

Mobile Technology and Poverty Reduction In Zambia: A SWOT Analysis

Edna Kabala¹ & Venkatesh Seshamani²

¹Lecturer in economics, Copperbelt University, Kitwe, Zambia

²Professor of economics, University of Zambia, Lusaka, Zambia

Abstract: *Pervasive income and non-income poverty is the foremost issue of developmental concern in Zambia. Poverty is particularly pronounced in the rural areas, in the provinces off the line of rail, among farmers, female-headed households and households headed by those with little or no education. One of the major causes of income poverty in Zambia is financial exclusion of the poor. Mobile money technology has proved to be successful in enhancing financial inclusion and thereby reducing poverty in countries such as Kenya. A SWOT analysis shows that Zambia can replicate the mobile money model of Kenya and achieve poverty reduction.*

Keywords: *Mobile money, Income poverty, Financial inclusion and exclusion, M-PESA, SWOT analysis*

I. Introduction

The pervasive nature of poverty has been a fundamental issue of development across developed and developing countries (Duraiappah, 2000; Bradshaw, 2006; Republic of Rwanda, 2013; United Nations 2013). Poverty cuts across many dimensions of development. Many analysts agree that poverty should not just be considered as lack of income. It is a phenomenon that goes beyond income deprivation. It indicates the extent to which individuals survive without resources that include, among others, financial, emotional, mental, spiritual, and physical resources (World Bank 2001; Lacour and Tissington, 2011). While this paper recognizes the various prevailing dimensions and perspectives with regard to poverty, its focus nevertheless is on income poverty and deprivation of access to financial resources as one of the principal causes of income poverty.

Mobile phone technology is gaining recognition as a potential tool for reducing poverty by improving access to financial resources for the poor. Mobile phones are mainly used for communication, knowledge transfer and other uses that depend on internet availability. But mobile phones can also assist households when faced with unpredictable shocks which can drive them to poverty. The probability of families failing to contain or lower the adverse impact of unpredictable shock is reduced by responses that follow timely communication that mobile phones provide. The mobile phone can be further effective in poverty reduction during vulnerable shock experiences by driving down costs associated with the shock. The reason is that families can financially manage and cope with these shocks by incurring lower travel costs, more efficient action as well as improved access to information. Immediate outcomes of income savings and cost mitigation are found particularly during vulnerable situations like death or illness in the family. Typically before mobile phones, families in most African countries incurred high cost on travel and time in contacting family members about a funeral or sickness (Diga, Dev and Comm, 2008). Mobile phones can also enhance the savings of poor families by reducing costs associated with money transfers from relatives and friends. Security of recovering the full amount sent in money transferred is more assured using applications such as mobile money transfers as opposed to interpersonal arrangements. Thus, mobile phones could also provide a framework for financially including the poor. In this paper, we discuss the introduction of modern phone based technology that can be harnessed for poverty reduction using the Zambian context. Zambia recorded phenomenal uptake rates at about 90 percent in basic mobile phone usage (International Bank for Reconstruction and Development/ World Bank, 2014).

The rest of this paper is divided as follows. Section 2 provides an income poverty profile of Zambia. Section 3 discusses financial exclusion as a principal cause of poverty while section 4 explains how mobile phones can be used as tool of financial inclusion. In section 5, we describe the current situation of mobile technology in Zambia while in section 6, we do a SWOT analysis of the scope for mobile technology to reduce poverty in Zambia. The last section offers conclusions.

1. A brief profile of income poverty in Zambia

Poverty is the most fundamental developmental concern in Zambia. A large majority of the country's population continues to live in poverty despite the country registering high and sustained economic growth. Particularly, in the last decade, Zambia witnessed an economic resurgence, registering a high average growth rate of over 7% per annum (AfDB, OECD, UNDP, 2015). This impressive rate of growth that the country witnessed can be attributed to growth in investments in the mining sector with spill over effects into

construction, transport, communications, wholesale and retail. Favourable copper prices, underpinned by demand from China, and increasing trade with neighbouring countries also contributed to the high rate of growth. But the high growth has not commensurately trickled down to the poor to positively impact on their living conditions. Consequently, the country’s overall income poverty rate, as per the most recent published statistics, stands at about 60.5% (CSO, 2012). This is despite the government’s attempts to reduce poverty through the provision of various social protection programmes by the Ministry of Community Development and Social Welfare in conjunction with external donors, NGOs, and the communities. Thus, the country has not experienced any significant change in the poverty situation even with support from cooperating partners. The poverty situation in Zambia is not homogenous. Poverty takes on different levels of severity and depth at various country and geographical levels.

Table 1: Overall, Moderate and Extreme poverty in Zambia

	Zambia			Rural			Urban		
	Overall	Moderate	Extreme	Total	Moderate	Extreme	Total	Moderate	Extreme
2006	62.8	20.1	42.7	80.3	21.8	58.5	29.9	16.7	13
2010	60.5	18.2	42.3	77.9	20.2	57.7	27.5	14.4	13.1

Source: Authors’ construction based on LCMS data

Table 1 shows that between 2006 and 2010, Zambia recorded a decline in overall and moderate poverty. The rural areas also experienced notable decline in both overall and moderate poverty. Overall and moderate poverty equally declined in urban areas. The data further shows that extreme poverty levels only showed a very marginal decline in rural and urban areas and Zambia at large.

In 2010, overall poverty remained high at 60.5%. The poverty situation is more serious in rural areas. This is exhibited by predominantly higher levels of both extreme and moderate poverty in rural areas as compared to urban areas. Generally, the highly pronounced rates of poverty in rural areas provide an indication of poverty being relatively deep and severe in these areas.

The differences in the severity of poverty between rural and urban areas can be possibly attributed to the nature of economic activities in the two areas. Rural areas predominantly engage in economic activities that are dependent on agriculture with limited value addition for farm produce. Most of these economic activities are at subsistence levels with minimal incomes generated that unsustainably offer reliable food and income security. On the other hand, urban areas have been linked with wage employment with segments of the population being employed in the civil service. This offers security in terms of incomes and potential to offer sustained access to food and shelter for citizens in urban areas.

Major socioeconomic groups in income poverty

Some socioeconomic groups face higher levels of income poverty than others. Table 2 presents statistics on poverty of major social economic groups in Zambia as well as rural and urban areas.

