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Impact of Technological Innovations in Financial Sector on Financial Inclusion of Youths in Developing Countries

Gathuru Edmund Kanyugi

Maasai Mara University, Kenya.
Email: - kanyugiedmund@yahoo.com

Abstract: *Agency banking was formally launched in Kenya by Central Bank of Kenya in 2010 as an implementation of a financial inclusion policy. The policy aimed at increasing financial services outreach by promoting financial inclusion to the un-banked and under-banked population especially the bankable youths that stood at 61.3% as of 2009. By 2020, eleven years since agency banking was first adopted it is not clear whether the objectives of the policy had been achieved. Therefore, the overall objective of this study was to determine the impact of agency banking adoption on financial inclusion of the youths in Kenya. The study was guided by the diffusion of innovation theory. The study adopted an exploratory non-experimental research design. The study used secondary data and the nature of the data collected was quantitative. The data targeted 14 commercial banks that were licensed by Central Bank of Kenya to carry out agency banking as of December 2014. The data was collected from CBK banks supervision annual reports and from financial reports of the 14 commercial banks using a data collection worksheet and analyzed using descriptive and inferential statistics. The empirical model of the study was based on Event study. The study found that agency banking had a positive impact on financial inclusion of the youths in Kenya.*

Keywords: *Agency Banking, Bank deposits and financial inclusion.*

1.1 Introduction

Technological innovations in financial sector involves the delivery of financial services outside conventional bank branches, using retail agents or other third-party intermediaries as the principal interface with customers, and use of technologies such as card-reading, point of sale terminals, internet banking and mobile phones to transmit transaction details (CGAP, 2011). An agency bank is a company/organization that acts in some capacity on behalf of a particular bank, thus cannot accept deposits or extend loans in its own name. It acts as an agent for the parent bank (Marques et al, 2013).

In developing countries there is an increase in embracing agency banking as a means of delivering banking services to many unbanked populations, especially bankable youths. In 2000 when agency banking was initiated it was estimated that approximately 0.84 billion youths out of approximately 1.4 billion bankable youths living in developing countries did not have a bank account in a formal way (Cetorelli & Goldberg, 2017). The 0.84 billion youths could benefit from agency banking financial transactions. Indeed, early experiences have shown that agency banking can significantly reduce set-up and delivery costs, offering cash deposits, cash withdrawals and other financial services to customers who are in areas with no bank branches (Mbugua & Omagwa, 2017).

Agency banking model began in South America specifically in Mexico and Brazil. In Brazil, the model was first embraced in the mid-2000 as part of the government's financial inclusion policy (CBB, 2014). In Brazil Agency banking model brought not only accessibility to banking services for the youths that receive government benefits such as higher education funds, but it also worked as an economic development tool for the youths. In South Africa agency banking initiative made basic bank accounts available to the unbanked youths, primarily via card-based accounts accessed through agent bank outlets (Andrianaivo & Kpodar, 2011).

Agency banking was formally launched in Kenya by Central Bank of Kenya (CBK) in 2010 as an implementation of a financial inclusion policy. According to Fin Access 2013 household survey, conducted by the Financial Sector Deepening Kenya (FSD-K) jointly with the Central Bank of Kenya, a large percentage (61.3%) of the Kenyan bankable youths did not have access to financial services (CBK, 2010). The country is increasingly embracing agency banking as a means of delivering banking services to many unreached populations in rural areas especially the youths because of their technological knowhow (CBK, 2010). As per the 2019 National census, 28.78% of Kenyans were youths ages between 18 and 34 years meaning that they were within the bankable population, out of this 40% were still totally out of the financial service orbit (KNBS, 2019).

Early experiences have shown that branchless banking through agency banking can significantly attract the youths to the financial system because of the efficiency brought about by modern technology. Agency banking has enabled youths access basic banking service such as; deposits, withdrawals, disbursement and repayment of loans, payment of bills, transfer of funds, balance enquiry, generation and issuance of mini bank statements, collection of documents in relation to account opening, loan application, credit and debit card applications, agency mobile phone banking services among Others (CBK, 2010).

