inclusion involves the intermingling of banks and non-banking accomplices, for example, Fintech association in the arrangement of monetary administrations at a lower cost, with more prominent accommodation and to a more extensive reach (Finacle, 2012). The arrangement and

commercialization of monetary administrations to an ideal degree of inclusion level involves giving total assortment of major monetary help that involves the essential monetary assistance, for example, advance applications and distributions, stores, withdrawals, installment administrations and protection cover (Gardeva and Rhyme, 2011). Ideal degree of inclusion level implies that grown-ups in a populace who fit the bill for monetary access have access to bank accounts the fundamental monetary assistance at a commercial bank or financial institutions. Financial services access is different based on; access at a reasonable price; access by proximity to the residential areas; access to services when needed and access to tailor made products. The access to financial services greatly assists in financial inclusion of different customers based on their product category, for instance, loan facilities allow customers to utilize future income to manage current liabilities. Secondly, the savings facilities allow consumers to tap into income earned and save for insurance needs to shield against susceptible financial shocks, while, funds transfer allows payments services without being at a banking hall.

Statement of the Problem

Kenya Institute of public policy and Research (2020) reported that over the past decade the level of monetary incorporation in Kenya rose from 26.7 percent in 2006 to 82.9 percent in 2020; with 17 percent of the Kenyan populace still financially excluded. Financial inclusion based on access to finance by region in Kenya indicate Nairobi County (95.0%) is the highest in rank in terms of access to formal financial services followed by Nyeri (93.8%), Muranga (92.8%) and Kirinyaga (92.2) and Kiambu (91.8%) in Kenya. The inclusion rate in the South Nyanza region was 76.02% in 2021 with TRANS-NZOIACounty boosting 81.1%. Despite having a good number of commercial and microfinance banks that provide financial services through financial channels such as mobile banking; internet banking and agency banking, the regions of South Nyanza are still lagging behind in financial inclusion.

This research aims to establishing the impact of financial innovations in financial inclusion in TRANS-NZOIACounty, which had 81.1 percent financial inclusion rate in 2021 lags behind Homa Bay County (81.8%) in the south Region and Kisumu (88.2%) and Siaya (83.8) in Nyanza Region.

Studies on financial inclusion done in Kenya by, Agufa (2016) noted there is no critical connection between digital finance and the level of financial inclusion, while Thairu, et.al, (2015), noted there is a solid positive connection between agency banking and financial inclusion in Kenya's rural areas of Nakuru. These discoveries done in Kenya have differentiating discoveries regarding the financial innovations and financial inclusion; besides, there is minimal exact proof on financial innovations and financial inclusion in the county of Trans-Nzoia County, Kenya. To fill this gap, this study explored the effect of financial innovation on financial inclusion among Registered SMES in Trans-Nzoia County.

Objectives of the Study

The general objective of the study was to examine the effect of financial innovation on financial inclusion among Registered SMES in Trans-Nzoia County. The specific objectives of the study were to:

- To examine the effect of mobile banking on financial inclusion among registered SMES in Trans-Nzoia County.
- To examine the effect of agency banking on financial inclusion among Registered SMES in Trans-Nzoia County.
- To examine the effect of internet banking on financial inclusion among Registered SMES in Trans-Nzoia County.
- To examine the effect of electronic card banking on financial inclusion among Registered SMES in Trans-Nzoia County.

For purposes of analyzing the data, the following null hypotheses were tested:

- H_{01} : Mobile has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County

- **H₀₂:** Agency banking has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County
- **H₀₃:** Internet banking has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County.
- **H₀₄:** Electronic card banking on financial inclusion among Registered SMES in Trans-Nzoia County.

LITERATURE REVIEW

Theoretical Review

Disruptive innovation theory

Creative destruction was first coined in 1942, by Joseph Schumpeter; the concept was defined as the incessantly revolutionizes of the economic structure from within through incessantly creating a new one. According to Schumpeter, innovations cause market dislocation, which allows the ascendance of new firms and a corresponding decline of the large incumbents. Creative destruction occurs through innovations that result in new technologies, processes and new commodities. The disruptive innovation theory was developed in 1990's by Clayton Christensen. As stated in the Christensen's theory, firm innovate radically in a manner aimed at improving the overall quality of their products. These firms are said to be practicing sustaining innovations aimed at serving a segment of unsatisfied consumers who would pay more for improvements in the attributes of the product consumed. In Addition, Christensen's theory states that innovations developed to bring new consumers to the market are innovations targeting the untapped market that is untapped due to lack of ability to consume a service or good. Through new product and process introduction, disruptive innovations are introduced to the markets; in the financial sector, M-Pesa a service offering short message service payment service is a product of Vodafone-Safaricom in Kenya, this financial innovation is an example of a new-market disruptive innovation (Ngugi *et.al*, 2010). This theory is therefore relevant to this review as it

tends to disruptive innovations such as mobile banking that has changed the monetary area worldwide. Overall, the hypothetical establishment of the disruptive advancement in the financial sector hypothesis will help in understanding of mobile banking; and its impact on financial inclusion.

The critique of this theory is that; the disruptive innovation theory depends on the intellectual oversights and failures of agents who neglect to recognize disruptive opportunities in the existing market and the gaps that arise the consistently changing customers' needs, tastes and preferences (Henderson, 2006). The reasoning for the critiques is; organizations that do not respond to disruptive innovations are because of management's decision to serve the current customers in the mainstream market, which provides more profit as compared to pursuing a disruption with a lesser probability of success and less profits. Henderson (2006) emphasizes that more established firms particularly find it difficult to introduce disruptive innovations effectively for reasons that are rooted in the firm's competencies.

Constraint theory of innovation

The constraint-induced theory was first proposed by Silber (1975) and later advanced by De Young, Lang and Nolle (2007); this theory pointed out that the main purpose for monetary advancements is benefit augmentation. The comparative agreeing opinions on financial innovations by (Silber (1975) and Young et al. (2007); states that the thought process behind advancement in financial innovations is to boost a firm's profit and earnings. With the primary motivating factor behind coming up with a framework of financial innovation is considered as the need to reduce costs imposed by regulations. For instance, it demonstrates that organizations usually introduce innovations as a means to address the burden and constraints caused by the unpredictable markets, operational cost and operational taxes. In addition, the hypothesis also indicated that firms introduce digital strategies in their operations in a bid to

eliminate the financial problems the firms face such as diminishing earning capacity. The motive behind the innovations is the bid to increase the profitability amidst market competition and strict government regulations; these sentiments conquer with (Silber, 1975, 1983) findings that indicated that firms invest in innovation, as a rational response to unfavorable external environmental threats such as increased competition, strict government regulations and economic environmental changes. The theory of constraint theory of innovation is relevant to the study as it forms a basis for internet banking, as more financial institutions are now banking on their internet banking channel as a service delivery channel.