Table 2: Income poverty by employment status and rural / urban location, 2010

Employment Status	Overall Poverty			Extreme Poverty		
	Total	Rural	Urban	Total	Rural	Urban
Wage Earners	25.3	46.1	15.2	12.6	27.9	5.1
Self employed	42	65.2	30.6	23.5	41.1	14.8
Farmers	82.4	84	56.4	62.1	63.8	33.6
Unpaid workers	67.4	80.3	59.2	45	64.4	32.5
Unemployed	54.5	83.9	46.3	30.5	61.2	22
Inactive population	43.2	79.6	26.9	28.6	59.2	14.9

Source: Authors’ construction based on LCMS data

Farmers remain the poorest with overall and extreme poverty levels at over 80% and 60 % respectively. Unpaid workers are also very poor in overall and extreme terms of poverty. This is in comparison with actors from the self-employed group, for example. Generally, wage earners are not as poor as all other social economic groups. This could be attributed to the fact that wage earners have regular incomes that enable them to access their basic monetary and non-monetary needs. However, it can be seen that for all social economic groups both overall and extreme poverty are more prominent in rural areas than urban areas. This may suggest more inequality across the different social economic groups in rural and urban areas.

Location of income-poor people in Zambia

Poverty is also not uniformly distributed across the country, with the poor living in all parts of the country. While poverty highly dominates the rural areas compared to urban areas, it also displays disparities

across provinces. Poverty levels are more concentrated in the provinces outside the country’s main line of rail than in the provinces along the line of rail. Table 3 indicates the location of the poor by province.

Table 3: The incidence of income poverty in provinces of Zambia

Location	2006			2010		
	Overall	Extreme	Moderate	Overall	Extreme	Moderate
Central	70.7	48.8	21.9	60.9	36.7	24.2
Copperbelt	37.3	19.5	17.8	34.3	18.3	16
Eastern	78.5	56.4	22.1	77.9	58.7	19.2
Luapula	73.9	53.6	20.3	80.5	64.9	15.6
Lusaka	24.7	10.3	14.4	24.4	11.5	12.9
Northern	78.5	57.5	21	75	55.8	19.2
North Western	70.7	44.6	26.1	67	46.1	20.9
Southern	73	50.9	22	67.9	47.3	20.6
Western	83.3	64.6	18.7	80.4	64	16.4

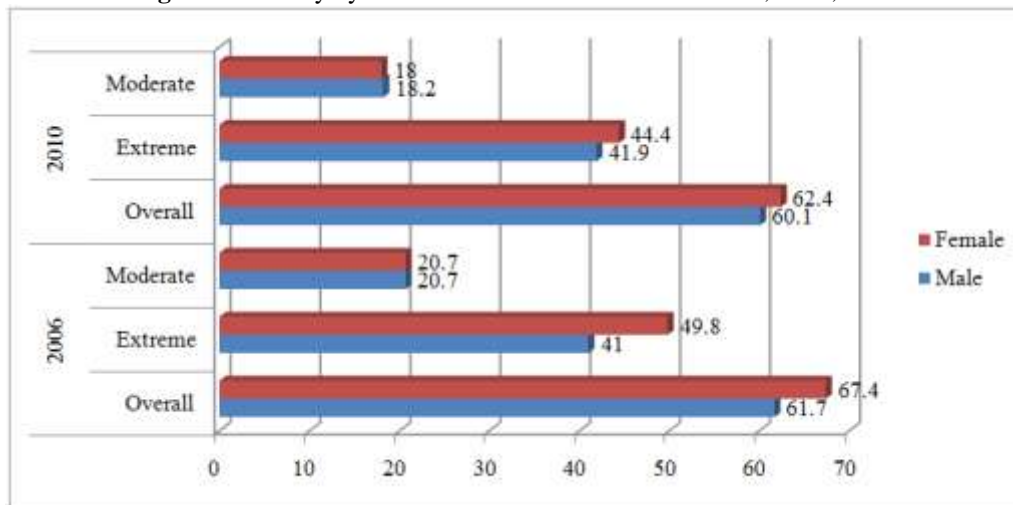
Source: Authors’ construction based on LCMS data

Overall, between 2006 and 2010, Western province had the highest percentage of Zambia’s poor at over 80%. This is followed by Eastern and Northern provinces with approximately 79 % of poor inhabitants. While other provinces also had over 70% of poor people, Copperbelt and Lusaka provinces had relatively fewer people living in poverty. Further, the statistics indicate that, except for Lusaka province, a larger percentage of the poor people live in extreme than in moderate poverty conditions in all provinces.

Gender, education and income poverty

Poverty levels also vary depending on the gender and education level of household heads. Figure 1 and Table 5 show that female headed households are in fact poorer than male headed households. This is the case for both urban and rural areas.

Figure 1: Poverty by Gender of household head in Zambia, 2006, 2010



Source: Authors’ construction based on LCMS data

Furthermore, it can be seen from Table 5 that female headed households experience more of extreme than of moderate poverty. This is the same for rural and urban areas.

Table 5: Poverty by household head, rural and urban locations

Year	Gender	Rural			Urban		
		Overall	Extreme	Moderate	Overall	Extreme	Moderate
2006	Male	79.4	56.4	23	28	11.8	16.3
	Female	84.5	67.4	17.1	36.3	17.9	18.4
2010	Male	77.5	57.1	20.4	26.7	12.5	14.4
	Female	79.8	60.4	19.4	30.6	15.3	15.3

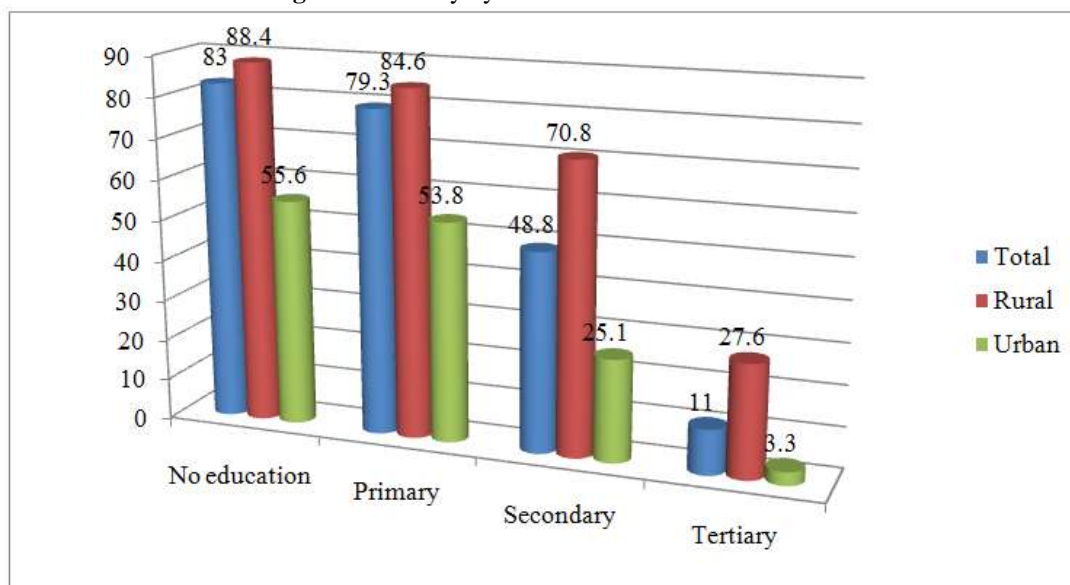
Source: Authors’ construction based on LCMS data

Education plays a key role in poverty reduction. This is because unequal access to education or lack of education negatively excludes people from a reasonable share in the wealth of their society. Inadequate access to

education has the potential to perpetuate illiteracy levels. In turn, illiteracy levels act as a barrier to social and economic participation. This negatively affects one’s potential to accumulate income and wealth that are essential for poverty reduction.

