

# CASHLESS OR CASHLITE? MOBILE MONEY USE AND CURRENCY REDENOMINATION IN ZAMBIA

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## ABSTRACT

The popularity and use of Mobile Money is increasing in Africa, indicating a trend towards cashlessness in the continent's developing economies. The Central Bank of Zambia redenominated the Kwacha (Zambian National Currency) in 2013. This decrease in the volume (but not value) of notes handled on a daily basis at both individual and institutional levels has eliminated the burdens associated with low value currencies. It was unclear whether a more convenient medium of exchange would impact the adoption of Mobile Money, which was introduced to Zambians around the same time. The current study examined the initial impact of the 2013 currency redenomination of the Zambian national currency the Kwacha on Mobile Money use.

Results showed that (i) the new currency was generally favored over the old currency; (ii) the new notes were perceived as easier to use; (iii) the new coins were perceived as burdensome to use and carry around; and (ii) a majority of Zambians did not use Mobile Money in the initial aftermath of the currency rebasement. The initial slow adoption of mobile money was influenced by (i) the limited "payment spaces" in which it could be used, (ii) lack of awareness, and (iii) unclear distinctions between online banking and mobile money for banked consumers. The majority of identified Mobile Money users in our study used it as a means to send remittances.

In the year and a half since the fieldwork was conducted, mobile money use has increased in Zambia, indicating that the accessibility of a more portable version of legal tender alone does not serve as a technology-adoption barrier.



## ACKNOWLEDGEMENTS

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## 1. INTRODUCTION

Wolman (2012) predicts “The End of Money” - the global demise of cash as the primary means of exchange and store of value. He envisions (due to numerous inherent functional limitations of cash and technological advances) that financial transactions using notes and coins will be completely replaced by electronic transactions all across the world. A few of Wolman’s reservations concerning cash (for instance, the conceptualization of paper bills as staphylococcus repositories due to frequent handling, and the negative environmental impacts of minting coins and printing notes) may not be immediately obvious to the average consumer. Nevertheless, it is easy to concur with the author that the use of paper notes and coins as money in today’s society is associated with several problems.

One of these problems, which occurs particularly in developing economies, is high inflation. High inflation rates impact the logistics of financial transactions. In particular, the lower the value of a country’s currency (relative to global exchange rates), the higher the volume of money required to complete financial transactions. This becomes particularly problematic in cash-based economies where it translates into the handling and transport of increasingly larger and larger volumes of cash. In essence, financial transactions become cash-heavy. For example, if the value of a hypothetical Currency X falls 20% against a strong currency such as the US dollar or Euro, then a product that previously cost 100 units of Currency X suddenly has a new cost of 125 units of Currency X. If payment was made in bills equivalent to 5 units of currency X, payments at the former price would involve the exchange of 20 bills, while financial transactions at the higher price will require the exchange of 25 bills. If the retailer makes 100 such transactions a day, the increase in the volume of notes handled adds up to an additional 500 bills a day, 2500 a week, and 10,000 a month. Thus, both buyers and sellers have to deal with larger volumes of cash. Central banks often address the higher volumes by strategically-timed introductions of larger denominations of the local currency. However, as was observed in the case of Zimbabwe where the central bank eventually issued a trillion Zimbabwean dollar note, providing a larger denomination is not always the solution. In particular, conducting financial transactions with low value



currencies are associated with lots of zeros which can be clumsy, lead to computing errors, and may not always be conducive to working with particular brands of accounting software. For the consumer, it may mean carrying large volumes of cash on one's person on a daily basis, both inconvenient and putting individuals with visible sums of money at risk for becoming victims of theft. Another approach is to devalue the national currency, which eliminates the problems with volume and accounting. This in essence is a transition to a lighter, more portable form of cash (the cash-lite approach). However, it may require a lot of adjustment effort from the users of the new currency, who have

