

## Analysis of Mobile Financial Services Utilization among Small Scale Businesses in Kiambu County, Kenya

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### ABSTRACT

**This study examined the level of utilization of Mobile financial services among small scale businesses in Kiambu County. Primary data was obtained through interview administered questionnaire from 123 small scale businesses in Kiambu County. Using descriptive analysis the study found out that 48.8 percent of the businesses utilized mobile financial services. The mobile financial services utilized by the businesses included mobile money in phone, Pay bill Buy goods and services and mobile money bank accounts. Majority of the businesses used mobile money in phone. Businesses cited lack of mobile financial services devices by businesses, lack of mobile financial services incentives such as loyalty points, mobile money transaction charges, poor interoperability between networks, low acquaintance to mobile financial services transactions, service system breakdown, difficulties while accessing customer care services as major challenges in use of mobile financial services. The study concludes that mobile financial services are compliments other financial services in extending financial services to the unbanked sector in the county and recommends that systems development and improvement of service delivery by mobile network operators towards small scale businesses and enhanced legislations on data protection and cyber-crimes to protect users of mobile financial services towards increased use of the services.**

**Keywords:** Mobile financial services, Random Utility Model, utilization, rural areas, small scale businesses, financial inclusion.

### INTRODUCTION

Globally, 1.7 billion adults have no access to formal financial services which has been attributed to distrust in the financial sector, distance to banks, religious concerns, and lack of required documentation and cost of operating a formal financial account. This barriers to formal financial institutions have created opportunities for financial technology lending through mobile money to thrive and bring on board individuals and businesses who would otherwise be left out from accessing formal financial services (World Bank, 2018) [1]

The use of Mobile Financial Services (MFS) is on the rise, the number of people and businesses transacting through MFS increased by 11 percent between 2014 and 2017. Sub-Saharan Africa remains the global leader in use of MFS. Specifically, the region is home to ten economies globally where businesses and individuals have more mobile financial accounts than formal bank accounts. Initially utilization of mobile money concentrated in East Africa but with time it has spread to West Africa and beyond creating opportunities for financial inclusion and affordability of financial services through eliminating the need to travel long distance to access bank accounts and reducing transaction cost (World Bank, 2018) [1]

According to communication Authority of Kenya (2020) [2] access to financial services has experienced tremendous growth in Kenya since inception of MFS in the country in 2007. Since then mobile phone subscription has gone up from 16 million subscription to 57 million active participants in the telecommunication industry (Republic of Kenya, 2020) [3]. This swift progression in the telecommunication sector is attributed to expansion of the digital economy and multiple Subscriber identification Module (SIM) ownership by consumers. In addition, mobile financial services have brought on board small scale businesses and poor households who are considered risky in the formal financial sector. These explains the increase in number of businesses and poor people accessing financial services in Kenya (Kenya, Financial Sector Deepening, 2016) [4]. Table 1.1 illustrates the trend on indicators of financial inclusion in Kenya from 2008 to 2017.

**Table 1: Trends of financial inclusion in Kenya in the period 2008 to 2017**

Indicators of financial Inclusion	2008	2011	2014	2017
Domestic credit Provided by Financial Sector (% of GDP)	33.9	41.7	44.7	40.6
Account ownership at a financial institution or MFS (% of Population)	-	42.3	74.7	81.6
Financial services Accessed by the poor (% of Population)	-	19.4	63.2	70.5

Source: World Bank Development Indicators (2019) [5]

The data show that financial inclusion has deepened in the country over the period with rising proportion of the population accessing financial services. Digital financial services have transformed uptake of financial services in Kenya (Central Bank of Kenya, Kenya National Bureau of Statistics and Financial Sector Deepening, 2019) [6]. Those residing in rural setup are the biggest beneficiaries of mobile financial services since it offers alternative sources to finance their business and ensure a smooth transaction with their clients. The most utilized digital financial services includes MFS at 79.4 percent, mobile banking at 40.8 percent followed by digital loans app at 8.3 percent. Table 1.2 shows an increasing trend of digital financial uptake in Kenya from 2006 to 2019.