The critique of this theory is; the existence of firms is not pegged on profit maximization; rather the existence of firms is also connected to contributing to the social well-being of the people they are serving. As such, innovations can be used in sensitizing the society of the financial products and services that they can access at affordable costs hence improving on financial inclusion. This theory is also criticized by the evolution theory of innovation by Dosi (1997), that states; other than profit maximizations, firms innovate in order to catch up with technology leaders, and to create monopolies by developing new processes and products; lastly, firms innovate by coming up with technical developments in order to be ready to exploit opportunities as they arise.

Financial intermediation theory

This theory was postulated by Douglas (1984). According to the theory, commercial banks and other financial intermediaries are the main sources of external funds to firms. Faure (2013) argues that financial intermediaries exist not only because of the divergence of requirements of lenders and borrowers, but for specialized services they provide such as insurance services (insurance companies), retirement fund products (retirement funds, investment products (unit trusts) and overdraft and deposit facilities(banks) and so on.

Financial intermediation theory also argues that information asymmetry arises in the financial system and markets between borrowers and lenders because borrowers generally know more about their investment projects than lenders do (Claus & Grimes, 2013). According to the theory, financial intermediaries act as middlemen hence leading to net cost savings. The model provides strong predictions about the contracts used by financial intermediaries and thus provides a setting to analyze important issues in banking policy. According to Adrian and Shin (2015) financial intermediaries do not only transfer money and securities between firms and savers- they also create new financial products. Adrian and Shin (2015) further argue that since the financial intermediaries are generally huge, they create economies of scale in analyzing the credit worthiness of potential borrowers, in processing and collection of loan facilities and in pooling of risk and thus helping individual savers diversify.

Transaction Cost Innovation Theory

This theory was postulated first by Coase (1937), and subsequently intensely advanced by Williamson (1985), TCT holds that there exist costs of transactions that are linked with what Coase advocated to be “price mechanism,” and Williamson called it as “market governance.” Transaction costs still occur within a company, transacting¹⁸ between departments or business units. The same concepts of bounded rationality and opportunism on the part of directors or managers can be used to view the motivation behind any decision.

The significance of the notion is the presence of costs linked with transactions negotiation and contracting (transaction costs) incurred on the open market which is reduced by spearheading these in other respect transactions which are independent and undertaken by a single corporate entity. There would exist economies of scale that are contractual, for instance, where costs tracked on a single contract would be extended over several transactions. As Coase (1937) explained, contracts

amidst the institution with whom factors being co-operated with, as would be compulsory, if the abetting are from direct price mechanisms. These series of contracts are substituted ones.

Empirical Literature Review

Midika (2016) explored the impact of digital finance on financial inclusion in Kenya. For the study, digital finance was ordered into, first, agency banking which was estimated by the number of authorized agency banking specialists; mobile banking measured by the total value of volumes of transactions done, internet banking measured by the total transaction banking. The level of financial inclusion was measured by credit penetration. The study utilized information acquired from the Central bank of Kenya; the secondary data was on a study sample of 13 commercial banks in Kenya. The finding showed that digital finance incorporation in banking services had no relation to credit penetration; hence, there was no relation between digital finance and the level of financial inclusion. In addition, the findings indicate that banks adopt digital financial service in order to lower the operating costs related with opening and working bank workplaces in different towns. Additionally, banks take on to use authorized agents to chip away at their advantage and financial execution, further, the findings indicated that digital financial service is used as a competitive strategy by financial institutions to increase their market coverage and not as a financial inclusion strategy.

Nzioka (2017) studied the role of agency banking in facilitating financial inclusion in Kenya. The review explored on agency banking model and the utilization of bill installments made through bank specialists and their effects on financial inclusion levels. The level of financial inclusion was measured by the number of current bank accounts ledgers per 1,000 grown-ups, while, agency banking was measured by the number of banking agents employed and the bill payments made through authorized agents. The study relied on secondary data by the Central bank of Kenya for the period 2011 and 2015. The findings indicate there is a

positive relationship between agency banking and the level of financial inclusion.

Sindani *et.al* (2019), examined the effect of financial distribution channels evolution on financial inclusion in Kenya. The target of the study was to investigate the effect of financial delivery channels evolution on financial inclusion; with the specific objective finding out the effect of internet banking as a financial distribution channel on the level of financial inclusion in Kenya. The research designs adopted for this study were descriptive and co-relational design to explain the casual relationship between dependent and the independent variable. The study population was 44 listed banks in Kenya, while the data collection instrument used was secondary data from banks. The study findings indicated internet banking has a strong positive relationship with the level of financial inclusion.

In Nairobi County, Munyilu (2018) explored the impact of mobile banking services on financial inclusion among commercial banks in Kenya. The primary data was collected using structured questionnaires and was analyzed using correlation and multiple regression analysis. The study results indicated that mobile banking has positively improved the level of access to commercial banks financial services, in addition, the customer numbers and market reach for banks has increased through the use of mobile money transfers. In addition, mobile banking transfers services has helped in onboarding more customers who held no account to the banks; this was contributed to by the decrease in transactional fees from bank accounts to mobile wallets and bill payments.