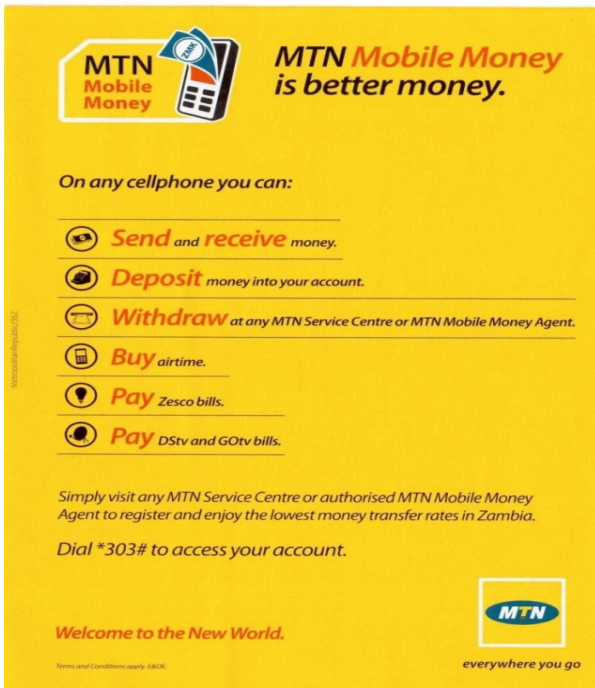
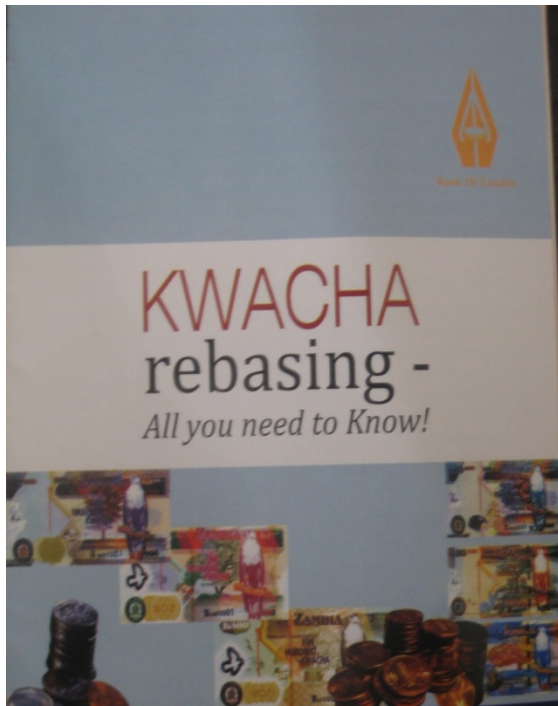


Figure 1: MTN ZAMBIA MM Pamphlet

no choice but to use the newly introduced currency after its predecessor is phased out. While inflation is a major driver of this problem, some countries may deliberately devalue their currencies in line with national economic restrictions (e.g. such as that mandated by the IMF in exchange for financial assistance). Consistent with Wolman's 2012 observation, technological advances are driving changes in the ways in which people all over the globe conduct financial transactions. While cash has not been eliminated altogether, there has been an explosion of cashless avenues for consumers to pay for goods and services across the globe. For example, the popularity and use of Mobile Money (mobile-phone based payment platforms) is increasing in Africa, indicating a trend towards cashlessness in the continent's developing economies. From a consumer perspective, the drivers that shape a decision to use such payment alternatives to cash include perceptions of convenience. In most cases, the move from cash to cashlessness is consumer-driven as opposed to mandated in the case of currency transitions at a national level. In other words, transitions to cashlessness are often optional while cashlite transitions (transitions to new forms of cash) are compulsory.



**Figure 2: Rebasing Educational Information**

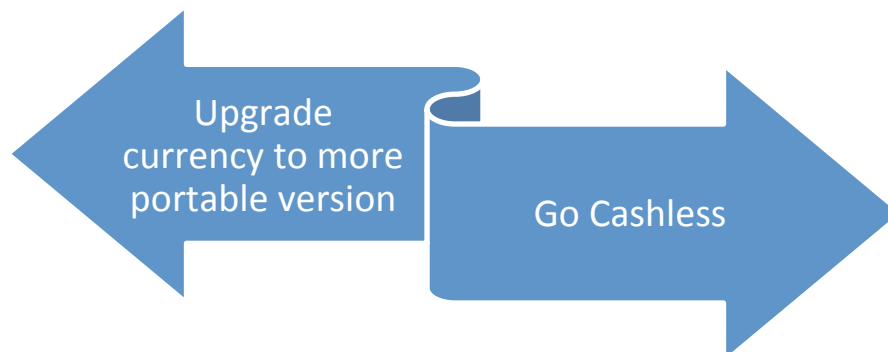
Source: <http://mwanabaafrika.blogspot.com/2012/10/rebasing-kwacha.html>

An interesting academic question is the following: what happens in a case when individuals find themselves in a setting where transitions to a new form of cash, and options for cashless transactions are introduced at the same time? Which will they use? What will inform their use? The current study explores these questions in Zambia where a new currency was introduced at the same time that Mobile Money was being aggressively marketed.