**Table 2: Trends on Digital Financial Uptake in Kenya (2006 - 2019)**

Digital Financial Services (% of Adults)	2006	2009	2013	2016	2019
Mobile Financial Service (MFS)	-	27.9	61.6	71.4	79.4
Mobile Banking	14.0	20.5	29.2	34.4	40.8
Digital Loan Apps	-	-	-	0.6	8.3

Source: Central Bank of Kenya, Kenya National Bureau of Statistics and Financial Sector Deepening (2019) [6]

The high uptake of mobile financial services has largely been attributed to acquisition of mobile phones by many individuals and businesses for transaction purposes and improved network coverage, presence of agents all over the country and initiatives such as M-banking services which enables the mobile phone holder to withdraw and deposit cash from the bank or any other financial institution. The digital financial services provide businesses and individuals with financial alternatives to choose from apart from the formal financial services.

Mobile financial services enable online transactions, bill payments, receiving salaries and making general transactions through mobile device. Further, the presence of mobile network operators countrywide has eased ways of doing business. Individuals and businesses can make transactions at their convenience regardless of their geographical location as far as they own a mobile device and registered to use any of the available mobile enabled financial service. The platforms are embraced for the inclusivity and minimum prerequisites to open and operate an account. The unbanked can participate in the financial sector at their convenience and make transactions of their choice with the little they have. According to Nyaga (2013) [7] the trust associated with mobile enabled financial services has been a key ingredient to its prosperity and increased economic activities. Low transaction costs have brought on board many people and businesses from the rural areas who initially could not access financial services therefore increasing productivity and business development.

### **Research Problem**

Financial inclusion has been one of the key objectives in financial sector development in Kenya. The country has been pursuing policies to harness innovations in mobile financial Services towards this end. Rural areas in Kenya have historically been marginalized by convectional banking. Businesses in the rural areas have no access to formal financial services due to lack of collateral and low incomes (Kenya Financial Sector development, 2019) [8]. The penetration of MFS to such areas has made it an important source of finance for business and people in the periphery. However, small scale businesses in rural areas have not seized the opportunity. This study analyzed the utilization of mobile financial services among small scale businesses in rural areas of Kiambu County in Kenya. Specifically, the study examined the different types of mobile financial services used in business transactions, the challenges experienced in utilizing mobile financial services and the intensity of pressure on small businesses to use mobile financial services

## **LITERATURE REVIEW**

### **Theoretical literature**

The *random utility maximization (RUM) theory* was applied in analyzing utilization of mobile financial services in the study. Based on the ordinalist's theory, utility is a subjective concept that cannot be directly measured. The user of a commodity can only be able to rank bundles in order of preference (Dwivedi, 2016) [9]. This study contrasted use of mobile aided transactions to other financial alternatives that are utilized by businesses in rural areas. The basic assumption was that if a business used mobile supported transactions, and no other financial alternatives, it indicated that the mobile financial service is ranked higher than any other financial service. As postulated by Block and Marshak (1960) [10] the theory explores the theoretical implications of choice, probabilities of maximizations of utilities based on the concept of ordinal utility. The level of utility obtained from an alternative is assumed to depend on aspects of individual choices and individual user's characteristics. According to the model an individual achieves higher level of satisfaction by

choosing an option that yields higher level of utility. If an individual is choosing between two alternatives  $i$  and  $j$ ; the likelihood of choosing alternative  $i$  is given by:

$$P_i = \text{Prob}(U_i > U_j) \text{ for all } i \neq j \dots\dots\dots (2.1)$$

To determine the level of utilization of MFS by businesses the study assumed that the business is faced with two alternatives to use MFS or not to use MFS. If a business utilized MFS the utility is captured by  $i$  and  $j$  if otherwise. Therefore, according to the model, businesses will utilize MFS if  $U_i$  is greater than  $U_j$ . Based on the random utility model utilization of MFS by a business  $i$  depends on utility derived from alternative  $j$  (not using MFS) such that a business chooses alternative  $i$  if  $(U_i)$  is greater than  $(U_j)$ .