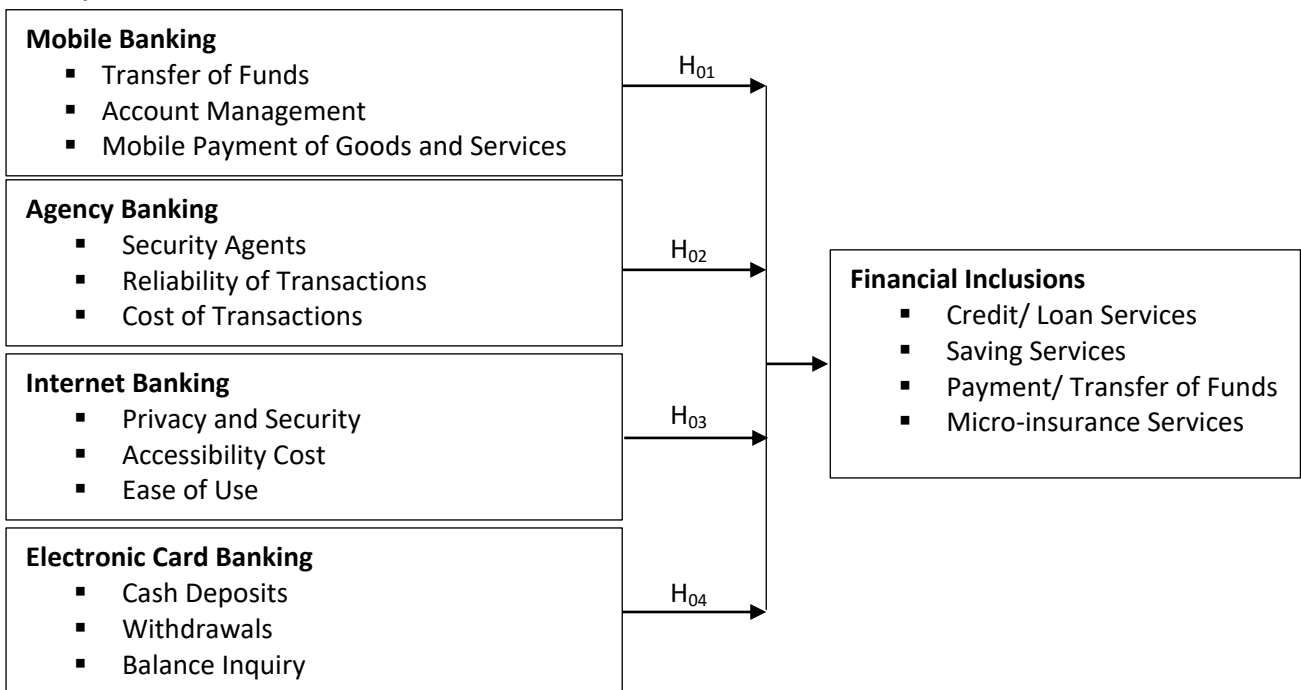
Boro (2011), researched on impact of mobile banking on financial inclusion in in Kenya. Mobile banking as a variable was measured by counts on new mobile banking service opt-in customers; the number of mobile banking subscribes and the value of transactions done on the mobile banking applications. The review depended on secondary data published by the Central bank of Kenya and the Kenya National Bureau for the period 2007 to 2010. The research design employed in the study

was descriptive studies; the Pearson's connection and regression were done to clarify the relationship between the variables. The discoveries show that there is a positive and significant relationship between mobile banking and financial inclusion; it also noted that other factors that may have contributed to financial inclusion were the level of income, financial literacy and credit penetration.

Ene, Abba and Fatokun (2019) examined the impact of electronic card banking on financial inclusion in Nigeria. The study used the total number of automated teller machines and point-of-sale devices in Nigeria as proxies for electronic banking and the proportion of banked adult population to total bankable adult population in Nigeria as proxy for financial inclusion. The study adopted correlational and ex post facto research designs with the aid of computer-based multiple regression analysis. It was observed that automated teller machines do not significantly impact financial inclusion while point-of-sale devices significantly impact financial inclusion in Nigeria.

Midika (2016) aimed at determining electronic card banking on financial inclusion in banking industry in Kenya. The Research designed used in the research was descriptive statistics. The study used a sample of 13 banking institutions in Kenya. The sample was purposively selected to represent the 13 banking institutions in Kenya, which offer all the three digital financial services. Findings of the study found an insignificant negative relationship between agency banking measured in term of the number of agents, mobile banking measured by the number of mobile banking transactions and internet banking measured in terms internet banking transactions with financial inclusion in the banking industry in Kenya. The study concluded that digital finance doesn't have any correlation on financial inclusion in banking sector in Kenya since banking institutions adopt digital financial services to lower operating cost associated with opening and operating branches to improve their profitability and financial performance and not to foster financial inclusion.

Conceptual Framework



Independent Variables

Dependent Variable

Figure 1: Conceptual Framework

METHODOLOGY

This study utilized the descriptive research design. The target population for this study was 2246 registered SMES in Trans-Nzoia County (Trans-Nzoia County, Department of Trade and Industry, 2022). Most of the SMEs were not registered means that they could not formally access credit from financial institutions. The study's sampling frame included Light Industries, boutique and saloon shops, electronic and spare shops, hardware shops, bookshops, restaurant and hotels, chemists' shops, groceries, butcheries, wholesale and retail shops. The study's sample size of 340 was determined using Taro Yamane's proportional sampling technique formula. From the calculation, 340 was used for this study as the sample size, where respondents were randomly selected. In order to select SMEs that participated in the study, stratified random sampling technique was used. In addition, convenience sampling was used, taking into account the respondents' availability and willingness to participate in the study. The actual participants were selected using purposive sampling, leading to selection on the SME's owners or managers, considering that they are the custodians of the information that is pertinent to the study.

Data was collected by use of questionnaires. The questionnaires were developed from the objectives of the study and administered by the researcher to the respondents. A pilot study is a small-scale preliminary study before the main research in order to measure the validity and reliability of data collection instruments (Kothari, 2007). For purposes of this research, all components of the questionnaires were checked and coded to ensure clarity of words and the accuracy of the statements, then pretested among registered SMEs in Uasin Gishu County, which neighbours the study area. 10% of the sample size (34 respondents) were selected for pilot study. All collected data was coded, cleaned, tabulated and analyzed using descriptive and inferential statistics with the aid of

specialized Statistical Package for Social Sciences, version 24. Descriptive analysis such as frequencies, means, standard deviation was utilized; analyzed data was presented in tables and graphs. Further, inferential statistics assessed nature and the strength of the relationships. SPSS version 24 is the computer-based analysis software that was used to compute statistical data. For modeling the association between the independent variable and dependent variables, the following multiple regression equation was applied;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where;

Where Y= Financial Inclusion

α = constant term

β_1 β_2 β_3 & β_4 = coefficient of determination of independent variables

X_1 = Mobile Banking

X_2 = Agency Banking

X_3 = Internet Banking

X_4 = Electronic Card banking

ϵ = error term

FINDINGS AND DISCUSSION

Descriptive statistics

Descriptive analysis for this section used percentages, frequencies, means and standard deviation to show the response from the respondents as shown in the tables below for each variable. The respondents were required to state their level of agreement on various statements on each variable. The level of agreement ranged from 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree and 1-Strongly Disagree. The results were as follows.