## 2. CASHLESS VERSUS CASHLITE (REBASING): THEORETICAL AND PRACTICAL CONSIDERATIONS

Although cash is still widely used worldwide, many problems are associated with this form of money. Such problems include: the anonymity of cash transactions and implications for money laundering (estimated at 3.6% of the global GDP; United Nations Office on Drugs and Crime [UNODC], 2011); the immense potential for financing terrorist activity (Financial Action Task Force [FATF], 2010; Levi & Reuter, 2006; Levitt, 2003; Vlcek, 2011); susceptibility of cash to counterfeiting, the annual costs of cash-handling (including armored cars, ATMS, safes, and counting machines, bill withdrawals and reissues) estimated at 1% of a country's GDP (Swartz, Hahn, & Layne-Farrar, 2004), and the relative inefficiency of cash transactions compared to electronic equivalents (especially for large ticket items; Wolman, 2012). Also, in developing economies an additional cash-related problem exists. High levels of inflation lead to the use of large volumes of low-value paper notes, resulting in even larger cash handling costs. Rather than do away with cash in these cases, some Central Banks address the problem by redenominating the currency - withdrawing the existing currency and replacing it with notes and coins of higher value. Ghana redenominated its currency in 2007 (Dzokoto & Mensah, 2010), and Zambia made a similar transition in 2013. Zambia's redenomination was referred to as "rebasement" (BOZ, 2012a). Due to the negative impact that high inflation levels have on the value of cash, a transition to a cash-lite global marketplace is sometimes warranted.



What do transitions to cashlessness and redenominations have in common? Both involve recognition that cash as a medium for financial transactions is flawed, and are means to “achieving” a better form of money. Redenomination tries to do away with the faulty cash by replacing it with a less voluminous alternative (of cash). In contrast, a transition to cashlessness focuses on doing away with cash altogether, replacing it with electronic (or mobile-based), numerical representations of the value of the notes and coins.

The discussed alternatives to a faulty currency have their limitations. A possible consequence of the introduction of a new monetary system is the Money Illusion Effect (Shaffir, Diamon & Tversky, 1997), a tendency to make biased judgments about the real value of transactions on the basis of their nominal values. After the introduction of the Euro for instance, Gamble, Gärling, Charlton, and Ranyard (2002) highlighted the existence of the Euroillusion; the assessment of prices as relatively lower when expressed in Euros than the former national currency. Also, unfortunately, currency redenominations do not eliminate future inflation. In the case of cashless payment options, searches for studies exploring individual experiences during transitions from cash to electronic payment forms in social science databases yielded no results. However, experimental comparisons of research participants randomly assigned to plastic versus cash payment forms associate plastic payment options with increased willingness to spend (Raghubir & Srivastava, 2008), and spending more on vice items such as junk food (Thomas, Desai, & Seenivasan, 2011). A similar trend was observed in a 6 month tracking study the shopping behavior of 1000 households (Thomas et al., 2011). Prelec and Lowenstein (1998) hypothesize that these differences in behavior are due to the difference between an immediate (in the case of cash) and delayed (in the case of plastic) psychological association between purchase and payment. The non-physicality of cashless monetary options such as mobile money can result in different monetary behaviors. While it is hoped that patronage of Mobile phone based services will increase savings in the poor, the possibility that the non-materiality of cashless payment forms may be a double-edged sword also needs to be considered.