Despite agency banking contributing significantly to financial inclusion of the youths in Kenya most commercial banks are not highly motivated to incorporate agency banking in their systems. By 2019 Approximately 57 percent of commercial banks in Kenya have not embraced this technology because they generally perceive agency banking as a corporate social responsibility with limited-to-nonexistent business potential (CBK, 2019).

1.2 Statement of the Problem

Agency banking was formally launched by Central Bank of Kenya in 2010 as an implementation of a financial inclusion policy. The policy aimed at increasing financial services outreach by promoting financial inclusion to the un-banked and under-banked population especially the youths that stood at 61.3% as of 2009. By 2020, eleven years since agency banking was first adopted in Kenya it is not clear as to whether the objectives of the policy were achieved. Therefore, the overall objective of this study was to determine the impact of agency banking adoption on financial inclusion of the youths in Kenya

1.3 Research Objective

The fundamental objective of this research was to establish the impact of agency banking on financial inclusion of bankable youths in Kenya.

1.4 Research Hypothesis

H_o: Agency banking has no impact on financial inclusion of bankable youths in Kenya.

H_a: Agency banking has impact on financial inclusion of bankable youths in Kenya.

1.5 Significance of the Study

This study is imperative to researchers/academicians, account administrators, policy creators in the national and local governments, the investors, senior officials of commercial banks and the clients. To the researchers/academicians the investigation will go far in adding to the body of knowledge in the territory of agency banking reception and financial inclusion of the youths.

2.1 Diffusion of Innovation Theory

Diffusion of innovations theory was postulated by Everett Rogers in 1962. The theory seeks to explain how, why, and at what rate new ideas and technology spreads. According to Rodgers (1962) diffusion is the process by which an innovation is communicated over time among the participants in a social system. Rogers (2003) further argues that diffusion determines the uptake of new technologies. He suggested five attributes in the Theory of Innovation. The first attribute, Relative advantage, indicates the extent of technological innovation over previous innovations. These benefits can be seen from the viewpoint of technical, economic, prestige, comfort and satisfaction. If people feel that a technological innovation provides high relative advantage, then they will accept the technology. The second attribute, compatibility is the suitability of a technological innovation with the user value, user experience, and user needs.

According to Rogers (2003) the third attribute, complexity refers to the level of complexity of understanding and use of a technological innovation. The more complex and sophisticated the technology innovation, the more difficult it is to be embraced. Rodgers (2003) further explains that the fourth attribute, trial-ability is the degree to which a technological innovation can be tried and tested. The last attribute is observability. This attribute is related to the extent to which the results of technological innovations can be observed and communicated. Diffusion of innovation theory further argues that uptake of a new idea, behavior, product or innovation does not happen simultaneously in a social system; rather it is a process whereby some people take on the innovation earlier than others. There are five established new user categories. These include innovators, early users', early majority, late users', and laggards. Studies have found that the early users of technology have different characteristics than the late users.
This theory has been used to explain how agency banking model has penetrated within the Kenyan banking industry (Dias & Mc Kee,2010).

Relating diffusion theory to agency banking, the agency banking is clearly an innovation that requires time to reach critical mass. With regard to communication channels, banks have done well to popularize the model with service names that resonate well with the target population. Such names include, 'Co-op Kwa Jirani', 'KCB Mtaani', 'Equity Ndio Hii', 'Family Papo Hapo', 'Chase Popote' 'Conso Maskani', Posta mashinani, DTB agent, and so on. Such names are intended to create a sense of ownership and create confidence among the banks' customers for a service that has been devolved to their neighborhood.

A review of literature indicates that the use of agency banking model was not uniform in the banking industry. At a global level agency banking concept began in Brazil and Mexico (Dias & Mc Kee, 2010) and the Banks in South America may be considered as the innovators as far as agency banking model is concerned. In the last ten years agency banking has been adopted by different commercial banks at different times in the Kenyan banking industry.