The RUM enables extension of the demand models. The assumption that utility depends on the characteristic of an alternative as well as individuals user characteristics enables extension of empirical models to include such relevant factors, especially factors that distinguish one type of service from another as well as those that distinguish one business from another.

### **Empirical Literature**

Morawczynski and Pickens (2009) [11] carried out a study on use of mobile money by the poor in Kenya to assess whether the poor used mobile money and evaluate the impact of *M-Pesa* on welfare. The study collected data from 350 persons and 21 focus groups through structured surveys and interviews. The study found that, the poor began to make small but frequent transactions which were attributed to cheaper and easily accessible *M-Pesa* services where they could borrow, save and receive remittances. In addition, the study found out that utilization of mobile financial services was accredited to security and mobility in comparison to alternatives. Safety of the MFS resulted to increase in net household savings and increased income inflows from remitters and lenders. Further, MFS were found to have improved investment and funding among households.

Ndunge and Mutinda (2012) [12] conducted a study on mobile money services and poverty reduction in rural eastern Kenya using primary data collected from 84 respondents sampled from 21 women groups. The study found out that, mobile money services promote more economic transactions through facilitating group payments, business transactions and accessibility of affordable loans leading to rural development and arguably reduction of poverty.

Nyaga (2013) [7] conducted a study on the role of mobile financial services on business growth in Naivasha, Kenya specifically to establish categories of mobile aided transactions utilized by SMEs in Naivasha town. Data was collected using structured questionnaires from 113 respondents and descriptive statistics and inferential statistics used to analyze the data. The study found out that mobile enabled financial services influenced sales with a good number using mobile banking for saving purposes.

In an investigation on the factors affecting adoption of mobile financial services in the banking industries in Botswana, Maradung (2013) [13] collected data from 190 respondents. The study established that sex, employment status and age of individuals were the main significant determinants of individual choice of adopting mobile money services.

Muriuki (2014) [14] investigated the role of mobile phone use in the performance of SMEs in Kenya. Data was collected using structured questionnaire from 101 merchants offering mobile financial services in their businesses. The study found out that, money transfer services, internet banking and mobile banking have positive impact on success of SMEs through cost reduction, reduce decision making time and increased profits.

Mutisya (2016) [15] carried out a study on the role of mobile banking on the growth of Small and Medium Enterprises (SMEs) in Kitui County using primary data collected from 105 licensed SMEs in Kitui town. The study found that, use of mobile banking contributed to the growth of SMEs through increase in sales which subsequently increased business profits.

Chebet (2017) [16] evaluated the impact of mobile payment on business performance in Machakos town, Kenya using a case of Safaricom *lipa na M-pesa*. Data collected via structured questionnaires and interviews from 300 registered merchants in the payment platform was analyzed using descriptive and inferential statistics. The study identified convenience, efficiency, accessibility and reliability of *lipa na M-pesa* as influencers of business performance in Machakos town.

In an investigation on the influence of mobile money services on the growth of SMEs in Nakuru County of Kenya, Mararo (2018) [17] collected data from 109 entrepreneurs. Using descriptive statistics and inferential statistics the study established that, mobile money enhance business performance through increased access to finances, ability to track transactions in their businesses and convenience attributed to use of mobile money.

Most of the studies on mobile money in Kenya have focused on business growth but have not provided evidence on level of use of MFS by businesses and the products that could be promoted more to encourage financial inclusion to small scale businesses in rural areas. There was therefore need to analyze the level of utilization of MFS among small scale businesses in the rural areas and the challenges faced in use of such services in their business transactions.