Transitions to cashless payment forms and

currency redenominations differ in terms of controlling forces. On the one hand, redenominations are mandatory, and users of the affected monetary system typically have no alternative but to adopt the alternative currency according to the timetable issued by the Central Bank. While there may be resistance to a total adoption (see for example Dzokoto, Mensah, Twum-Asante, & Opare-

Henaku, 2010), people have to start using the new

currency according to the dictates of the Central Bank. The mandated schedule does not allow for individual differences in readiness for change. As a consequence, individuals who are unprepared for the change often end up paying for their lack of readiness. For example, in the early stages of the redenomination of the Ghanaian cedi, there were numerous anecdotal reports of traders and customers in the market losing money due to calculation errors in the conversion process (Dzokoto et al., 2010). On the other hand, transitions to cashlessness (e.g. introduction of Mobile Money, and plastic) have so far been associated with an element of choice, with people generally adopting the new payment system when they are ready to do so. Factors impacting willingness to use Mobile Money include perceived usefulness, perceived ease of use, and perceived trust (Tobbin & Kuwornu, 2011), and these factors can result in different uptake rates in different markets. The individually-driven nature of the adoption results in a hypothesized pattern of Innovators (2.5%), Early Adopters (13.5%), an Early Majority (34%), a Late Majority (34%), and Laggards (16%)(Rogers, 1995); a pattern mirroring a normal statistical distribution.

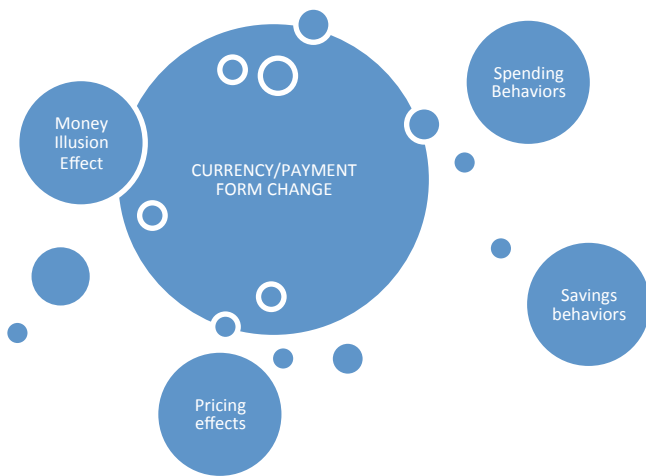


Figure 3: Observed sequelae of currency change



Figure 4: Map of Zambia

Source: [http://www.zambian.com/zambia/directory/travel-tourism/maps-locations/html/zambia-maps-pta\\_5.html](http://www.zambian.com/zambia/directory/travel-tourism/maps-locations/html/zambia-maps-pta_5.html)

So far, limited information exists on the potential synergy between cash-lite and cash-less transitions. Existing literature has so far explored these transitions independently of each other. When given the choice between cash-lite and cash-less options for financial transitions at the same time (redenominated currency and mobile money), which will people choose? Will people prefer to go cash-lite or go

cashless? Will people prefer the optional or the mandatory transition? Will the two occur independently, or will having to let go of a

currency that has been in use for several decades increase the likelihood that people will want to move away from cash altogether? Will socio-economic class have a differential impact on this? Exploration of these questions is the goal of the proposed study. A natural experiment in Zambia provided the perfect and unique opportunity to explore our research goals.





### 3. MONEY IN ZAMBIA

The following sections provide an overview of Zambia's currency rebasement process and a look at mobile money use in Zambia at the time of the currency rebasement.

#### ZAMBIA'S CURRENCY REBASING

The Bank of Zambia (BOZ) was empowered to regulate currency and issue currency in the form of notes and coins as the legal form of tender in Zambia by the BOZ Act No. 43 of 1996 Section 4 (2) [C] (BOZ, 2012a). The Government of the Republic of Zambia approved the BOZ's recommendation to rebase the national currency on January 23<sup>rd</sup>, 2012, which covered the replacement of all Zambian currency in circulation with the rebased currency. In order to rebase a currency, all currency is divided by a selected denominator. To create the new rebased currency in Zambia, all forms of national currency were divided by one thousand (1,000). Thus, three zeroes were removed from each denomination of the previous currency, and the second decimal value was rounded up when a third decimal is above 5 after the division by 1,000. For example, K49, 455 converts to K49.46 and K49,451 converts to K49.45 (BOZ, 2012a).