Figure 2 shows that households that are headed by people with no education are the most poor while those with tertiary education are the least poor.

Figure 2: Poverty by Education Level and location



Source: Authors’ construction based on LCMS data

Figure 2 confirms that the poorest of Zambia’s population are those without any education. Further, as one advances in one’s education level, the incidence of poverty also declines. For instance, the population with tertiary education has the lowest percentage of the poor.

II. Financial Exclusion As A Principal Cause Of Poverty

In broad terms, financial exclusion has been referred to as developments that prevent poor and disadvantaged social groups from gaining access to mainstream financial system (Chant and Link, 2004). Specifically, financial exclusion reflects particular circumstances such as geographic exclusion; exclusion due to prohibitively high charges; exclusion from marketing segmentation; or even exclusion based on self-beliefs (Kempson, 2006). However, because nature and drivers of financial exclusion vary across different factors in different countries, it is important that its definition be situated within the specific financial development context of a country.

In Zambia’s context, for example, financial exclusion is manifested in a situation where the majority of individuals, households, firms as well as communities do not have considerable access to mainstream formal financial institutions and services. The financially excluded population face core exclusion because they lack the opportunity to benefit from the positive aspects of formal financial services. Financial services are important because, among other things, they strengthen people’s capacity to manage their finance and evade extreme financial stress. Financial exclusion signifies the constraints that people face in order to access mainstream financial services such as banking accounts and insurance schemes. Financial exclusion can lead to exclusion from savings or pension schemes as well as debt and/or disconnection from essential utilities (Goodwin et. al., 1999).

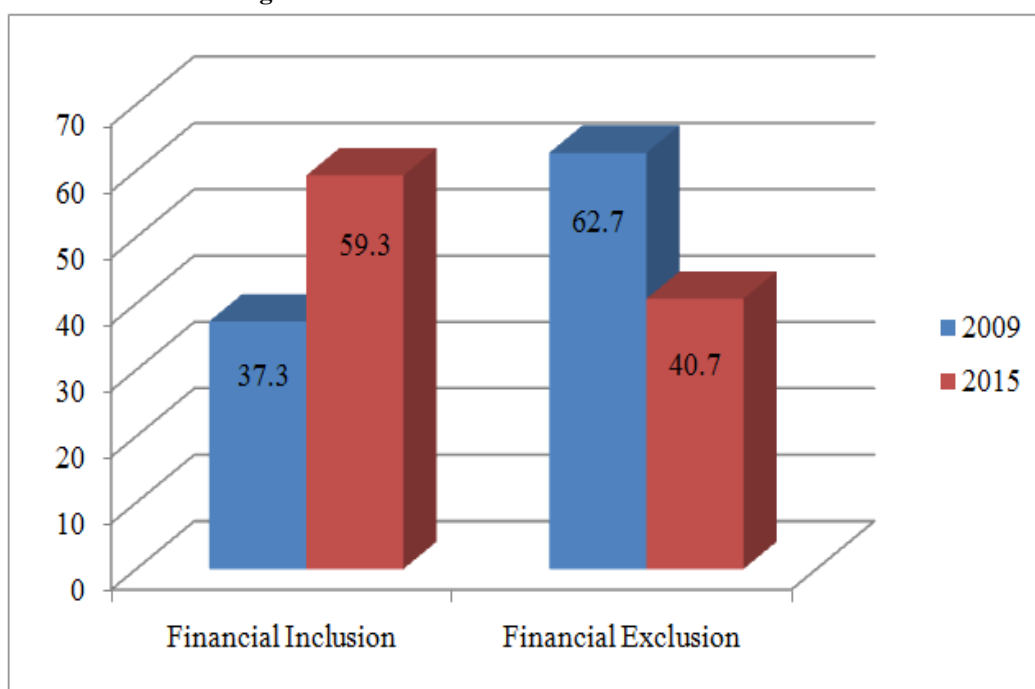
Income poverty by nature is associated with financial hardships such as access to money. Demand for money is always inevitable and occurs at unpredictable times for different individuals. For example, people in Zambia demand money for payments towards shelter and utility bills, school fees, and funerals, among other social and economic needs. Easy access to financial services empowers people with the opportunity to transition from poverty and vulnerability. According to the Bank of Zambia, Finscope 2015 study, high levels of financial exclusion largely diminish economic prospects. This can happen through channels that depend heavily on access to financial services such as adoption of new agricultural technology and business ventures. Unfortunately, a large segment of people fail to rise above the poverty challenge due to financial setbacks linked to inability to access financial services. The majority of such people lack effective tools for saving, sending and borrowing money to mitigate financial shocks that subject them to poverty. In addition, there is also a

widespread recognition that financial exclusion forms part of a much wider social exclusion, experienced by some groups who lack access to quality essential services such as jobs, housing, education or health care (European Commission, 2008). Aron (2015) noted that the poor are especially vulnerable to risk from illness, unemployment, death of family members, or natural disasters. Thus, enhancing financial inclusion of the unbanked urban and rural poor can diversify risk. Donovan (n.d) also recognises financial exclusion as a barrier to a world that is free from poverty. In this context, financial exclusion does not necessarily indicate that the poor lack active financial lives. Financial exclusion has led to the development of sophisticated informal financial instruments among poor people. The unfortunate result is that poor people experience limitations in saving, debt repayment and risk management. If financial inclusion signifies reduced risk of vulnerability, then financial exclusion signifies an exacerbated level of vulnerability and poverty. Therefore, financial exclusion is a cause of poverty and overlaps in other dimensions of poverty, other than income.

Financial Exclusion in Zambia

The Zambian population has experienced financial exclusion as much as it has experienced different forms of poverty. According to the Bank of Zambia’s 2015 Finscope study, despite the country improving financial access and general inclusion, high levels of financial exclusion exist in Zambia. Figure 3 clearly shows that Zambia has made significant progress with financial inclusion. Financial inclusion increased by about 25.4% between 2009 and 2015. On the other hand, financial exclusion dropped by 18.6% between 2009 and 2015. While exclusion dropped to 40.7% in 2015, the percentage of those excluded is still significant and a cause for concern.