2.2 Agency Bank Deposits and Financial Inclusion

Agency bank deposits are used as an indicator variable to show the value of cash deposits realized from customers through the agents engaged by commercial banks. In relation to competition for customer deposits, Haron and Azmi (2015) posit that the process of financial liberalization has intensified competition between financial institutions, thus forcing commercial banks to compete for deposits in various forms by trying to attract more clients through financial inclusion of the unbanked populations.

Studies have shown that there is a positive correlation between customer deposits and financial inclusion. According to Obamuyi (2013), banks all over the world, thrive on their ability to increase deposits and use the deposits in providing loans. The lending activity is made possible only if the banks can mobilize enough funds from their customers. Since commercial banks depend on depositor's money as a source of funds, it means that there are some relationships between the ability of the banks to mobilize deposits and the amount of credit granted to the customers. Thus, the main function of financial institutions of mobilizing funds from the surplus economic agents to the deficit economic agents is put to test in order to generate economic growth.

There is a positive correlation between bank deposits and financial inclusion. Since it's costly to build banking halls in every town, banks opted to increase their service provision through agents. These agents not only influence deposits but agency banking is also influenced by the level of deposits in a certain area. It is expected that banks expand their facilities and service provision by considering factors such as competition, deposit potential, regional income and existence to infrastructure. Thus, deposits can also be a factor to consider when in need of an agency banking expansion strategy. By creating greater access to financial services, agency banking has in turn increased the level of deposits for banks. Providing the un-banked access to safer and cheaper financial services has led to banks recording more deposits than ever before. Equity bank attributes two thirds of the income from agency banking as a result of deposits and the remainder on withdrawals (Bankelele, 2015).

3.1 Research Methodology

This study adopted an exploratory non-experimental research design. The empirical model adopted was event study. The study employed quantitative secondary data. The data targeted 14 commercial banks that had adopted agency banking by December 2014. Data was derived from CBK banks supervision annual reports and from financial reports of the 14 commercial banks. A period of 8 financial years, that is 4 financial years (16 quarters) before adoption of agency banking and 4 financial years (16 quarters) after adoption of agency banking were used to establish the effect of agency banking adoption on financial inclusion. Means and variance of change in growth of value of bank deposits of each bank per financial quarter was measured before and after adoption of agency banking.

The study considered adoption of agency banking as an event which occurred at a particular point in time. Event period covered the gap between agency banking adoption date and when agency banking was first captured in the financial statements of commercial banks. The study considered 16 quarters (4 financial years) before and after the event. This horizon is large enough to provide numbers for means and variance analysis for measurement of returns, but not too large to cause event overlap.

The bank deposits can only be considered normal if continued in one particular direction i.e. upward or downward for a long period of time without fluctuations (Brown, 1980 cited in Chandra, 2010 & in Abubakar *et al*, 2014).

Sign test was used to test the existence of the two hypothetical statements already established as null and alternative, which state that adoption of agency banking has or does not have an effect on financial inclusion of bankable youths in Kenya. The test is presented statistically as:

$H_O: R_{11} = R_{12}$ ………………………………………………………………………....3.1

Where;
R_{11} is return for period before adoption of agency banking.
R_{12} is return for period after adoption of agency banking.

This research adopted two procedures in analyzing the data. The first part was to modernize the event study model to comparative event study model, so that the application of two sample t -test of means and variance, using descriptive statistics would be attainable. The second part was the required aggregation of the returns as applicable to sign test for hypothesis testing on supportive as well as independent using 95% level of significance to determine the acceptability of any result above 0.05% and rejection of any result below 0.05% as statistically presented below:

$H_o: \delta_{11}^{1} = \delta_{12}^{2}$ ……………………………………….………...…………………………3.2
$H_{a1}: \delta_{11}^{1} > \delta_{12}^{2}$ ……………………………………………………………………...3.3
$H_{a2}: \delta_{11}^{1} < \delta_{12}^{2}$ ……………………………………………………………………...3.4

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Where;
$\delta_{11}{}^{1}$ is variance before the adoption of agency banking.
$\delta_{12}{}^{2}$ is variance after the adoption of agency banking.

