

Mobile Banking Influence on Wealth Creation and Poverty Reduction for the Unbanked

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Abstract: The rapid spread of mobile phones and services such as mobile money transactions means that the number of mobile users may already have exceeded the number of banked people in many low income countries. Although policy makers, newspapers, and mobile phone companies have speculation and optimism regarding mobile money effect on individual saving and wealth creation, it is only evidence from research that can confirm their optimism. Therefore the purpose of this paper is to empirically investigate the influence of mobile money on wealth creation of the unbanked. The study examines the particular case of selected unbanked populations in Kenya, and the role of mobile banking in uplifting their livelihood.

Keywords: Mobile, Money, Unbanked, Wealth Creation, Development

1. Introduction

Previous studies have argued that the rapid spread of mobile phones means that the number of mobile users may already have exceed the number of banked people in many low income countries [6]. Moreover, this rapid adoption of mobile phones has created a great deal of speculation and optimism regarding its effect on economic development in Africa [1]. Governments, policymakers, mobile phone companies, and newspapers have all publicised the poverty-eradicating potential of mobile phones [5]. Kenya is one of these countries that have been on the move, and Mobile Banking services and technologies are powerful tools with potential to boost economic growth and poverty reduction for its unbanked citizens. Around the world, many countries like Kenya have deployed various initiatives in the use of the mobile phone to provide financial services to those without access to traditional banks. Yet previous studies have shown that relatively little scholarly research explores the use of these m-banking/m-payments systems [7][8]. Moreover, studies linking M-banking adoption, use and impact on economic development and wealth creation are even more scarce.

Globally, various initiatives use the mobile phone to provide financial services to those with or without access to traditional banks [3]. In Kenya, M-banking has been introduced now for almost five years. However, there has been scanty research on its economic development and poverty eradication impact on the unbanked. This paper therefore investigates the use of mobile phone in mobile money by the unbanked, and its influence on savings and wealth creation. The main question that was be answered by this study was: Does M-banking adoption, use have a positive influence on wealth creation for the unbanked? The potential of mobile phones to revolutionize access to financial services in developing countries is exemplified powerfully by the success of the M-Pesa mobile money service in Kenya [11]. However, the apparent difficulty of replicating M-Pesa's success even in neighbouring countries suggests that some contexts may be more receptive to such an innovation than others. Moreover, this is an indication that the influence of m-mobile money in economic development and poverty alleviation in different contexts may have

different results. This paper does not only seek to understand the Kenyan citizens environmental dynamics affecting the uptake of mobile money, but also the effect of this uptake to their economic development and poverty alleviation. While [2] have demonstrated that aside from strong strategy and good bank business models the impact of financial services in developing countries is dependent on the extent of market penetration and the political environments in which they take root, there is a knowledge gap on the extent mobile money impact economic development and wealth creation.

2. Objectives

A recent study by [12] posited that the unbanked and under banked consumers are more likely than fully banked consumers to have lower incomes and be younger, minority, female, unmarried, unemployed, and unwilling to take financial risks. These groups are of particular interest if mobile financial services can uplift their lives through poverty eradication and economic development. Therefore to achieve the purpose of this study, and to be able to answer the research question, the following research objectives were pursued: To investigate the M-banking services that have been adopted by the unbanked. To investigate if Mobile payments by the unbanked increase their wealth.

3. Methodology

According to [4], a research design is the arrangement of circumstances for collection and analysis of data in a way that aims to combine both relevance to the research purpose and economy in procedure. In addition to the fact that this research philosophy is positivist, the relevance, purpose, and economy of the methodology adopted were descriptive research design, quantitative research, and triangulation. This design used a cross-sectional approach taking on a survey method that used a questionnaire for data collection, as well as focus group discussions with various industry players. The prevalent form of triangulation is the association of the use of both quantitative and qualitative methods in a single research.