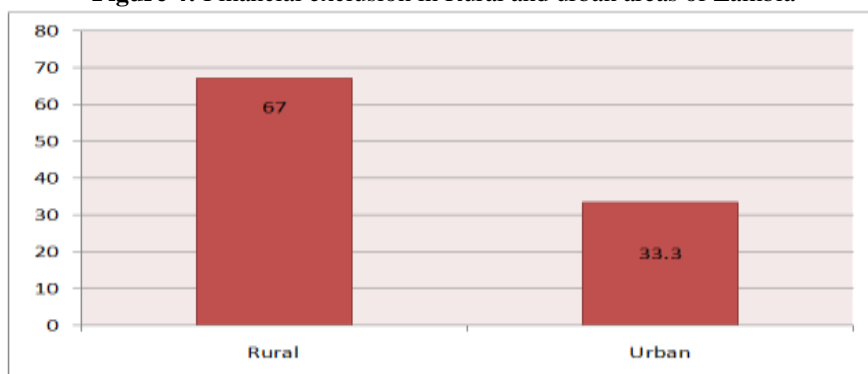
Figure 3: Financial inclusion and exclusion in Zambia



Source: Authors’ construction based on LCMS data

A major characteristic of financial exclusion is that it is more pronounced in rural areas where the majority of the Zambian people live. In addition, the majority of poor people live in rural areas where poverty levels are predominantly higher. Figure 4 illustrates that out of the total financially excluded population in Zambia, 67% are from rural areas and 33.3% from urban areas. A significant cause of high levels of financial exclusion in rural areas is that providing formal financial services is very costly. In particular, providing financial services in rural areas to poorer populations increases the cost predominantly more than providing the same services in urban areas where people have higher incomes. In addition serving poorer communities generally leads to lower revenue for financial service providers. This is because poor households normally have limited investment opportunities and conduct transactions in small amounts. The result of this is that banks and Micro Finance Institutions lack the incentives, information, and sometimes the ability to mitigate perceived risks of operating beyond urban markets and serving poor rural communities. Consequently, financial exclusion becomes inevitably higher in rural areas than urban areas.

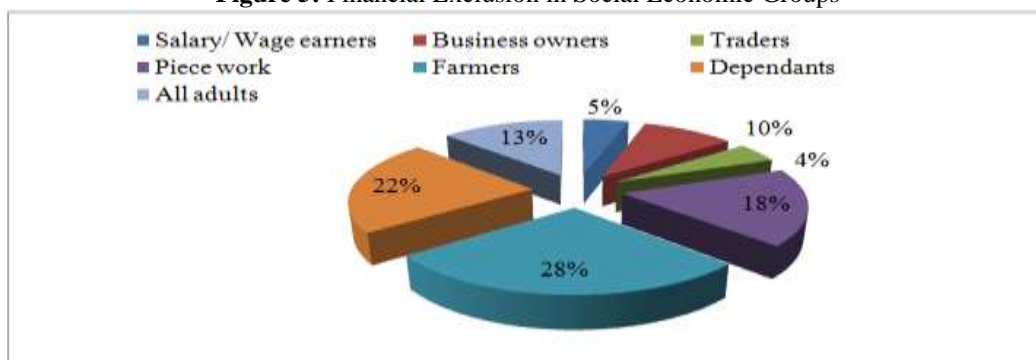
Figure 4: Financial exclusion in Rural and urban areas of Zambia



Source: Authors' construction based on LCMS data

Financial exclusion also cuts across various social economic groups. However, levels of exclusion vary widely across different social economic groups. Figure 5 shows that farmers are faced with the highest levels of financial exclusion at about 28%. A direct implication of this result is that most farmers live in rural areas where poverty is more pronounced. This is followed by dependants especially at household level. Household dependants rarely have means to access financial products due to limitations in income and a wide array of services such as insurance and banking services. While other groups like business owners and piece workers are financially excluded, the least exclusion is faced by traders. This is not surprising because traders usually handle large sums of money. As a result, they may demand access and use of formal financial services to hedge against financial risk and insecurity.

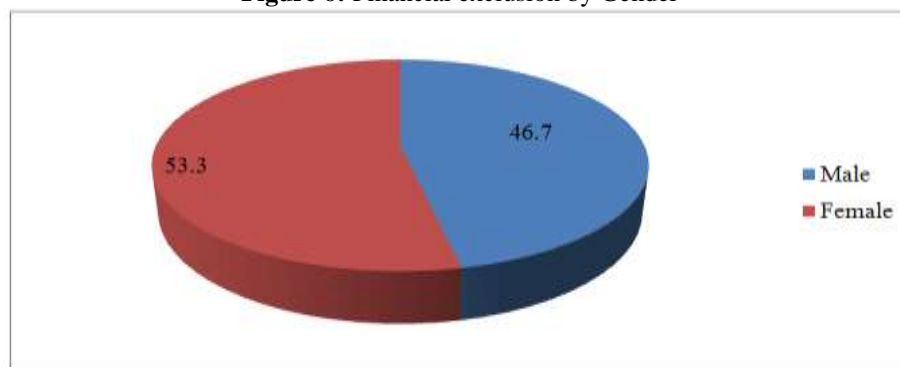
Figure 5: Financial Exclusion in Social Economic Groups



Source: Authors' construction based on LCMS data

Financial exclusion like poverty affects the population depending on gender characteristics. According to the Finscope study, in 2015, females experienced more financial exclusion than males. Figure 6 recognises that about 53% of females were excluded compared to about 47 percent of males. This may correspond to the findings of CSO (2012) that female headed households are predominantly poorer than male headed households.

Figure 6: Financial exclusion by Gender



Source: Authors' construction based on LCMS data

III. Mobile Technology As A Tool Of Financial Inclusion

Technology has brought about previously unimagined changes in people's lifestyles. In particular, mobile phone technology has changed important attributes of communication and payment systems. Mobile phones have evolved as electronic devices and are generally regarded as appropriate delivery channels for financial services. Mobile phone users have shown a tendency to out-number bank account holders in many countries. As a result, the governments of these countries consider mobile technology as one of the most promising tools for expanding access to finance. Mobile technology also promises success in achieving financial inclusion. This is because of the wide penetration of mobile phones and good mobile network coverage, even in rural areas (African Development Bank, 2013).