Agency banking

The sampled respondents were provided with 5 statements related to agency banking. The relevant results are as shown in Table 1.

Table 1: Agency banking

Agency banking	N	Min	Max	Mean	Std
Agency banking has enabled the bank outreach the remotest areas increasing geographical coverage hence financial inclusion	282	1	5	3.57	.824
Agency banking eases transaction time which has seen more SMEs embrace the service and this has led to increased financial inclusion	282	1	5	3.54	.845
The banks have ensured security of agency banking services hence more confidence and subsequently higher inclusion	282	1	5	3.51	.815
Agency banking has enabled availability of liquidity for more SMEs and hence increased financial inclusion	282	1	5	3.44	.800
Agency banking has increased accessibility to financial services among SMEs	282	1	5	3.45	.787

The study findings suggest a positive perception regarding the impact of agency banking on financial inclusion, as evidenced by the mean and standard deviation of respondents' responses. Firstly, respondents indicated a favorable view towards the extension of geographical coverage by agency banking, with a mean of 3.57 and a standard deviation of 0.824. This indicates a generally positive sentiment towards the ability of agency banking to reach even the remotest areas, thereby increasing financial inclusion. Moreover, respondents highlighted the efficiency of agency banking in streamlining transaction processes, reflected in a mean of 3.54 and a standard deviation of 0.845. This suggests that the ease and speed of transactions have contributed to increased adoption among small and medium-sized enterprises (SMEs), fostering financial inclusion.

Additionally, respondents emphasized the role of security in promoting confidence in agency banking services, resulting in a mean of 3.51 and a standard deviation of 0.815. This underscores the importance of ensuring robust security measures to build trust among users, thereby promoting financial inclusion. Furthermore, the study revealed that agency banking facilitates liquidity access for SMEs, with a mean of 3.44 and a standard deviation of 0.800. This indicates that the availability of liquidity through agency banking channels empowers SMEs to manage their finances effectively, contributing to their inclusion in the formal financial system.

Internet Banking

The sampled respondents were provided with 5 statements related to internet banking. The pertinent results are as shown in Table 2.

Table 2: Internet Banking

Internet Banking	N	Min	Max	Mean	Std
The ease of service use of internet banking has led to more people adopting the service hence financial inclusion	282	1	5	3.61	.881
Information security measures are effectively implemented, and SMEs feel assured about utilizing internet banking service, thus attracting more of them to the bank.	282	1	5	3.48	.748
The support service of internet banking acts promptly in case of queries and support issues which had led to new SMEs opting for internet banking	282	1	5	3.58	.842
The internet banking interface website design is simple to use and is user friendly hence attracting more SMEs	282	1	5	3.51	.789
Internet banking allow SMEs owners/managers to access all financial services that are available in banking hall	282	1	5	3.62	.825

With a mean score of 3.61 and a standard deviation of 0.881, most respondents agreed that the ease of using internet banking services contributes to higher adoption rates. This indicates that offering seamless, easy-to-use digital solutions can lead to increased financial inclusion by making banking accessible to a broader audience. It also implies that banks should prioritize improving their online platforms to cater to users with varying levels of technological proficiency.

A majority of respondents felt assured about utilizing internet banking due to effective implementation of information security measures, as indicated by the mean score of 3.48 and a low standard deviation of 0.748. Banks need to continually invest in advanced cybersecurity measures not only to protect sensitive data but also to build trust among customers who may be hesitant to adopt digital banking channels. By addressing concerns around data privacy and security, banks can encourage greater usage of internet banking services among businesses.

Prompt customer support plays a significant role in driving internet banking adoption among SMEs, with a mean score of 3.58 and a relatively high standard deviation of 0.842. These findings suggest that efficient handling of queries and technical issues can significantly impact SMEs' decision to opt for internet banking. To foster long-term relationships with business clients, it is crucial for

banks to provide responsive and knowledgeable customer support through various communication channels such as email, phone, or live chat.

An intuitive and straightforward web design can help increase internet banking adoption, with a mean score of 3.51 and a moderate standard deviation of 0.789. When designing interfaces, banks must consider usability principles like simplicity, consistency, and learnability to create positive user experiences. Moreover, they should ensure compatibility across multiple devices and browsers, enabling convenient access to financial services for SMEs operating in diverse environments.

Internet banking allows SMEs to access all available banking services digitally without having to visit physical branches. Respondents strongly agreed with this statement, giving it a mean score of 3.62 and a low standard deviation of 0.825. Providing comprehensive offerings via internet banking strengthens its value proposition compared to traditional banking methods, encouraging further adoption among SMEs. Consequently, banks should continuously expand their digital product portfolio while ensuring seamless integration between services to enhance overall user experience.

Mobile banking

The sampled respondents were provided with 5 statements related to mobile banking. The pertinent results are as shown in Table 3.

Table 3: Mobile banking

Agency banking	N	Min	Max	Mean	Std
Security in mobile banking platform has been well affected and this has seen SMEs embrace mobile banking more and hence inclusion	282	1	5	3.63	.968
Mobile banking is being conducted at the convenience of the user enabling them access financial services anywhere, anytime	282	1	5	3.50	.735
The mobile banking platform is simple and easy to use which has drawn more SMEs in to the service increasing financial inclusion	282	1	5	3.68	.949
Accessibility of mobile banking services has been facilitated by increase of mobile phone usage and this has led to increased financial inclusion	282	1	5	3.59	.834
Mobile banking services have enabled SMEs to access their deposits with ease for withdrawal	282	1	5	3.48	.769

Improved security features in mobile banking platforms contribute positively to SMEs embracing mobile banking services, resulting in increased financial inclusion, as shown by the mean score of 3.63 and a standard deviation of 0.968. As smartphones become increasingly popular for conducting financial transactions, maintaining robust security protocols will remain critical to protecting sensitive user data and preserving customer trust. Therefore, continuous monitoring and updating of security mechanisms are essential for fostering widespread mobile banking adoption.