The target population consisted of the unbanked and banked populations in Nairobi and Nakuru from which the actual sample of villages/estates/slums and that of respondents of individuals, banks, and telecommunication companies was selected. The sample unit is a single member of the population, which in this study are the individuals. In this study, rather than use random sampling approach in selecting the villages, a purposive sampling technique was applied to select the participating villages/estates/slums. In addition, Systematic sampling was used to select participating individual in a selected site. Wherever possible, items used for the development of constructs were adapted from preceding research in order to ensure the content validity of the scale to be used was attained [10].

To assess the internal consistency of each construct, the Cronbach's alpha coefficients was computed to enable the results reveal that there is adequate reliability where all values were greater than 0.80. The literature review identified four common types of measurement validity namely; (i) nomological validity, (ii) discriminant validity, (iii) convergent validity, and (iv) content validity. These four perspectives of content validity was undertaken in the study process. Before performing factor analysis,(see appendix 1) the study considered the Kaiser-Meyer-Olkin (KMO) and Bartlett's test, the KMO metric for measuring sampling to judge if it is appropriate to use factor analysis on collected data. Also the Bartlett's Test of Sphericity was significant at probability level 0.05 which was mean that the correlation matrix was not an identity matrix

4. Technology Description - M-Banking in Kenya

For almost five years now, payment strategies for emerging markets have been revolutionized by the advent of a simple cell-phone-based payment service in Kenya called M-PESA (“M” for “mobile” and “pesa” for “money”) [11]. As noted in a small-scale pilot program in 2006, M-PESA has become an outstanding success in Kenya; customer response has been unprecedented. Currently, more than 13 million Kenyans use M-PESA to perform tens of millions of transactions every month throughout the country. Although this success has led to new opportunities, it has also brought about many unforeseen challenges [11]. It is for this reason that more research into the M-Money phenomena is needed. Recent studies on M-Money have posited a warning or caution, that there is little evidence yet to verify the prospects of serving unbanked through M-banking models and their impact on poverty alleviation [11]. There is still a monumental gap between the visions and the mundane “financial reality” of poor people in sub-Saharan Africa. The harsh reality is that only 1% of the sub-Saharan population is banked and a substantial part of the rest lives in a cash-based, subsistence, barter-trade economic environment. Relying on GDP per capita data from the region, the majority survives on less than one USD per day, which means there is an extremely small window for savings.

The North-South and urban rural divide has created a need for distribution of wealth through remittance; mostly within extended families but also between friends, for example in the most developed economy in Sub-Saharan Africa, South Africa, 45% have nothing remaining when the monthly bills are paid [9]. A second observation is the low reliance on formal employment as a source of income; only 4% of Tanzanian population has earnings that could be transacted easily through the bank systems [9]. It is this gap that this study wishes to fill. Previous studies such as [3] posit that Mobile banking services can include services such as Account information, Payment and transfers, Investment, Support, Content services [3] and m-brokerage [13].

5. Developments

There is no universal form of m-banking; rather, purposes and structures vary from country to country. The systems offer a variety of financial services, including micropayments to merchants, bill-payments to utilities, P2P transfers between individuals, and long-distance remittances. Currently, different institutional and business models deliver these systems. According to [6], some m-banking services are offered entirely by banks, others entirely by telecommunications providers, and still others involve a partnership between a bank and a telecommunications provider. Most m-banking/m-payments systems in the developing world enable users to do three things: (a) Store value (currency) in an account accessible via the handset. If the user already has *m-banking* account, this is linking to their mobile phone. If the user does not have an account, then the process creates a bank account for her or creates a pseudo bank account, held by a third party or the user’s mobile operator. (b) Convert cash in and out of the stored value account. If the account is linked to a bank account, then users can visit banks to cash-in and cash-out.

In many cases, users can also visit the GSM providers’ retail stores. In the most flexible services, a user can visit a corner kiosk or grocery store, perhaps the same one where he or she purchases airtime, and transact with an independent retailer working as an agent for the transaction system. (c) Transfer stored value between accounts. Users can generally transfer funds between accounts linked to two mobile phones, by using a set of SMS messages (or menu commands) and PIN numbers. In this study we shall explore additional contextual services that are offered on mobile money platform. Moreover we shall investigate whether urban poor and their rural counterparts adopt these services equally.