Mobile money services not only have the practical potential for financial inclusion, but also the potential to transform developing countries. Generally, mobile money, through its adoption in commerce, health, agriculture and other important economic sectors provides the opportunity for economic transformation. Mobile money gives the under-served populations convenient access to secure means to transfer money and make payments at a lower cost, and also provides for safe and private storage of funds. Further, registered users of mobile money have a pathway to formal sector financial services that are accessed just with a mobile phone. These include interest-bearing savings accounts that can protect assets; credit extension to invest in livelihoods; and insurance products to reduce risk (Aron, 2015). Success stories of mobile money, such as M-PESA in Kenya and those in Nigeria, provide credible lessons that can be drawn from the opportunities and challenges imbedded in mobile money.

M-PESA, Kenya

The successful development of mobile money services builds a case on how mobile phone access can revolutionize the financial and banking services in developing countries. The accelerated uptake of affordable mobile technology usage in these countries has paved the way for companies to innovate a number of mobile money and electronic remittance services. M-PESA from Safaricom's innovation in Kenya is an interesting case of the success of mobile phone technology and its positive effect of financial inclusion (Buku and Meredeth, 2016).

Kenya maintains a dual system in which there is continued connection between urban migrants and their rural homes and villages. This is despite urban migrants spending a significant amount of time living or working in urban centres. The dual connection is prominent to allow for easy transition to an urban type of livelihood (Aduda and Kalunda (2012). A notable result of these strong urban –rural ties is the emergence of strong financial linkages between the rural and urban migrants. The linkage between rural and urban migrants as well as the financial dependency of rural settlers on urban settlers created the demand for affordable remittance services.

According to Aduda and Kalunda (2012), the financial system in Kenya has grown rapidly in the last decade. Although Kenya's financial system is the largest in East Africa, it has failed to provide adequate access to banking services to the majority of the population. Further, credit is skewed in favour of large private and public enterprises in urban areas. This is evidenced by distribution of bank branches at 93% in urban and rural areas and 7% in arid and semi-arid areas (Beck et.al, 2010). This demonstrates that financial exclusion is more in the poorer section of the society. Inevitably, the poor who are found in rural and arid and semi-arid areas face the inability to access adequate financial services

Prior to the launch of M-PESA, Kenyans had a number of options for local remittance services. These options for remittance of funds included "commercial banks, post offices, Forex bureaus, bus companies as well as friends and family. However, these options were not all open to the majority of Kenyans in rural areas. Sometimes, the options were very slow, unreliable, and insecure. Generally, the services were considered ineffective" (Aduda and Kalunda, 2012).

The launch of M-PESA from Kenya's largest mobile network operator, Safaricom, in March 2007 received positive response from users in Kenya. According to the IFC (2011), M-PESA ("M" for mobile and "Pesa" for money in Kiswahili) is essentially an electronic payment and value storing system that is accessible through all types of mobile phones. This includes very basic mobile phone models commonly found across rural Africa. In order to access the service, users must first register at an authorized M-PESA retail outlet and open an account linked to their phone number. It is accessed through an application on the SIM card in the mobile phone. Users deposit and withdraw cash from their accounts by exchanging cash for electronic value at a network of retail outlets referred to as agents.

The success of mobile money is realised when mobile money is able to extend affordable services that the poor who are financially excluded can access. In Kenya, M-PESA was routinely one-third to one-half as expensive as alternative systems. The lower costs directly translate into money the poor can keep. In addition, Kenya recorded an increase in the amount of money remitted when transferred using M-PESA compared with traditional forms of remittances (Donovan, n.d). The African Development Bank (2013) referring to Stephen

MwauraNduati (2012) noted that M-PESA has achieved tremendous growth since it was launched. M-PESA transferred US\$1.37 billion equivalent, with about 40.01 million transactions as well as per day transactions reaching US\$44.25million equivalent as of December, 2011. A strong attraction of M-PESA service lies in its low cost advantage (estimated at US\$0.38-0.44 equivalent per transaction). The introduction of M-PESA is said to have led to a 58% increase in the number of Kenyans who have bank accounts. Donovan (n.d.) points out that during 2011, M-PESA had grown and spread into 6 countries with about 20 million users who transferred \$500 million a month.

Notwithstanding, the excitement around the innovation and uptake of M-PESA lies in part because it has been widely seen as an easy and effective way to provide access to finance to millions of people in Kenya and neighbouring countries. The majority of the people who benefit from M-PESA services are the poor who were mostly excluded from formal financial services in Kenya. Providing them access to mobile financial services and extending financial services to the poor communities has signified some improved productivity in sectors where the poor are likely to participate. According to a survey by the Overseas Development Institute (2008), in Kenya, 44% of those surveyed had at some point used savings to undertake productivity-enhancing investment, and 24% had used a loan for productivity-enhancing reasons such as investment in education. In the case of M-PESA, the success of the service can be acknowledged by the service's ability to increase efficiency and lower the cost of transactions. M-PESA has also improved the security of transactions as opposed to interpersonal transactions. It has helped generate new employment opportunities for Kenyanstoo, some of whom operate as cash merchants or agents. M-PESA has also contributed to creating a platform on which other businesses can grow since the poor are able to receive money in remittances, invest and save part of it in their M-PESA accounts.

M-PESA has not only gained popular usage among the unbanked. Business populations with traditional banking accounts have adopted M-PESA as means to pay wages, bills, salaries and payment mechanism for services provided in the remote parts of Kenya. Generally, the Kenyans have over the years successfully overcome the challenges of illiteracy, documentation bureaucracy, minimum balance requirement, and limited traditional banking distribution channels using M-PESA. Overcoming these factors has been fundamental to the success of M-PESA. These were barriers that limited the ability of the majority to open the conventional banking account amidst widespread distrust in Kenyan banks (Kama and Adigun, 2013).

M-PESA had now allowed for an increasing array of financial activities to be conducted on basic mobile phones. Further, M-PESA has strived to encourage private sector-led projects to improve access to financial services. This presents a successful record of how innovative mobile services not only provide an immediate service to the poor but further act as a catalyst for development in the wider economy. According to the International Finance Corporation (IFC) Mobile Money Summary Report (2011:18), "M-PESA's remarkable success is based on three key drivers: the dominance of the Mobile Network Operator, Kenya's permissive regulatory environment, and customer demand for additional services."