The ability to conduct mobile banking activities at any time and location offers unparalleled convenience, contributing to a mean score of 3.50 and a low standard deviation of 0.735. Given today's fast-paced work environment, providing flexible banking options enables SMEs to manage finances efficiently, thereby promoting mobile banking adoption. In response, banks should develop innovative tools allowing real-time transaction processing and instant account updates to meet evolving consumer expectations.

A straightforward and user-friendly mobile banking interface encourages greater adoption among SMEs, yielding a mean score of 3.68 and a slightly higher standard deviation of 0.949. While developing intuitively designed applications, banks must address specific needs within the SME segment, including functionalities tailored towards

managing complex business accounts and streamlining daily operations. By doing so, banks can improve both user satisfaction and retention rates.

Greater availability and affordability of mobile phones drive the growth of mobile banking services, leading to improved financial inclusivity, as demonstrated by the mean score of 3.59 and a modest standard deviation of 0.834. Leveraging advancements in technology, banks can capitalize on growing smartphone penetration to extend their reach beyond brick-and-mortar establishments. Thus, investing in mobile-first strategies becomes imperative for remaining competitive in an ever-evolving landscape.

Facilitating easy deposit withdrawals helps promote mobile banking adoption among SMEs, reflected in the mean score of 3.48 and a standard deviation of 0.769. Enabling quick and effortless management of funds empowers entrepreneurs to make informed decisions regarding cash flow management and investment opportunities. Accordingly, banks must focus on enhancing core capabilities related to fund transfers, bill payments, and other essential functions required by SMEs.

Electronic Card Banking

The sampled respondents were provided with 5 statements related to electronic card banking. The relevant results are as shown in Table 4.

Table 4: Electronic Card Banking

Electronic Card Banking	N	Min	Max	Mean	Std
Electronic card banking services are perceived as reliable by SMEs hence more customers thus increased financial inclusion	282	1	5	3.58	1.044
Convenience of electronic card banking has led more SMEs having interest in banking and thus increased financial inclusion	282	1	5	3.49	.899
Electronic card banking saves on time and cost encouraging more SMEs to adopt the service hence increase on financial inclusion	282	1	5	3.42	.841
Accessibility of electronic banking outlets has facilitated increase of SMEs hence financial inclusion	282	1	5	3.50	.852
It is cheaper to use electronic card banking as compared to conventional banking services	282	1	5	3.38	.902

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Financial inclusion

The sampled respondents were provided with 8 statements related to agency banking. The relevant results are as shown in Table 5.

Table 5: Financial inclusion

Financial inclusion	N	Min	Max	Mean	Std
Receiving money such as from customers, friends, relatives, banks	282	1	5	3.53	.875
Making payments such as for electricity and water bills, purchase of business items, rent	282	1	5	3.41	.853
Saving funds for future personal use, business expansion	282	1	5	3.54	.985
Paying for insurance and other investments	282	1	5	3.43	.849
Receiving insurance and other benefits	282	1	5	3.46	.845
Obtaining loans or credit facilities	282	1	5	3.41	.933
Repayment of loans	282	1	5	3.53	.954
Checking Balance	282	1	5	3.48	.887

The process of receiving funds, whether from customers, friends, relatives, or banks, scored a mean of 3.53 and a standard deviation of 0.875. This result suggests that businesses generally find it satisfactory to receive funds through their banking

partners, with limited variability observed amongst participants. Handling payment obligations for utilities, purchases, and rental fees resulted in a lower average rating of 3.41, accompanied by a tighter standard deviation of 0.853. This outcome

could imply dissatisfaction surrounding existing payment infrastructure, potentially warranting improvement initiatives from providers. Stashing away earnings for future uses or expansion purposes received a comparable rating to receipt of funds, with a mean of 3.54 and a fairly wide standard deviation of 0.985. This spread might reflect differing savings priorities amongst individual SME proprietors.

Contributions toward insurances and other investments achieved a mean score of 3.43 coupled with a minor dispersion characterized by a standard deviation of 0.849. This finding points to adequate yet room-for-improvement execution regarding investment services offered by banking entities. Obtaining insurance payouts and entitlements produced an average score of 3.46 paired with a similarly sized standard deviation of 0.845. This statistic reflects acceptable though inconsistent treatment of claims and disbursements throughout the sample population. Securing financing means generated a comparatively subdued rating of 3.41 combined with a sizeable standard deviation of

0.933, indicating uneven quality assurance in loan origination and servicing processes.

Satisfaction ratings linked to repayment activity reached 3.53, complemented by a rather large standard deviation reading of 0.954. Such volatility could signal confusion arising from variable interest calculations, penalties, or infrequent repayment schedules experienced by borrowers. Reviewing one's account balance obtained a middle-of-the-road assessment of 3.48, joined by a moderately wide spread quantified by a standard deviation of 0.887. Users appear divided in their level of contentment surrounding this basic function, necessitating closer examination of underlying causes behind mixed reviews.

Pearson Correlation Results

The correlation coefficient (r) results are presented as shown in Table 6 using Pearson correlation analysis, which computes the direction (Positive/negative) and the strength (Ranges from -1 to +1) of the relationship between two continues or ratio/scale variables.

Table 6: Multiple Correlation Matrix

		MB	IB	EcB	AB
MB -Mobile Banking	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	282			
IB -Internet Banking	Pearson Correlation	.355**	1		
	Sig. (2-tailed)	.000			
	N	282	282		
EcB -E-card Banking	Pearson Correlation	.401**	.296**	1	
	Sig. (2-tailed)	.000	.000		
	N	282	282	282	
AB -Agency banking	Pearson Correlation	.625**	.406**	.526**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	282	282	282	282
FI -Financial inclusion	Pearson Correlation	.616**	.528**	.530**	.638**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	282	282	282	282

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6 presents the findings of Pearson correlation between electronic banking and financial inclusion.

It is evident that there are all constructs of electronic banking were positively correlated with

financial inclusion. The correlation of interest was obtained by examining the correlation between financial inclusion and each of the dimensions of electronic banking.