## **RESEARCH METHODOLOGY**

### **Research Design**

A non-experimental cross section research design was adopted in the study to allow observation of the study participants and their choice behavior as it occurred naturally. Primary data from licensed small scale businesses in Kiambu County was utilized. The data was obtained through interview administered questionnaires from randomly sampled, small scale businesses. Descriptive measures including frequencies and percentages were used to determine the level of utilization of mobile financial services among the sampled small scale businesses.

### Definition and Measurement of Variables

Variable	Definition	Measurement
Utilization of MFS	The use of mobile financial services by a business in the form of; Pay bill, Buy goods & Services, Mobile money bank account, Mobile money in phone	Measured by a dummy variable 1 if Business use any form of MFS and 0 if otherwise.
Types of MFS	Refers to the different methods of MFS transaction	Measured by categorized variable 1 if Pay bill, 2 if Mobile money bank a/c, 3 if Till number, 4 if mobile money in phone.
Intensity of pressure to use MFS	Refers to demand from clients to use the different types of mobile financial services in their transactions	Measured in percentage

### Area of study, target population & sampling procedure

The study was conducted in Gatundu South Sub-County in Kiambu County of Kenya. It targeted the registered small scale businesses within Gatundu South Sub-County. The Sub-county comprised of four wards namely; Kiamwangi, Kiganjo, Ndarugu and Ngenda (Republic of Kenya, 2015) [18]. Stratified sampling based on the four wards as strata was used. The sample of 123 businesses was distributed across the wards following proportional allocation.

## RESULTS AND DISCUSSIONS

### Use of Mobile Financial Services in business transactions

The study analyzed use of mobile financial services in business transactions by examining whether the businesses utilized any form of mobile enabled financial service in their business transactions. Table 4.1 presents the summary of responses.

**Table 3: Utilization of Mobile Financial Services**

Use of MFS	Frequency	Percentage
Yes	60	48.8
No	63	51.2
Total	123	100

As shown in the table 4.1, 48.8 percent of the sampled businesses used mobile financial services in their business transactions. The remaining 51.2 percent of the businesses reported not using the services in their businesses. The businesses that did not utilize MFS alluded to customer's preference of paying in cash, lack of MFS incentives such as loyalty points, information asymmetry and lack of MFS devices by businesses. The study findings concur with those of Muriuki (2014) [14] who attributed the low utilization of MFS to lack of required infrastructure to support use of MFS.

### Types of MFS used in business transactions

There are different types of MFS that can be used by businesses. These include mobile money in phone, Pay bill, till number and mobile money bank account. The study examined the types of MFS that were utilized by the 60 business that reported to utilize the services in their transactions. Table 4.2 presents a summary on the responses

**Table 4: Use of different types of MFS**

Type of MFS	Frequency	Percentage
Pay Bill	2	3.3
Mobile Money Bank a/c	6	10.0
Buy goods and services	13	21.7
Mobile money in phone	39	65.0
Total	60	100.0

The most utilized MFS is the Mobile money in phone at 65 percent of the total respondents. This may be due to the fact that money in the phone facilitates timely transactions between person to person and person to business. In addition, majority of the rural residence preferred to send money direct to the business owners who did not possess a mobile payment option. Only 10 percent of the businesses integrated mobile money bank account transactions in their business due to small size of monetary transactions involved in the businesses. The low utilization of pay bill was as a result of higher transaction charges to the clients in comparison with other means such as use of buy goods and services(*till number*) option.

The findings are similar to that of Chebet (2017) [16] who found that till number was more utilized than pay bill number due to transaction cost. Similar findings were made by Mararo (2018) [17] who established that person to person transfer was the highest mode of payment, followed by *till number* while pay bill was the least utilized method of MFS transaction among SME's in Nakuru town, Kenya.

### Challenges Faced in Using MFS

Business owners who utilized mobile financial services were requested to indicate the major challenges they encounter while using MFS in their business transaction. A summary of the challenges reported are presented in table 4.3.