Other success cases of mobile money

Mobile financial services that have created a positive impact on the Kenyan economy have also spread to some West African countries that have experienced financial exclusion. For instance, Nigeria has experienced financial exclusion for the last decade. Nigeria was identified as a cash –based economy and financial exclusion was manifested through the bulk of the money in the economy staying outside the banking system. The majority of the population lacked trust in formal banking services because of the crisis in the banking industry during the 1990s that eroded the confidence of the populace in the industry. The problem was worsened by the excessive spending of the political class which demanded increased levels of money outside the banking system. The country witnessed a ratio of currency outside the banking system of about 48 percent. This led to major concerns among various governments in the country. The concern was largely that financial exclusion was identified as a major economic challenge among various governments in the country. Governments working with various stakeholders were promoted to address the situation and design more financially inclusive policies in the country. The country worked on concerted efforts to design and implement economic reforms in terms of employment and income earning capacity as well as financial deepening. All these efforts were aimed at improving the standard of living for majority of Nigerians. By 2005, the ratio of currency outside the banking system reduced to about 38 due to stimulated use of financial services (Kama and Adigun, 2013).Paga was a mobile money facility introduced in 2011 in response to the financial exclusion challenge. The uptake of mobile money services on Paga is increasing. However, mobile money has not fully taken off in Nigeria. The country still promises potential for success of mobile money.Given a large population of about 170 million people,mobile penetration of around 80%, and low credit card penetration, the Nigerian market seems to be tailor-made for mobile money¹.

Similarly, countries like South Africa have recorded successes in their stretching financially inclusive services to their unbanked populations. Although they utilize different models from the popular one in Kenya, they have managed to record success in ensuring mainstream services trickle down to the poor. For example, the South African Banking association launched the "Mzansi"- a low cost bank account for financially excluded people. In addition, TERA Bank in South Africa uses wireless connections at grocery shops and provides debit cards to enable the underprivileged around mine areas to access banking services more conveniently (Kama and Adigun, 2013).

The challenges of mobile money

Despite a number of success stories, the mobile money industry faces a number of challenges. For example, mobile money in developing countries often targets customers who may be poor and dispersed in remote areas. Mobile money also extends to two distinct industries with different business models. Telecommunications and payments are transaction-based, with fees collected on transactions; conversely, banking is float-based, with money earned through holding deposits (Donovan, n.d). Therefore mobile money needs developing the required partnerships across the banking and telecommunications sectors that may prove difficult.

Further, mobile money services present a dual-sided market where new deployments must convince both the suppliers and consumers to sign up for the service in sufficient numbers (ibid). This is because large numbers create potential for business viability. This may be challenging because building suppliers or agents and providing suppliers with incentives for service provision may not be an easy task. Also, maintaining the necessary cash liquidity at mobile money service points can be a constant challenge. For example, in Zambia, Airtel and MTN agents face the constant challenge of maintaining float or liquidity which is inconveniencing for customers. This contradicts the fact that an efficient banking system should be able to have funds at the bearer's demand.

Another challenge is that mobile money is not the only instrument for extending access to finance to the poor. There are other competing channels such as cooperatives, savings and loans groups, and even ATMs (automated teller machines) with considerable popularity across developing countries. However, the extent to which the competing options are accessible and desirable is a huge factor in determining the success of mobile money. Given sophisticated financial or mobile industries, the commitment of leading firms to mobile money has potential to drive service uptake. Nonetheless, the existence of alternatives coupled with limited market size can limit economies of scale necessary for the success of mobile money (op.cit.).

Mobile money depends on the perceptions of end users to effectively succeed. According to Donovan (n.d), considerable distrust of the formal financial services may be present. Also, people may feel uneasy about parting with their cash. The operations of mobile money need to create a clear and trustworthy value proposition into social and cultural practices of users. Mobile money applications may pose a culture shock leading to less adoption. Thus, mobile money may fail to create the necessary positive effects for financial inclusion. The success of mobile money depends on winning and retaining customers in large numbers including those who are poor and may not be very familiar with new technology. This is based on the argument that commercial viability in the mobile money industry requires scale; and operations are usually faced with the trade-off between higher costs to recoup their investments and lower costs to reach the targeted scale and build a mass market.

Despite the above challenges, mobile money has grown in a variety of markets throughout the African continent. In these markets, success of mobile money highly depends on regulation, competition with other instruments of financial access, and user perceptions and skills.

IV. The Current Situation Of Mobile Technology In Zambia

Mobile money is a young industry that was introduced to the Zambian people through the launch of Celpay in 2002. Celpay was largely a defunct payment service provider. In 2009, Zoono launched its money transfer service on a smaller scale. This was followed by mobile network operators, Airtel and MTN launching their provision of mobile money services in 2011 and 2012 respectively (UNCDF, 2014²). However, Celpay faced operational challenges coupled with allegations of fraudulent transactions from the service provider's end. This caused the authorities in Zambia to deactivate the operational licence for Celpay. In 2013, Celpay ceased to operate at all levels of digital finance service in Zambia.

It is notable that despite an early introduction on the market, the promise of mobile financial services remains largely unrealized in Zambia. According to the Finscope 2015 study, only 14% of the adult population use mobile money services. Airtel and MTN are the only two mobile network operators currently providing mobile money services in Zambia.

Usage and benefits of mobile money in Zambia

Mobile money services provided by Airtel and MTN are similar because they both require a user to invest in a mobile phone in order to access the services. They also take advantage of the increased ownership of mobile phones among the Zambian people. There are competing uses of mobile money in Zambia. These uses are beyond what a mobile phone is expected to do for a user and thus adds to the revolution of service provision.

Figure 7: Uses of Mobile Money in Zambia



Source: Authors' construction based on Bank of Zambia, 2015

Figure 7 shows the major uses of mobile money in Zambia. It can be seen that most people use mobile money for sending money to people on their social network such as relatives and friends. People who use mobile money for sending money are the majority at about 57%. Recipients of money from senders also exhibit a high incidence of using mobile money at about 49%. Although a large percentage of people who use mobile money are either sending or receiving money, others find it useful for settlement of payments.

Mobile money has gained popular use in Zambia for several reasons. Mobile money, often referred to as electronic money, is a substitute for paper-based money. It is an option for interpersonal transactions and substantially reduces the transactions costs associated with cash and time involved in sending and receiving money. The transaction costs are inevitable because of substantial distances on the one hand, and poor and expensive transport links on the other. Sometimes, complete loss through theft of money in physical transit would be a cost that can be avoided by mobile money transfers. It is important to note that the loss of money and loss of time come with *opportunity cost*. The opportunity cost is realised through reduced funds that offer one an investment, spending or saving opportunity. Further, the opportunity cost can be experienced through reduced time that could have been spent in productive activities, such as agricultural production or innovation (Aron, 2015).

Airtel and MTN mobile money also offer users the opportunity to make payment for airtime and utility bills through respective mobile money accounts. The Finscope 2015 study estimated the use of mobile money for airtime purchase and bills settlements to stand at about 27% and 25% respectively. In fact, mobile payments have increasingly diversified. The diversified use of mobile payment extends to payments of rent by individuals, payments to suppliers by firms; and payments of salary and payments of cash-in from businesses such as public transport operations in Zambia. The positive result of such transactions using mobile money is that utility bill payments by individuals and payments of other goods and services by businesses can be rapidly and securely executed from afar.