From the correlation Table above, mobile banking is positively correlated to financial inclusion the coefficient is 0.616 (p value < 0.01) this is significant at 99% confidence level. Thus, increase in mobile banking would make financial inclusion to increase in same direction. Numerous studies support the positive correlation between mobile banking and financial inclusion. For example, research by Mas and Morawczynski (2009) found that mobile banking services can significantly improve financial access for underserved populations in Kenya. Similarly, Jack and Suri (2014) showed that the introduction of mobile money services increased financial inclusion in Kenya by providing access to basic financial services for previously unbanked individuals. While there might not be direct studies contradicting this finding, some researchers might argue that the correlation does not necessarily imply causation. Factors like socioeconomic status, literacy levels, and infrastructure development could also influence both mobile banking adoption and financial inclusion.

Similarly, the correlation coefficient for internet banking was 0.528, $P=0.000$, suggesting that there is significant positive relationship between internet banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Increase in internet banking would result to increase in financial inclusion. Research by Demirguc-Kunt et al. (2015) found that internet banking can enhance financial inclusion, particularly in developing countries. Improved internet access and technological literacy can enable underserved populations to access banking services more conveniently. Some studies may argue that internet banking primarily benefits those who are already financially included and may not have a significant impact on reaching the unbanked or underbanked populations. Additionally, concerns about digital

literacy and cybersecurity could hinder the adoption of internet banking among certain demographics.

Similarly, a correlation coefficient of 0.530** implied that there is significant positive relationship between electronic card banking and financial inclusion. Studies such as those by Demirguc-Kunt and Klapper (2012) have shown that electronic card banking can contribute to financial inclusion by providing a convenient and secure means of conducting transactions, especially for individuals without access to traditional banking services. Some researchers might argue that electronic card banking primarily benefits those who are already financially included and might not be accessible or suitable for populations in rural or underserved areas where infrastructure and connectivity are limited.

Lastly, there is significant positive relationship between agency banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya as indicated by .638**, $p=0.000$. This implies that increase in agency banking would result to increase in financial inclusion. Research by Kivuva and Kivuva (2017) found that agency banking can significantly improve financial inclusion, particularly in rural and remote areas where traditional banking infrastructure is lacking. By leveraging existing businesses as banking agents, financial services can be brought closer to underserved populations. Some studies might raise concerns about the sustainability and scalability of agency banking models, as well as potential issues related to agent reliability, liquidity management, and regulatory challenges. Additionally, there may be variations in the effectiveness of agency banking across different geographic and socioeconomic contexts.

Multiple Regression Analysis

Objective of this study sought objective of the study was to assess the influence of financial innovation on financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. This was achieved by carrying out standard multiple regression. The study was interested in knowing the

effect of each of the electronic banking constructs on financial inclusion when all these constructs were entered as a block on the model. The results of multiple linear regression analysis were presented in Table 7 which contained model summary (R, R², Adj R²) results, Table 8 which contained ANOVA (goodness of fit; F Ratio, Sig Value) while Table 9 contained regression

coefficient (Unstandardized & standardized), t-value and Sig. value results.

The study sought to determine the model summary findings in order to determine the overall percentage change in the financial inclusion that was explained by all the metric of the electronic banking by use of R². The results in Table 7 present R, R², Adj R², F ratio and Sig. value.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763 ^a	.582	.570	.09987

a. Predictors: (Constant), Mobile Banking, Agency Banking, Internet banking, Electronic Card Banking

The results from the model summary in Table 7 give us information on the overall summary of the model. Looking at the R square column, we can deduce that electronic banking account for 58.2% significant variance in financial inclusion (R square =.582, P=0.000) implying that 41.8% of the variance in financial inclusion is accounted for by other variables not captured in this model. From the findings, also adjusted R square value is obtained,

which is a corrected R square value to provide a useful estimate of true study population. The difference between R² and adjusted R² is obtained by subtracting the later from the former (.582-.570=0.012) a value when multiplied by 100% results in 1.2 percent. This reduction implies that should the model originated from the entire population instead of a sample, it would explain about 1.2% less variation in the study outcome.

Table 8: Model of Fit (ANOVA Table)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.888	4	.472	47.332	.000 ^b
1 Residual	1.356	277	.010		
Total	3.245	281			

a. Dependent Variable: Financial inclusion
b. Predictors: (Constant), MB, IB, EcB, TP

In order to assess the significance of the model, simply whether the study model is a better significant predictor of the financial inclusion rather than using mean score which is considered as a guess, the study resorted to F Ratio. The F value from study findings indicates the proportion of the improvement in predicting the results from fitting the model relative to the inaccuracy or errors that still prevails in the study model. From the findings, the F value is more than one, as indicated by a value of 47.332, which means that enhancement as a result of model fitting is much larger than the model errors/inaccuracies that were not used in the model (F (4,277) = 47.332, P=0.000). The large F

value is very unlikely to exist by chance (99.0%), thus implying that the final study model has significant improvement in its prediction ability of financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya.

The presented in Table 9 shows unstandardized coefficients, standardized coefficients, t statistic and significant values. The study has an option of either using Unstandardized Coefficients or Standardized Coefficients depending on the type of data. The study used unstandardized coefficient column because we want to compare electronic banking effect across same measures (Likert Scale 1 through 5).

Table 9: Coefficients on effect of Constructs of deposit on financial inclusion

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.170	.383		.444	.658
Mobile Banking	.206	.051	.288	3.997	.000
Agency Banking	.357	.083	.266	4.325	.000
Internet Banking	.239	.075	.210	3.187	.002
Electronic Card Banking	.214	.070	.239	3.043	.003

a. Dependent Variable: Financial inclusion

A regression of the four predictor variables against financial inclusion established the multiple linear regression model.

$$\text{Financial inclusion} = 0.170 + 0.206X_1 + 0.357X_2 + 0.239X_3 + 0.214X_4 + \epsilon$$

X_1 = Mobile Banking

X_2 = Agency Banking

X_3 = Internet Banking

X_4 = Electronic Card banking

ϵ = error term

From the findings presented, we looked at the model results and scan down through the unstandardized coefficients B column. All financial innovation constructs had significant effect on the financial inclusion. If financial innovation are held at zero or it is absent, the financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya would be .170, $p=0.658$. Though be positive but insignificant.