**Table 5: Challenges Experienced in Utilizing MFS**

Challenge	Frequency	Percentage
Transaction errors	1	1.7
Cost of acquiring MFS device	1	1.7
Data Privacy concerns	2	3.3
Difficult Accessing Customer Services	2	3.3
Asymmetric information on use of MFS	2	3.3
Poor interoperability between networks	2	3.3
Lack of MFS Incentives such as loyalty points	2	3.3
Provision of ID in all transactions	3	5.0
Fluctuating Transaction Charges	3	5.0
Service System Breakdown	10	16.7
Losing Money through Fraudsters	11	18.3
Insufficient cash/float from agents	21	35.0
Total	60	100.0

Table 4.3 shows that businesses experienced challenges in use of MFS. Reporting of insufficient cash or float from MFS agents seemed to have been the major challenge for most of the businesses followed by loss of money through fraudsters who hack into the system to defraud or businesses

received fraudulent calls or messages and were coned at the point of sale. Service system breakdown during transactions, high and fluctuating MFS transaction charges, the mandatory requirement for providing Identity Card (ID) when making business transactions by customers were also reported. There are businesses that indicate the lack of loyalty points to reward businesses using MFS was a deterrent to its use especially the feeling that instead of being rewarded for using MFS, businesses incurred transaction chargers when withdrawing money from their till and pay bill numbers.

Poor interoperability between networks made it difficult for businesses utilizing different networks to transact. Some businesses also cited low acquaintance with MFS transactions due to asymmetric information on use of MFS while others complained of difficulties in accessing MFS customer care Services, privacy concerns on their identity and amount transacted when making business transactions and costs of acquiring MFS device and transaction errors. These findings are consistent with those of Ndunge and Mutinda (2012) [12] who noted that fraud and network connectivity hindered use of mobile financial services. Nyaga (2013) [7] had also established that, expensive transaction cost, loss of money, insufficient float to carry out transactions and lack of interest from MFS deposits affected use of mobile financial services.

### **Intensity of pressure to use Mobile Financial Services**

The study sought to establish whether there was any pressure from buyers and if so what level of that pressure existed on businesses to use the different types of mobile financial services in their transactions. The businesses owners were asked to report in a scale of 0 to 100 how often their clients wished to transact through MFS. This was in view of an assumption that clients demand for MFS can encourage the business owners to install MFS devices. Table 4.4 provides a summary of the responses.

**Table 6: Customers Demand for MFS Transactions**

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
0 %	21	17.1
10 %	24	19.5
20 %	25	20.3
30 %	25	20.3
40 %	12	9.8
50 %	11	8.9
60 %	5	4.1
Total	123	100.0

Table 4.4 shows that 17.1 percent of the business had no cases of clients demanding to use or transact via any form of MFS. The remaining 82.9 percent of the business reported clients demanding to use MFS at various levels. This indicates that that there is desire for people to use MFS make payments via the MFS but are yet to fully embrace use of MFS in their businesses. Customers to the small scale businesses can realize more satisfying transactions through the mobile money platforms if businesses adopted their use in transactions. However, this would require that the challenges experienced in the use of the services are properly addressed to increase adoption in business transactions



## CONCLUSION AND POLICY IMPLICATIONS

### Conclusion

The study established that businesses that 48.8 percent of businesses in rural areas of Kiambu County utilized MFS. Mobile money in phone was the most utilized mode of MFS by the small scale businesses. The study also established that lack of MFS devices by businesses, lack of MFS incentives such as loyalty points, MFS transaction charges, poor interoperability between networks, low acquaintance to MFS transactions, service system breakdown, difficulties while accessing customer care services influence use of MFS by businesses. In addition, the study established that, clients demand to use different types of MFS encouraged business owners to install MFS devices and support MFS transactions in their businesses.