Mobile money services under Airtel and MTN are also used as savings mechanisms by consumers. This is the first time that people in Zambia have the ability to save money using mobile money accounts. According to the findings of the Finscope 2015 study, savings as a use of mobile money attracts about 23% users. Although the provision to save is an important use of mobile money, it still remains the least popular (see Figure 7). This could be attributed to insecurity in the ability of mobile money to manage customer deposits and withdrawals. In addition, banks in Zambia have traditionally earned a better reputation to be professional and competent in managing customer savings. Banks also operate within premises that are guarded with proper security systems that limit the possibility of customer and bank robberies. This is likely to cause more people to trust and use more formal banking services than mobile money accounts. Another reason could be that customers are mostly from small and irregular income streams such as rural communities who depend on non-profit making ventures to accumulate savings. Therefore the share of users of mobile money for savings is likely to be limited too.

The savings facilities from the two network providers allow for deposits and withdrawals to be made by customers just like the case with formal banking services. Thus, mobile money promotes increased saving and influences the change in the nature of saving. For example, mobile money allows the customers to save as little as K5 (less than US\$1). This may be a case that encourages small savers and may not be noted for many

clients that bank with formal banks. Mobile money fits in with the motives for savings especially among the unbanked. The poor usually save for expenses associated with consumption, investment in agricultural activities, expenditure on education and funerals among others. The savings may not be realised in instances where they keep cash in homes and insecure places. With mobile money, the savings are encouraged to thrive no matter how little they are. This empowers the unbanked to also invest their savings into ventures that they prioritise.

Airtel and MTN Mobile money enable the unbanked to use mobile money services with reduced levels of asymmetric information and improved transparency. This is because all transactions, that is, withdrawals, deposits and payments are recorded in messages and network systems every time they are made by clients. The records of financial transactions create greater financial transparency and reduce asymmetric information. As a result, both the user and the service provider are empowered with information pertaining to activities on the mobile money account. It is important to note that records of transactions on mobile money accounts create a financial history which has been very unpopular for banked segments of the Zambian population.

The increase in adoption of mobile money services in Zambia can be attributed to a lot of factors, among them, increase in the number of people with mobile phones. However, a more important pulling factor toward the use of mobile money services is that the services require minimal or no sign-up details. This is unlike formal banks that require documents that indicate that the client or user is able to meet bank charges. Mobile money allows consumers to access and withdraw funds from a network of outlets by simply providing the vendor with a verification code. The secure code is then sent on request to the user’s mobile phone by the service provider. Once verified by the vendor, cash is instantly issued by an agent or vendor operating the service on behalf of the two mobile network operators.

V. SwotAnalysis

Mobile money is expected to transform the financial services landscape especially for the unbanked segments of the population. While mobile money has many conveniences that could change the financial services landscape, it is important to assess its potential as a tool for poverty reduction. In order to do so, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is devised. The SWOT analysis is developed from both the consumers’ and the mobile money service providers’ points of view. This analysis will create a basis for the scope of replication of success stories elsewhere.

Table 6: SWOT Matrix for Mobile Money Services in Zambia

Strengths	Weaknesses
Large customer base, many of them unbanked	Lack of advertising
Reputation, inbuilt infrastructure	Limited agent partnerships
	Consumers’ concerns about the security of mobile-based transactions
Opportunities	Threats
High penetration of mobile phone devices offer economies of scale for mobile money growth	Lack of information on existence and nature of regulation
Increasing levels of e-money usage	Cash-usage dominance and e-Money unfamiliarity
Increase in middle-class population	Competition from many substitute products like mobile banking services from formal banks
Mobile money growth presents significant revenue opportunities for the economy and all stakeholders	
Provides many benefits like reduced risk from theft or loss of money due to handling cash	
Infrastructure is readily set up by mobile network operators	
Customers are not likely to change mobile network systems and this provides and this is presents an opportunity for growth of mobile money	

Source: Authors’ own construction

Table 6 presents a SWOT matrix for the mobile money industry in Zambia. Although the mobile money industry is in its infancy in Zambia, it can be seen that the presence of a large customer base supports the industry internally. Many of the users and potential users of mobile money are largely the unbanked population in Zambia. They form a large percentage of the financially excluded that mobile money operators could benefit from. Further, the network on both MTN and Airtel already exhibits a great reputation in terms of coverage. For example, many remote areas have inbuilt infrastructure for network coverage on both MTN and Airtel. This provides for the mobile network operators to capture the unbanked in all areas. As a result, the availability of infrastructure coupled with an already existing customer base provides the strength for the mobile money industry.

The mobile money industry also exhibits weaknesses. Table 6 shows that generally, the regulation on mobile money is unknown among users and non-users in the industry. Agent partnerships are also not widespread to the extent that good and coordinated services are guaranteed to customers. This may

inconvenience customers and affect customer retention by mobile money operators in the industry. Mobile money outlets are located in unsecure locations with less security surveillance. In Zambia, many of the mobile money kiosks are set up on the streets and high density locations where petty crimes like pick-pocketing are likely to be dominant. This poses serious concerns related to security of the funds that customers deposit. There are many opportunities that the mobile money industry can take exploit form the external environment. As seen in table 6, the high usage and penetration of mobile phones provides a chance for more than optimal growth of the industry. With the middle class in Zambia increasing, the extension of money transfers and mobile money services is likely to be assured. There is also risk associated with handling cash. Interpersonal transfers are likely to lead to loss in part or full amount of cash involved. As a result, the availability of mobile money presents an opportunity for the growth of industry by providing more risk-averse options of money transfer and payments. Generally, mobile money has revenue potential for all stake holders if it is encouraged to grow. The economy can benefit from more money being injected in the investment of mobile money services by formal mobile money operators. Some of the people in the country could become mobile money agents and earn an income through lumped commissions.

Table 6 also shows that the mobile money industry is presented with several threats. The policy and regulatory environment for mobile network operators is neither prohibitive nor completely enabling. This is a threat because users and non-users of mobile money must be enlightened on regulations that border on financial services. The regulation remains relatively neutral on most key issues such as hours of operation for most mobile money outlets. It is also unclear who is liable for any loss in money from a mobile money outlet. Moreover, the Zambian economy has for a long time been cash-based. Cash usage tends to dominate e-money usage in most areas. Others may also trust mobile banking services that are operated by banks than mobile network operators. These factors may threaten the growth and survival of mobile money in Zambia.