6. Data Analysis and Results

6.1 Demographics

Out of a sample of 320 respondents, 139 of them confirmed that they did not have a bank account. This paper concentrates on the results and analysis of the 139 unbanked respondents. The results revealed that the reason for not having a bank account could not be the distance to the banks. This is because, 85.2% had bank access at only less than 20 minutes' walk, while 14.8% needed to walk less than 45 minutes to access a bank. The composition of the sample was 51.8 % male and 48.2 % female where 45.6 % were single, 52.9% married, and 1.5% divorced. Additionally 92% owned a cell phone, while 8% had no cell phone. The most interesting results was that 98.2% of the respondents use mobile money. Since 8% of the sample did not use cell phone imply that, they used a friends or family's phone to receive and send mobile money. Further, out of the five mobile money operators M-Pesa, ZAP, YU-Cash, Orange Money, Tangaza, and others, 98.5% respondents used M-Pesa, while 0.8% used ZAP, and 0.8% other networks. Additionally, the analysis of the unbanked data revealed that the majority of the respondents were in the age group 25-34 years, who make 35 % of the unbanked population as shown in Table 1. Overall, 62 % of the unbanked were the youth, of less than 35 years.

Table 1: Age Distribution of Respondents

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <18	9	6.0	6.0	6.0
18 - 24	32	21.3	21.3	27.3
25 - 34	52	34.7	34.7	62.0
35 - 44	22	14.7	14.7	76.7
45 - 54	18	12.0	12.0	88.7
55 - 64	3	2.0	2.0	90.7
>64	14	9.3	9.3	100.0
Total	150	100.0	100.0	

The study asked the respondents to indicate their employment status. The results are shown in Figure 1, where 29.5 % were casual, while only 2.2% had full time employment. This very low employment levels will in turn imply low income levels for the unbanked.

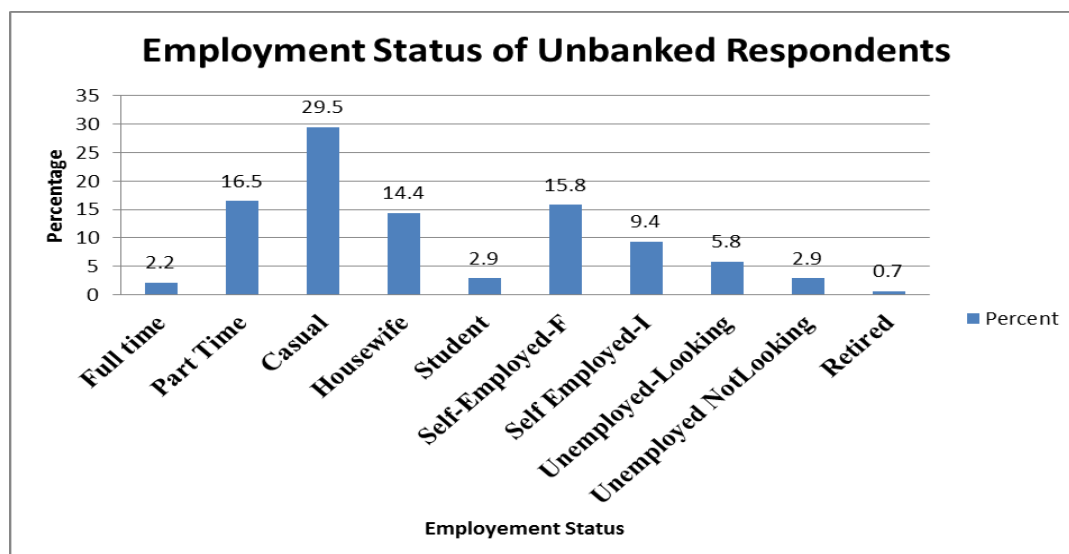


Figure 1: Respondents Employment Status

The respondents were asked to indicate their level of monthly income in Kenya shillings where one Kenya shilling was equivalent to one United States Dollar. The results are shown in Figure 2 where the percentages of respondents in various income groups are indicated. It is evident from the results that 27.9 % of the unbanked population earns less than Kenya Shillings 3000 a month which is approximately less than a dollar a day. With increasing cost of living in Kenyan, and more specifically cities, Majority of the unbanked can be classified as poor or poorest of the poor. Consequently, any intervention that can increase their wealth creation is valuable. Mobile technology has the potential to increase their wealth in many ways. Among the most common include cost reduction in communication and executing financial transaction tasks.