4.1 Effect of Agency Banking on Financial Inclusion

The objective of the study sought to establish the impact of agency banking adoption on financial inclusion of the bankable youths in Kenya. The means of change for 16 financial quarters before the adoption and the means of change after adoption were computed and presented in figure 4.1.

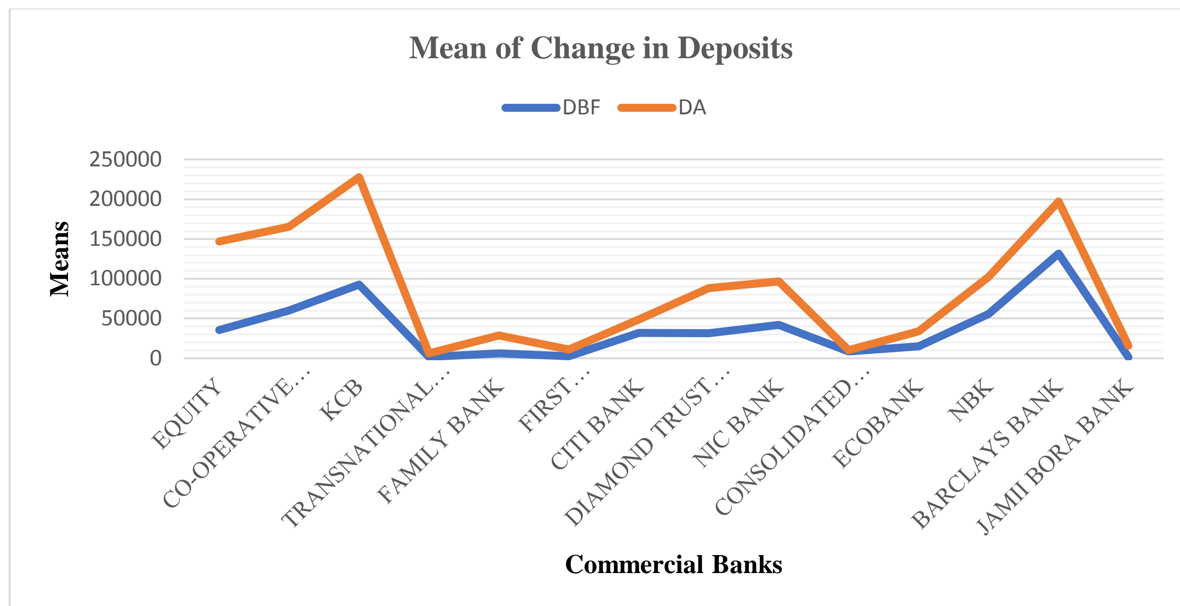

Figure 4.1: Mean of change in deposits before and after adoption of agency banking

Results in figure 4.1 show that generally there was improvement in the mean of change in deposits for the 14 commercial banks. Equity bank, KCB and Barclays bank had the highest mean of change in deposits after the adoption. This is consistent with the findings of Gitau (2014) that yearly operational performance for most commercial banks under study improved significantly from 2008 to 2012. It is argued that the increase in deposits was as a result of increase in the population accessing financial services. This was as a result of increase in efficiency and increase in geographical coverage bought about by the adoption of agency banking. Further the results are in consonance with the findings of Mutua (2013) that the increase in the volume of deposits through agency banking was as a result of facilitated accessibility of banking services to most customers in Kenya. This implies that adoption of agency banking had an impact on the financial inclusion. Considering that 75% of the population are youths, this could mean that the largest percentage of increase in deposits was as a result of youths' deposits.

Access to financial services by the youths has made it possible for the youths to access government funds. Through oral interviews that were conducted among the youths in Kenya, it was noted that they are now able to access youth enterprise funds which is deposited to their bank accounts once the applications are approved. This has enabled youths to start small business which forms their first line of employment. Agency banking has also improved efficiency for the youths because they are able to bank their profits at the nearest agent shop, hence little time is wasted to walk to a bank branch which could be miles away. These results are consistent with the findings of Njagi (2014) that accessibility to financial services by customers especially the youths has played a major role in enhancing deposits and hence financial performance of commercial banks in Kenya.