Scope for replicating M-PESA’s success in Zambia

Kenya is perceived to be the most successful country in implementing and managing mobile money. The key drivers of M-PESA’s success have been identified to be related to M-PESA being operated by a dominant mobile network operator, service diversification and limited regulation on non-bank entities that want to run the M-PESA service. Countries which lack similar starting conditions tend to struggle to replicate the success of M-PESA (IFC, 2011). Despite other countries facing challenges in replicating M-PESA and record successes in mobile money service provision, Zambia’s case could be different. This is because, Zambia has similar conditions as Kenya that may provide promising results for replication of the Kenyan mobile money model. Zambia unlike Kenya has two mobile network operators, Airtel and MTN. According to UNCDF (2013), Airtel and MTN have struggled with building and maintaining active users as well as keeping agents interested and active. This is despite fairly heavy and steady investments in mobile money services across the two networks. The market is also fragmented, with the two MNOs operating closed-loop systems, limited integration between MNOs and banks, and few meaningful or effective partnerships for distribution.

In addition, the policy and regulatory environment for mobile money in Zambia remains quite neutral. This is the closest to Kenya’s model which has no regulation on entrants into the mobile money industry. Non-bank operators of mobile money perform bank services using mobile money without much regulation. This may be viewed as a negative factor for customers that are security conscious. However, it assures quick expansion of mobile money services since red tape barriers are eliminated.

Table 7 presents categories and parameters that could be a precondition for recording success after replicating the model used by M-PESA.

Table 7: Scope for replication

Category	Parameters	Kenya	Zambia
		MNO	MNO
Social Context	Population	high	high
	Poverty levels	high	high
	Geographical area	urban/rural	urban/rural
Regulation	Operating licence requirements	high	high
	Knowing your customers	high	high
	Monitoring of MNO by monetary authorities	high	low
Existing mobile market situation	Population penetration	high	high
	Geographical coverage	high	high
	level of competition across MNO services	high	high
User perception	Trust in mobile operators/mobile money versus trust in formal banks	high	low
Potential demand	person to person money transfers	high	high
Pricing	Cost of mobile money services in relation to bank services	low	low

Source: Authors’ construction based on Kama and Adigun, (2013).

Both Kenya and Zambia have high populations. This remains true despite Kenya having over twice the population of Zambia. Zambia's population has increased from a decade ago by over 5 million people. The middle class in Zambia has also expanded. The poverty levels in the two countries are also high. This presents a likelihood of many people being financially excluded. Both countries are geographically designated by urban/rural settlements. The rural areas also depend on remittances from urban settlers.

The regulation for both countries is not stringent for non-bank entities. The business operators for mobile money have basic requirement to have an operating licence as agents. They also have to know their customers and record their personal information. However, the two countries face a difference in the nature of regulation aimed at monitoring the operations of the mobile money services. In Kenya, the mobile network operators are highly monitored while there is less and close to non-existent monitoring in Zambia.

The existing mobile market situation is similar in Kenya and Zambia. Both countries have experienced high penetration of mobile money services across the population. The geographical coverage is also highly covered with M-PESA in Kenya and Airtel and MTN mobile money services widespread across the respective countries' rural and urban areas. There is also high levels of competition across the mobile network operators in both countries. As such, it is expected that the mobile network operators in the two countries strive to improve service quality of mobile money.

Customers have different perceptions of mobile money in the two countries. In Kenya, M-PESA is trusted and considered reliable for money transfer and mechanism for making payments for services. The M-PESA agents have developed reliable skills with handling transactions as efficiently and effectively as possible. On the other hand, in Zambia, customers do not trust mobile money services as much. The customers lack access to important information and knowledge on the reliability and security of mobile money services. Asymmetric information generally dominates ownership, regulation and operation of mobile money services. UNCapital Development Fund (2011) acknowledged that many people in Zambia perceive mobile money not to be very secure and reliable. The agents are often unable to perform transactions, mobile networks go down, and menus are often in English. Providers do recognize the need for better customer education, basic financial literacy and more awareness programmes for mobile money usage.

Despite the differences in customer perceptions of mobile money, Kenya and Zambia have similarities in potential demand and pricing of mobile money services. The mobile money services are largely dominated by interpersonal transfers. Mobile money has also evolved with services extending to payment for utility bills and other services. Mobile money also has a price advantage over formal banking services because the utility price is low in both countries.

The potential for the Kenyan mobile money model to be replicated with success in Zambia is high. The parameters and categories that have been presented in Table 7 indicate huge similarities between the Kenyan and Zambian models of mobile money. This exhibits the potential for Zambia to record success in growth of mobile money and reducing the numbers of the unbanked population. Zambia should mainly work on increasing incentives for agents as well as providing the much needed information to customers in order to build confidence levels in mobile money. This way, mobile money would be more useful and penetrate deeper not only across the unbanked, but also the banked segments of the population.

VI. Conclusion

This paper has discussed the nature of poverty as a fundamental issue of economic development in Zambia. The country's sustained good economic growth record has failed to translate significantly into poverty reduction outcomes. Poverty still stands high and widespread across social economic groups like small-scale farmers and female-headed households in rural and urban areas. The paper brings out financial exclusion as a major cause for the high poverty levels. In particular, the majority of the poor, mainly located in rural areas, experience poverty owing to a lack of access to mainstream financial services such as formal banks and money transfer systems. Exclusion from formal financial services limits the means through which the poor can improve their lives. Financial exclusion constraints the ability of the poor to enhance their savings, repay debts and manage financial risks optimally. Our paper identified mobile money as an instrument that rises to the financial exclusion challenge by allowing for delivery of cost-effective financial services. Through mobile money, the financially underserved populations are able to make savings, payments and transfer money with reduced risk associated with handling of cash. The paper highlighted the M-PESA model from Kenya as a case study that provides lessons for the success of mobile money. In particular, M-PESA produced remarkable results for reducing financial exclusion and provided employment and investment opportunities for the poor to escape poverty. The success of mobile money in the Kenyan model was attributed to dominant mobile networks, a less restrictive regulatory environment and diversified service provision using mobile money.

The paper examined the scope for replicating the M-PESA model in Zambia. In this case, it was explained that countries like Zambia had to have similar parameters for implementing mobile money. Our analysis showed that although Zambia and Kenya were slightly different in essential parameters, there was a huge

potential for replication of the successful model in Zambia. The potential in harnessing the success of mobile money in Zambia lies in the country's two mobile network operators in Zambia to provide meaningful results beyond money transfers and banking services. The two mobile network operators so far offer diversified services that are similar to those under M-PESA. We also presented a SWOT analysis of mobile money that presents a wider outlook on factors that can affect success of mobile money in Zambia. The SWOT analysis coupled with socioeconomic factors through which mobile money can thrive offer huge potential for mobile money to be pro-poor. The success of mobile money would lead to positive outcomes for financial inclusion, poverty reduction and economic development in Zambia.

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