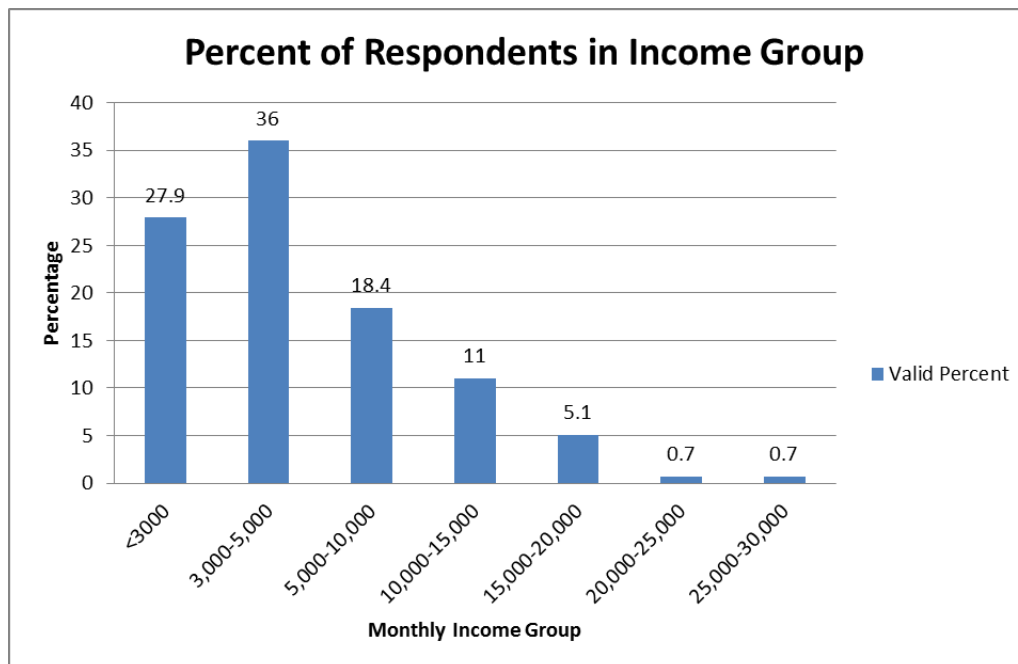


Figure 2: Respondents Income Group

6.2 Uses of Mobile Payments by the Unbanked

Previous studies revealed a list of mobile money payments and transactions types that can be made using a cell phone as shown in Figure 3. The respondents were asked to indicate whether or not they use each one of them. The results of Figure 3 show the percentages of respondents that confirmed the use of a particular type of mobile transaction. It is evident from the results that 67 % of the unbanked population uses their mobile phone to buy airtime. This may imply that the unbanked save time and money of walking to the nearest shops to buy airtime credit vouchers. Instead, the respondents store money in the cell which they use for buying airtime credit. The results further reveals that the unbanked are using mobile money to pay for goods and services in shops and markets. This would further imply that for the unbanked, there is an increasing trend of carrying and using mobile money instead of carrying hand cash for most of day to day financial transactions.

To measure, the effect of mobile money on respondents wealth creation, They were asked the question: “How much % do you think M-Pesa had improved your wealth for the past one year”? (Lowest) 0 % 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% (Highest)”.