**Table 1: Rebasing the Kwacha: Differences between Old and New Currency**

(Source: BOZ 2012, Mbale 2013)

Old Currency	New Currency
Notes	
---	K100; new note
K50,000	K50; remains notes
K20,000	K20; remains notes
K10,000	K10; remains notes
K5,000	K5; remains notes
---	K2; new note
K1,000	K1; remains notes; new K1 coin
K500	.5; changes to coins (50ngwee)
K100	.1; changes to coins (10ngwee)
K50	.05; changes to coins (5ngwee)
K20	No conversion; removed from circulation
Coins	
K10	No conversion; removed from circulation
K5	No conversion; removed from circulation
K1	No conversion; removed from circulation
50 ngwee	No conversion; removed from circulation
25 ngwee	No conversion; removed from circulation

## Rationale for Rebasing

Countries rebase currencies when the current currency loses value due to an extended period of high inflation (BOZ, 2012a). Such value loss undermines the current currency as a means of financial exchange as well as the measure and store of value. The prolonged period of high inflation typically results in high denomination notes. Zambia's inflation was at its highest in 1993 with a rate of 188% during the 1990s and early 2000s. This high rate of inflation resulted in 1) difficulties in accounting through book-keeping, statistical records and data processing software, 2) higher risk and inconvenience for consumers due to carrying large amounts of cash, and 3) increased costs for systems of payment, especially technological banking systems. Zambia's inflation rate has been low for the last five years and closed at 7.2% in December, 2011, which, combined with macroeconomic conditions and optimistic economic outlook, created a favorable setting for rebasement (BOZ, 2012a).



Figure 5: Sample of new 5 kwacha note

## Benefits of Rebasing

Currency rebasement carries with it many benefits such as: 1) easier business transactions with smaller denominations of money, 2) minimization of financial data input errors, 3) increased efficiencies in calculations and record systems, 4) overall simplified book keeping, 5) increased confidence in the currency in both consumers and foreign investors, 6) decreased cost of customizing standard packages through limiting the extent of such packages, (BOZ, 2012a), 7) increased use of financial technologies such as pay phones and vending machines, 8) more durable coins, 9) increased protection against counterfeiting because of greater



security features present in the banknotes, 10) the BOZ can introduce higher value denominations of cash in the future (BOZ, 2012b) and 11) increased convenience and safety for the consumer (Thoughts of Critical abbybytes, 2012).

### Effects of Rebasing



Figure 6: Rebase, conversion app developed to help with rebase adjustment

The expected effects of rebasing Zambia's currency were thought to be positive. Rebasing would not affect the value of the currency; its purchasing power remained the same (BOZ, 2012a). There was neither a revaluation nor devaluation of the currency, and inflation and exchange rates remained the same. Therefore, an individual who purchased groceries worth K250, 000.00 pre-rebasement would be able to buy the same quantity and quality of groceries at Kwacha Rebased 250 (BOZ, 2012a).

### The Transition Period

In September 20<sup>th</sup> 2012, the BOZ released images of the new currency as the beginning of an awareness campaign so that citizens could familiarize themselves with the appearance of the new currency (Chanda, 2012). Citizens were informed that the new currency notes would look different, but would have the same names of the Kwacha and Ngwee (BOZ, 2012a). The BOZ set January 1<sup>st</sup> 2013 as the changeover date when the rebased currency would become legal tender, and July 1<sup>st</sup> 2013 as the deadline for using the previous currency legally (BOZ, 2012a; Mbale, 2013). Thus, there was a six-month period where both currencies were considered legal tender and both prices were displayed simultaneously for all products, in an attempt to ease the transition for citizens (BOZ, 2012a; Mbale, 2013). During the transition phase, goods and services were paid for using both

currencies, as long as the equivalences were observed (BOZ, 2012a). Citizens of Zambia were able to exchange the old currency for the new currency at designated locations and commercial banks until June 30<sup>th</sup> 2014, and at the BOZ until December 31<sup>st</sup> 2015, at no cost (BOZ, 2012a; Mukalenge, 2013).