H₀₁: Mobile has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County

It was revealed that mobile banking had unique significant contribution to the model with $B=.206$, $p=.000$ suggesting that controlling of other variables (internet banking, electronic card banking and Agency banking) in the model, a unit change in mobile banking would result to significant change in financial inclusion by 0.206 in the same direction. This finding underscores the importance of mobile banking in driving financial inclusion, particularly in regions like Trans Nzoia County, Kenya. Mobile banking offers accessibility, convenience, and

affordability, making it an effective tool for reaching underserved populations who may lack access to traditional banking services. By providing services such as mobile payments, transfers, and even savings and credit facilities, mobile banking platforms can empower individuals and small businesses to participate more fully in the formal financial system.

Blumenstock et al. (2015) conducted a study in Rwanda and found that mobile phone ownership and usage significantly increased financial inclusion, particularly among marginalized populations. Mobile banking services allowed individuals to access savings, credit, and insurance products, leading to improvements in their financial well-being. Suri and Jack (2016) analyzed the impact of mobile money services in Kenya and found that households with access to mobile banking experienced greater resilience to income shocks and were more likely to engage in entrepreneurial activities. This suggests that mobile banking not only expands access to financial services but also fosters economic empowerment and poverty reduction.

A study by Muto and Yamano (2009) in Uganda highlighted challenges related to the adoption and usage of mobile banking among rural populations. Despite the availability of mobile money services, factors such as limited network coverage, high transaction costs, and lack of trust in mobile operators hindered widespread adoption, particularly among the poorest segments of society. Kimenyi et al. (2019) conducted research in Tanzania and found that while mobile banking

increased access to basic financial services, it did not necessarily lead to improvements in long-term financial outcomes such as savings accumulation or investment diversification. This suggests that while mobile banking can enhance access, its transformative potential in addressing deeper financial inclusion challenges may be limited without complementary interventions.

H₀₂: Agency banking has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County

Agency banking had also unique significant contribution to the model with $B=0.357$, $p=.000$ implying that when other variables in the model are controlled (internet banking, electronic card banking and mobile banking), a unit change in agency banking would result to significant change in financial inclusion by 0.357 in the same direction. This finding might seem counterintuitive at first, as one might expect agency banking, which extends banking services through third-party agents, to have a positive impact on financial inclusion. However, several factors could contribute to this negative relationship. For example, issues related to agent reliability, liquidity management, and regulatory challenges could hinder the effectiveness of agency banking initiatives in reaching underserved populations. Additionally, disparities in agent distribution and accessibility could limit the inclusivity of agency banking networks, particularly in rural or remote areas. It's essential to further investigate the underlying reasons for this negative relationship and identify potential barriers to agency banking adoption and usage among target populations. Addressing these challenges is critical for maximizing the impact of agency banking initiatives on financial inclusion and ensuring that underserved communities have equitable access to formal financial services.

Kivuva and Kivuva (2017) conducted research in Kenya and found that while agency banking expanded access to banking services, challenges related to agent reliability, liquidity management, and transaction costs persisted, particularly in rural

areas. These challenges could limit the effectiveness of agency banking initiatives in reaching underserved populations and promoting financial inclusion. A study by Ahmed et al. (2019) in Bangladesh highlighted issues related to agent distribution and accessibility, particularly in remote areas with limited banking infrastructure. Despite the availability of agency banking services, factors such as agent proximity, operating hours, and service fees could hinder adoption and usage among marginalized populations.

Research by Johnson et al. (2018) in Nigeria found that agency banking played a significant role in expanding financial access and usage among rural communities. By leveraging existing businesses as banking agents, agency banking initiatives helped overcome barriers related to distance, time, and cost associated with traditional banking services, thereby promoting financial inclusion. A study by Maldonado and Hadi (2016) in Indonesia highlighted the positive impact of agency banking on financial inclusion, particularly among low-income households. By providing convenient and accessible banking services through a network of agents, agency banking initiatives improved access to savings, payments, and credit facilities, empowering individuals to participate more fully in the formal financial system.

H₀₃: Internet banking has no significant effect on financial inclusion among Registered SMES in Trans-Nzoia County.

The coefficient of internet banking was 0.239, which was significant ($p=.002$) and also positive. When the variance explained by all other variables (mobile banking, electronic card banking and Agency banking) in the model is controlled, a unit change in internet banking would result to change in financial inclusion by 0.239 in the same direction. This finding underscores the importance of internet banking as a driver of financial inclusion, particularly in regions like Trans Nzoia County, Kenya. Internet banking offers a range of financial services and functionalities beyond basic transactions, including online account

management, bill payments, loan applications, and investment opportunities. By leveraging internet connectivity, individuals and businesses can access these services remotely, bypassing the need for physical bank branches and expanding financial access to underserved populations.

Demirguc-Kunt et al. (2015) conducted a cross-country study and found a positive association between internet banking penetration and financial inclusion. Countries with higher levels of internet banking adoption tended to have greater financial access and usage among their populations, suggesting the transformative potential of digital financial services. A study by Han et al. (2017) in China found that internet banking played a significant role in improving financial inclusion, particularly in rural areas where traditional banking infrastructure was limited. Online banking platforms provided a convenient and accessible channel for individuals to conduct financial transactions and access a wider range of banking services.

Research by Kshetri (2017) highlighted challenges related to internet banking adoption in developing countries, including issues with internet connectivity, technological infrastructure, and regulatory frameworks. These challenges could hinder the widespread uptake of internet banking services and limit its impact on financial inclusion. A study by Sørensen et al. (2019) in India found that while internet banking usage was increasing, disparities in digital literacy and access to technology persisted, particularly among marginalized populations. This digital divide could exacerbate existing inequalities in financial access and usage, undermining the inclusivity of internet banking initiatives.

H₀₄: Electronic card banking on financial inclusion among Registered SMES in Trans-Nzoia County.

Another variable that also had a unique significant contribution to the model was the value for electronic card banking (B=.214, p=.003). When other variables in the model are controlled (internet

banking, mobile banking and Agency banking), a unit change in electronic card banking would result to significant change in financial inclusion by 0.214 in the same direction. This finding highlights the importance of electronic card banking as a driver of financial inclusion, particularly in areas like Trans Nzoia County, Kenya. Electronic card banking encompasses a range of financial services and transactions conducted using debit or credit cards, including payments, withdrawals, and transfers. By facilitating secure and convenient transactions, electronic card banking can expand access to formal financial services and reduce reliance on cash-based transactions, which can be costly and inefficient.