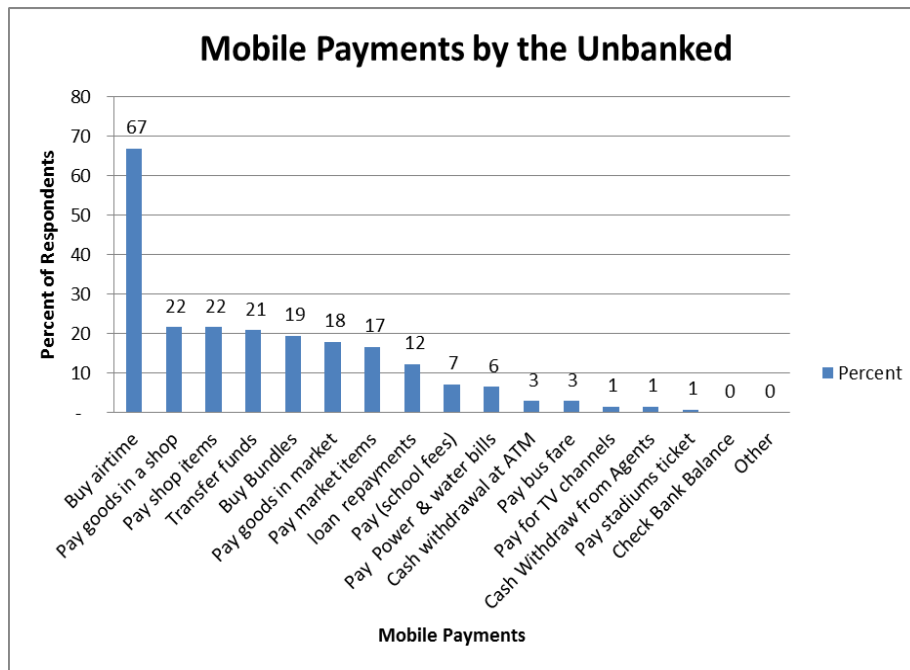


Figure 3: Mobile Payment Types

6.3 Mobile Payments increase Unbanked Wealth Creation potential

The results are shown in Figure 4 indicate the percentages of respondents that confirmed a particular level of wealth increase for the past one year attributed to use of mobile money. It is evident from the results that only less than twelve per cent of the respondents had zero increase in wealth, while over eight eight per cent (88%) confirmed that mobile money technology use had increased their wealth by 10% or more.

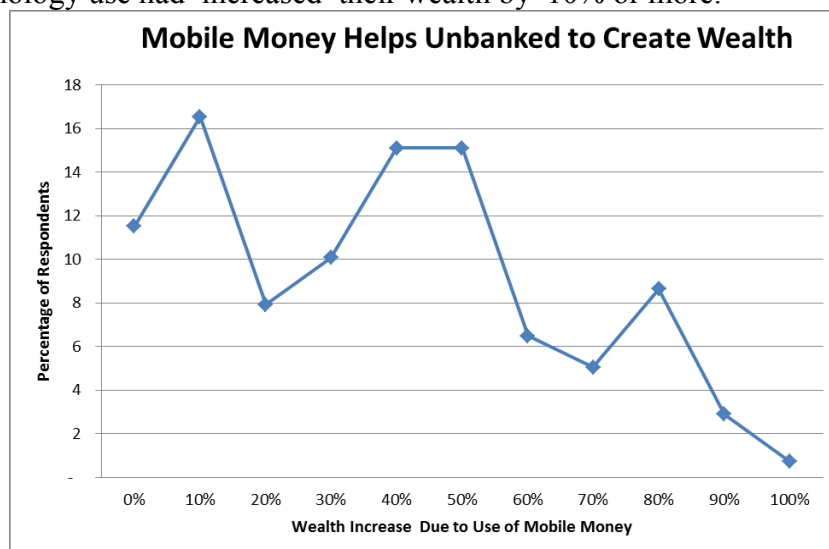


Figure 4: Wealth Increase Attributed to Mobile Money.

6.4 Regression Model

Additionally, Component factor analysis using varimax rotation was conducted on the multiitem constructs on a seven Likert Scale. The items that did not load on their constructs were dropped from further analysis. The results of regressing the other variable on wealth creation produced the model summary shown in Table 2. The R-square value of 0.579 shows the “goodness of fit” of the model. It can be thought as a percentage. Thus R-square

for this model is .0579, which means that the predictor variables can explain about 57.9 % of the change/variations in Wealth creation of the unbanked.