Figure 7. Zambian Currency Rebasement Timeline

## MOBILE MONEY IN ZAMBIA

The 2013 redenomination of the Kwacha occurred in a marketplace in which mobile-based financial services already existed. At that time, MM money had had a 2-year run in Zambia, with MTN and Airtel as the major service providers. Airtel estimated that 58,000 customers (out of 14.5 million Zambians) used Mobile Money on a daily basis, while an MTN Zambia official described MTN MM customer uptake in Zambia as “phenomenal” (Vorster, 2012). Primarily used for internal money transfers in Zambia, MM seemed to be slowly becoming a substitute both for paper-based money transactions such as payment for goods, as well as for electricity and water bill payments, and DSTV (Multichoice Zambia) subscriptions (Cutcher, 2013).



Figure 8: Airtel Money Promotional Material

Despite MM's success to date in Zambia, some concerns exist with regard to consumer rights and protection. Because consumer rights have not been at the forefront of the design of this service, it has not been made clear who, among the statutory regulatory bodies, is responsible for keeping service providers in check. Would the 2013 redenomination of the Kwacha- which increased the portability of cash, and was expected to increase confidence in the national currency- therefore have an impact on MM use? Would spending and saving habits change in response to the rebasement? How would Zambians of different socioeconomic classes adjust to the new currency? The current study sought to answer these questions.

## 4. METHOD

### Institutional Review

Ethical approval to conduct the study was obtained from the institutional homes of the research collaborators: Virginia Commonwealth University and the University of Zambia. In order to protect the research participants, there was no documentation of informed consent and no collection of identifiers.

### Research Goals

Redenomination and mobile money adoption have occurred and been researched independently of each other. The case of Zambia provides the unique opportunity of studying the interplays of 2 changes: a drive towards cashlessness (through mobile money), versus a mandatory move to a more portable form of cash (cash-lite transition). The main goals of the study were:

- (1) To understand the Zambian experience of the transition to the New Kwacha
- (2) To understand the perceived impact of the currency transition to Mobile Money uptake. Data collection was conducted in Lusaka.

Information for the study was gleaned using both qualitative and quantitative approaches.

### Questionnaire

Quantitative approaches are useful for getting information from relative large samples in a short amount of time. The goal of the first quantitative portion of the study was to get a sense of the initial adjustment to the new Kwacha. The questions used to achieve this goal were adapted from previous work on a currency redenomination in Ghana which noted variations in understandings of drivers behind the redenomination exercise, and ease of use of new notes and coins, as well as dislike of coins. The questionnaire thus included items about knowledge about reasons for the introduction of new notes and coins, and attitudes towards the change (e.g. perception of utility versus hassle). Understanding this transitional experience fully also required an understanding of the typical ways in which individuals stored, spent, handled and transacted with their money on a daily basis before and after the currency rebasement exercise. The rest of the questionnaire, informed by



work in Ghana on barriers to Mobile Money uptake, tapped into respondents' knowledge, perceptions and use of Mobile Money (see Appendix).

## Interviews

Interviews were conducted with a subset of respondents. The interview was comprised of 6 sections. Part I explored interviewee experiences with Rebasement & Coping Strategies and included questions such as: Do you remember when the Rebasement happened? How did your money habits (e.g. spending, daily purchases) change after the Rebasement? Part II specifically explored their use of coins with questions such as Do you use coins? How useful are coins to you? How (or where) do you store your coins? The third part of the interview explored awareness and use of mobile money with questions such as: Have you heard about Mobile Money? Do you know which companies provide Mobile Money services? What can MM be used for? Do you currently use MM? Part IV of the interview explored the perceived connection between cash and cashless payment forms using questions such as "What, if any, will be the impact of the Rebased Kwacha on the use of Electronic financial systems (e.g. Mobile Money, Xappit, Internet Banking)? (For example, do you think the rebasement will increase, decrease, or have no effect on the use of Mobile Money? Or Since the New Kwacha notes will be more portable, do you think there will be less incentive to use Mobile Money?). Part V explored respondents' engagement in the formal and informal financial sector with questions about bank account ownership and chilumba (ROSCA) participation. Finally, the interview concluded with basic demographic information such as age, gender, and occupation, which was used as a proxy for socioeconomic status.