### Policy Implications of the Findings

To increase utilization of MFS among small scale businesses, mobile network operators (MNOs) should develop redeemable loyalty points associated with every transaction to reward their clients. They should also hire more customer care attendants to facilitate timely feedback from clients encountering challenges with transactions. Regular countrywide awareness programs should be conducted by the operators can be used to educate businesses on MFS services, easier mechanisms for tracking and recovering transactions to minimize fear of losing money to fraudsters. Further, MFS devices could be provided at discounted costs to small scale businesses that wish to embrace MFS in their transactions. The costs associated with transactions through Pay bill can be revised downwards to the level of other platforms. The government through the communication authority of Kenya should enact legislation on data protection and cyber-crimes and facilitate timely tracking and arrest of MFS fraudsters.

### References

- [1]. World Bank. (2018). The World Bank Annual Report 2018. Washington, DC: The World Bank. Retrieved from <http://documents.worldbank.org>
- [2]. Communication Authority of Kenya (2020). Third Quarter Sector Statistics Report for the Financial Year 2019/2020 (January – March 2020). Nairobi, Kenya. Government printer. Retrieved from [www.ca.go.ke](http://www.ca.go.ke)
- [3]. Republic of Kenya (2020). Fourth quarter sector statistics report for the financial year 2019/2020. (April – June 2020). Nairobi, Kenya. Government printer
- [4]. Kenya, Financial Sector Deepening (2016). FinAccess household survey. Nairobi: FSD Kenya.
- [5]. World Bank (2019). World Development Indicators. Washington, DC: The World Bank. Retrieved from <https://databank.worldbank.org>
- [6]. Central Bank of Kenya, Kenya National Bureau of Statistics & FSD Kenya (2019). FinAccess Household Survey on financial access and usage in Kenya. Nairobi, Kenya: FSD Kenya.
- [7]. Nyaga, K. M. (2013). The impact of mobile money services on the performance of small and medium enterprises in an urban town in Kenya. Unpublished Project. KCA University.
- [8]. Kenya, Financial Sector Deepening (2019). FinAccess household survey. Nairobi: FSD Kenya.
- [9]. Dwivedi, D. N. (2016). *Microeconomics: Theory and Applications* (3rd Ed). New Delhi, India. Vikas Publishing House.
- [10]. Block, H. D., & Marschak, J. (1960). *Contributions to probability and statistics: Random Orderings and Stochastic Theories of Responses*. California, United States of America. Stanford University Press.
- [11]. Morawczynski, O., & Pickens, M. (2009). *Poor people using mobile financial services: observations on customer usage and impact from M-PESA*. Washington, DC: World Bank. Retrieved from <http://documents.worldbank.org>

- [12]. Ndunge, K., & Mutinda, J. (2012). Mobile Money Services and Poverty Reduction: A Study of Women Groups in Rural Eastern Kenya. *Institute for Money, Technology and Financial Inclusion (IMTFI). Working Paper 2011, 12.*
- [13]. Maradung, P. (2013). *Factors affecting the adoption of mobile money services in the banking and financial industries of Botswana.* Unpublished project. North West University.
- [14]. Muriuki, N. G. (2014). *The role of mobile phone use in the success of small and medium sized enterprises: A case of SMES providing financial services in the Kiambu sub County, Kenya.* Unpublished project. University of Nairobi.
- [15]. Mutisya, R. (2016) *The Role of mobile banking on the growth of micro and small enterprises in Kitui County, Kenya* .Unpublished project. University of Nairobi.
- [16]. Chebet, E. R. (2017). *The Impact of Mobile Payments On The Performance Of Micro-Businesses: A Case Of Safaricom Lipa Na M-Pesa Services In Machakos Town, Kenya.* Unpublished project. University of Nairobi.
- [17]. Mararo, M. W. (2018). *Influence of mobile money services on the growth of SME in Nakuru town Kenya* .Unpublished project. JKUAT
- [18]. Republic of Kenya (2015). *County Statistical Abstract Kiambu County.* Nairobi. Government Printer. Retrieved from [www.knbs.or.ke](http://www.knbs.or.ke)