Table 2: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.761 ^a	.579	.544	.73262	.579	16.490	10	120	.000	1.698

a. Predictors: (Constant), SN, TC, SE, MNO, PC, PR, TRUST, PU, ATA, PEOU

b. Dependent Variable: WEALTH

Further, Table 3, ANOVA, shows that the model can predict wealth creation of the unbanked using predictor variables. The significance is .000, so we can reject the null hypothesis that “The model has no predictive value.”

Table 3: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88.509	10	8.851	16.490	.000 ^b
	Residual	64.408	120	.537		
	Total	152.916	130			

a. Dependent Variable: WEALTH

b. Predictors: (Constant), SN, TC, SE, MNO, PC, PR, TRUST, PU, ATA, PEOU

Finally, the most important table is the coefficients shown in Table 4. The significance level s of PU, TC, ATA are all <0.05 which indicates that we can reject the null hypotheses that PU, TC, ATA do not predict WEALTH. The model is given by Wealth Creation (WEALTH) = 1.139+ 0.274*PU -0.134*TC +0.231*ATA+ error.

Table 4: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.139	1.317		.864	.389
	PU	.274	.063	.416	4.347	.000
	TRUST	.116	.134	.060	.865	.389
	MNO	.159	.109	.094	1.458	.147
	PR	-.159	.096	-.124	-1.663	.099
	TC	-.134	.064	-.135	-2.110	.037
	PC	-.167	.134	-.094	-1.248	.214
	ATA	.231	.088	.280	2.617	.010
	PEOU	.075	.099	.096	.759	.449
	SE	.080	.060	.084	1.324	.188
	SN	.059	.106	.049	.554	.581

a. Dependent Variable: WEALTH

7. Discussion

The widespread ownership of mobile phones by the unbanked consumers in Kenya and other parts of the world imply that providing a full range of mobile financial services for savings, deposits, payments, and personal financial management tools may be a method to enable their access and inclusion in the mainstream financial system. The results of this study indicate that the unbanked can be characterized as having lower levels of income; being younger, female, not married, and unemployed; and not willing to take risks. This finding agrees with that of [22]. The data in this study shows that the greatest reason why the unbanked do not have a bank account with a deposit taking institution is the fact that

they do not have enough money. This finding agrees with several other studies, including [22] who posited that the most frequently reported reason for an individual not having an account with a deposit-taking institution is that they have little to no month-to-month financial savings to deposit in an account.

This study has shown that the unbanked believe that mobile money has helped them increase their wealth by 10% in one year. This finding agrees with existing empirical evidence on the effect of cell phone coverage and services, suggesting the cell phone can potentially serve as an instrument for economic development in Africa [1]. Unfortunately this evidence, while certainly encouraging, remains limited in the literature and hence the contribution of this study is valuable. Moreover most of the existing evidence is based on economic studies that have focused on the effects of mobile phones for particular countries and markets. These studies have been criticised because they have not given enough evidence showing that mobile phones gains in the national economy translated into macroeconomic gains, and more so to the individual user. The current research has focused on the effect of mobile payments on the wealth creation of an individual.

8. Conclusions

Mobile money usage in sub-Saharan Africa has grown significantly over the five years. Empirical evidence shows that mobile money has the potential to increase the wealth of its users as well as increase their savings, particularly for the unbanked. As the prices of both handsets and airtime continue to fall, the mobile phone and mobile money will complete their transformation from an elite status symbol to a necessity for all individuals, including the unbanked. The challenge is now to ensure complementary access of the unbanked not only to finances and to public goods, but also the development of appropriate policies to evaluate and propagate the benefits of mobile money throughout Kenya, and more so to the unbanked.

This study has established that, for the unbanked, buying airtime is the most used mobile payment transaction. Moreover, mobile money ecosystem increases the wealth of the unbanked by more than 10% annually. Thus, Mobile money ecosystem plays a major role in uplifting standards of living of the unbanked through wealth creation. Further research, may investigate the specific factors and their contribution to wealth creation. The study will have benefits to policy makers, mobile network operators, microfinance institutions, banks and development partners as well as the government of Kenya.

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