Demirguc-Kunt and Klapper (2012) conducted a global study and found a positive association between electronic card usage and financial inclusion. Countries with higher levels of electronic card penetration tended to have greater financial access and usage among their populations, suggesting the importance of card-based payment systems in expanding financial inclusion. A study by Grimes et al. (2018) in South Africa found that electronic card banking played a significant role in improving financial access and usage among low-income households. By providing a convenient and secure means of conducting transactions, electronic card banking helped individuals overcome barriers related to distance, time, and cost associated with traditional banking services.

Research by Mas and Ng'weno (2015) in Tanzania highlighted challenges related to electronic card adoption among rural populations, including limited infrastructure and acceptance networks. Despite the availability of electronic card services, factors such as inadequate POS terminals and merchant acceptance hindered widespread adoption, particularly in remote areas. A study by Chen and Cheung (2019) in Hong Kong found that while electronic card usage was increasing, concerns about security and privacy remained significant barriers to adoption among certain demographic groups. Addressing these concerns and building trust in electronic payment systems are essential

for promoting broader acceptance and usage of electronic card banking services.

SUMMARY

The first objective of the study was to examine the effect of mobile banking on financial inclusion among registered SMES in Trans-Nzoia County. Pearson Correlation results show a strong relationship between mobile banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in mobile banking would results to a significant change in financial inclusion in the same direction. Hence, mobile banking is useful predicator of financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Therefore, the first null hypothesis was rejected.

The second objective of the study was to examine the effect of agency banking on financial inclusion among Registered SMES in Trans-Nzoia County, Kenya. Pearson Correlation results a strong relationship between Agency banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in Agency banking would results to a significant change in financial inclusion in the same direction. Thus, Agency banking is useful predicator of financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Therefore, the second null hypothesis was rejected.

The third objective of the study was to examine the effect of internet banking on financial inclusion among Registered SMES in Trans-Nzoia County. Pearson Correlation results revealed a strong relationship between internet banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Linear regression analysis revealed that internet banking significantly accounts for variance in financial inclusion among registered small and medium

enterprises in Trans Nzoia County, Kenya. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in internet banking would results to a significant change in financial inclusion by in the same direction. Hence, internet banking is a significant predicator of financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Therefore, the third null hypothesis was rejected.

The fourth objective of the study was to examine the effect of electronic card banking on financial inclusion among Registered SMES in Trans-Nzoia County. Pearson Correlation results a strong relationship between electronic card banking and financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Multiple regression analysis revealed that when other variables are controlled in the model, a unit change in electronic card banking would results to a significant change in financial inclusion in the same direction. Thus, mobile banking is a significant predicator of financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Therefore, the fourth null hypothesis was rejected.

CONCLUSION

From the multiple regression results, the study concluded that Mobile banking has significant effect on financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Improved security features in mobile banking platforms positively influence SMEs to adopt mobile banking, enhancing financial inclusion. Convenience of conducting transactions anytime, anywhere further drives adoption. User-friendly interfaces and availability of affordable smartphones also contribute to increased mobile banking usage among SMEs. Additionally, facilitating easy deposit withdrawals promotes adoption.

The study concluded that agency banking has significant effect on financial inclusion among registered small and medium enterprises in Trans

Nzoia County, Kenya. Respondents expressed favorable views on agency banking's geographical coverage expansion, transaction efficiency, security measures, and liquidity access, fostering financial inclusion among SMEs. These findings underscore the importance of agency banking in reaching remote areas, streamlining transactions, ensuring security, and providing liquidity for SMEs to participate in the formal financial system.

From the multiple regression results, the study concluded that Internet banking has significant influence on financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Most respondents agreed that the ease of using internet banking drives adoption, suggesting improved digital solutions can enhance financial inclusion. Effective implementation of cybersecurity measures builds trust, while prompt customer support and intuitive web design further drive adoption among SMEs. Internet banking offers comprehensive services, reinforcing its value proposition for SMEs.

From the linear and multiple regression results, the study concluded that electronic card banking has significant effect on financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. An increase in electronic card banking would result to significant increase in financial inclusion among registered small and medium enterprises in Trans Nzoia County, Kenya. Improved security features in mobile banking platforms positively impact SMEs' adoption of mobile banking, enhancing financial inclusion. The convenience of conducting transactions anytime, anywhere further drives adoption. User-friendly interfaces and the availability of affordable smartphones also contribute to increased mobile banking usage among SMEs. Additionally, facilitating easy deposit withdrawals promotes adoption.

RECOMMENDATION

The following recommendations have been made based on the study conclusions as shown below.

Mobile banking platforms should prioritize offering seamless and accessible experiences to encourage SMEs to utilize these services effectively. Efforts should be made by financial institutions to develop intuitive interfaces and make smartphones more accessible to SMEs, ensuring broader adoption and financial inclusion.

Efforts should be directed by financial institutions towards expanding the geographical coverage of agency banking services, enhancing transaction efficiency, implementing robust security measures, and ensuring adequate liquidity access for agency banking agents to promote financial inclusion among SMEs.

The study recommended that financial institutions need to decrease internet banking bill payment services so as to enhance financial inclusion. This would result to increase of interbank fund transfers as well as attract new users. Internet banking's ability to offer comprehensive services reinforces its value proposition for SMEs, making it imperative for financial institutions to continuously enhance the user experience, strengthen cybersecurity, provide responsive customer support, and expand service offerings via internet banking to promote adoption and financial inclusion.

The study recommended that financial institutions need to keep on upgrading their electronic card banking technology in order to have an up-to-date system for effective service delivery. Lastly, in regards to electronic card banking, continuous improvement in security features is essential to enhance trust and confidence among SMEs, while convenient and seamless experiences encourage adoption.

Suggestion for Further Studies

The study gives the following suggestion; methodologically, the study limited itself to Trans Nzoia County, further studies should be conducted in other counties or region in Kenya. Furthermore, this was a pure quantitative data, further study should consider using qualitative data collected

through interviews and focus group discussion for the purposes of triangulation.

Conceptually, the study focused on four financial innovation, agency banking, mobile banking, internet banking and electronic card banking. The

study recommended that further studies should focus on other financial innovations not limited from financial institution perspective but also from other players keen to enhance financial inclusion among SMEs. Such variables include open banking initiatives and Fintech Lending Platforms.

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