Through oral interviews, college students indicated that agency banking has made it possible for them to access government education funds which are deposited directly to their student accounts and they can access those funds at the nearest agency bank. Also, it is noted that agency banking has also enhanced the development of saving culture among the youths since they are able to bank within their neighborhood. The savings culture has enabled the youths raise start-up capital for their small businesses which has improved the quality of youths' life in Kenya. The results are in consonance with the findings of Mutua (2013) that the increase in the volume of deposits through agency banking was as a result of facilitated accessibility of banking services to most customers in Kenya.

4.1.1 Paired Samples Statistics

There was generally high difference between the change in deposits after and change in deposits before the adoption of agency banking for all the 14 commercial banks combined 84182.73 and 36822.52 respectively as shown on table 4.1.

Table 4.1: Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Change in Deposit After	84182.7313	14	74942.0701	20029.1107
Change in Deposit Before	36822.5233	14	38184.9508	10205.3573

The results in table 4.1 confirm that adoption of agency banking has had an effect on the amount of deposits by customers for all the banks that have already adopted agency banking. These results are consistent with the findings of Njagi (2014) that accessibility to financial services by customers has played a major role in enhancing deposits and hence financial inclusion.

4.1.2 Paired Samples Test

To determine whether the difference in the mean of change was just by chance or it can be statistically explained, the paired t- test was computed to establish the level of significance. For this study the effect was considered significant if the p – value was less than 0.05 and the t- statistic was more than +2 for a positive change or -2 for a negative change. The results are presented in Table 4.2.

Table 4.2: Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper	t	df	Sig. (2-tailed)
Change in Deposit After – Change in Deposit Before	47360.21	43516.05	11630.15	22234.79	72485.63	4.072	13	.001

The results in table 4.2 indicate that there was a statistically significant change in the mean of change in deposits before and after adoption of agency banking (t = 4.072; p – value 0.01), this implies that the change in the deposits in commercial banks is not by chance but it is as a result of agency banking. The null hypothesis was rejected. The findings are in consonance with the findings of Njagi (2013) that improving financial service accessibility by 1% is likely to improve financial inclusion by up to a factor of 15%. This indicates that agency banking has had a positive and significant impact on the financial inclusion of the youths in Kenya.

5.1 Conclusion

The study concludes that there was a positive and significant impact of agency banking adoption on financial inclusion of the youths in Kenya. An increase in the bank customer deposits significantly reflected an enhancement in financial inclusion. Agency banking improves accessibility of banking services therefore leading to increase in the number of those who can access financial services.

5.2 Contribution to Study

The study contributions to knowledge is unique in the sense that many studies done on agency banking are directed towards individual commercial banks, and the results obtained did not capture the entire economy neither sufficiently to make a general statement that reflect or covered the entire industry which the firm study was used as a scope. Unlike this study the banking industry was used and the results obtained provided a room for generalization statement which many parties can make use of to make decisions. Example economists, accountants, financial experts, potential investors, administrators, marketers and academicians.

5.3 Policy Recommendations

From the study findings and conclusions, the study makes following recommendations: Commercial banks should adopt agency banking as a way of increasing their geographical coverage so as to increase the population accessing financial services. The government through the Central Bank of Kenya should review the policies around agency banking in order to make them more effective in addressing the opportunities and risks associated with agency banking. In order to promote adoption and utilization of agency banking channels, the government should consider increasing the number of services offered by agency banking such as accounts opening.

5.4 Limitation of the Study

Firstly, the scope of the study was all the commercial banks in Kenya that had adopted agency banking by December 2014. Therefore, the study should not be generalized to other financial institutions like the insurance companies, microfinance institutions and Savings & Credit Cooperatives (SACCOs) since their business context, costs and revenue drivers are different from commercial banks.

5.5 Areas for Further Study

Agency banking has been adopted by some Deposit taking microfinance institutions and a study should be conducted to cover these institutions since they compete for the same clientele.

A study also needs to be done to determine why there is a slow uptake of agency banking by the commercial banks which from inception less than 43% of the institutions have rolled out this service.

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