## 5. RESULTS

### 5.1. SAMPLE OVERVIEW

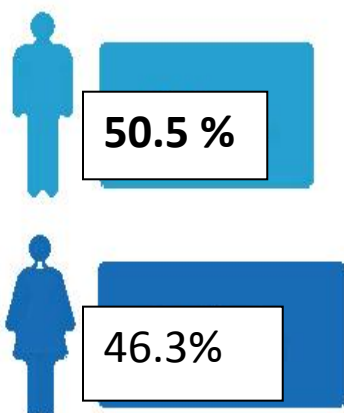


Figure 9: Sample, Gender Distribution

687 participants, with a targeted distribution of 50% middle to high income individuals and 50% low-income individuals were recruited from Lusaka, the capital of Zambia. Respondents completed a questionnaire on their preferences of different forms of money, experiences of the rebasement, and their use of MM. 50.5% of the sample was male, majority were between the ages of 25 and 35 (48.9%), and almost half had obtained a Tertiary educational level (49.2%), making the sample's average level of education higher than the national average. Our highly literate sample may be reflective of urban life in Lusaka.

	2008-2012	
	Male	Female
Literacy rate	50.1%	49.9%
Primary School Participation	81.8%	98.4%
Secondary School Participation	38.2%	35.6%
2015/16		
Mobile Phone Use	75%	
Internet Use	18%	

Table 2 : Zambia, Demographic Indicators

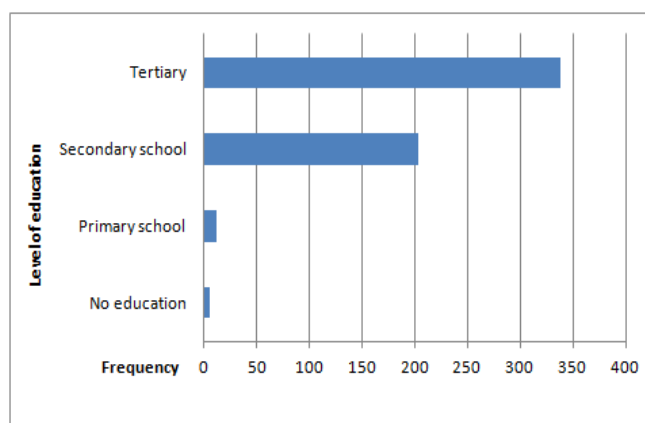


Figure 10. Sample, Educational level

Occupation was used as a proxy for income. Examples of low income occupations used in recruitment included short-distance bus drivers, and small-scale food sellers. High income jobs were primarily professionals in the public and private sectors. Occupations were clustered according to the International Standard Classification of Occupations (International Labour Office, 2012).



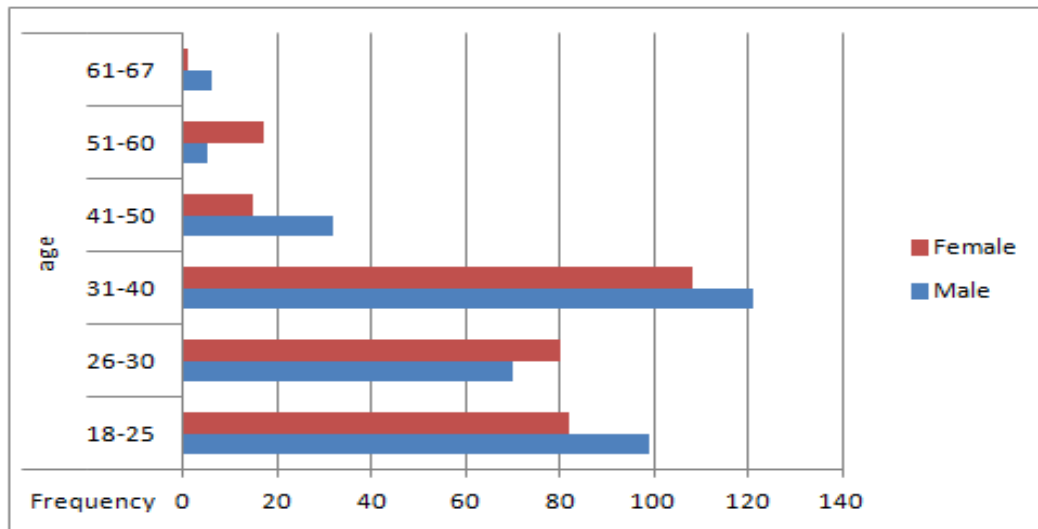


Figure 11: Sample, Age Distribution

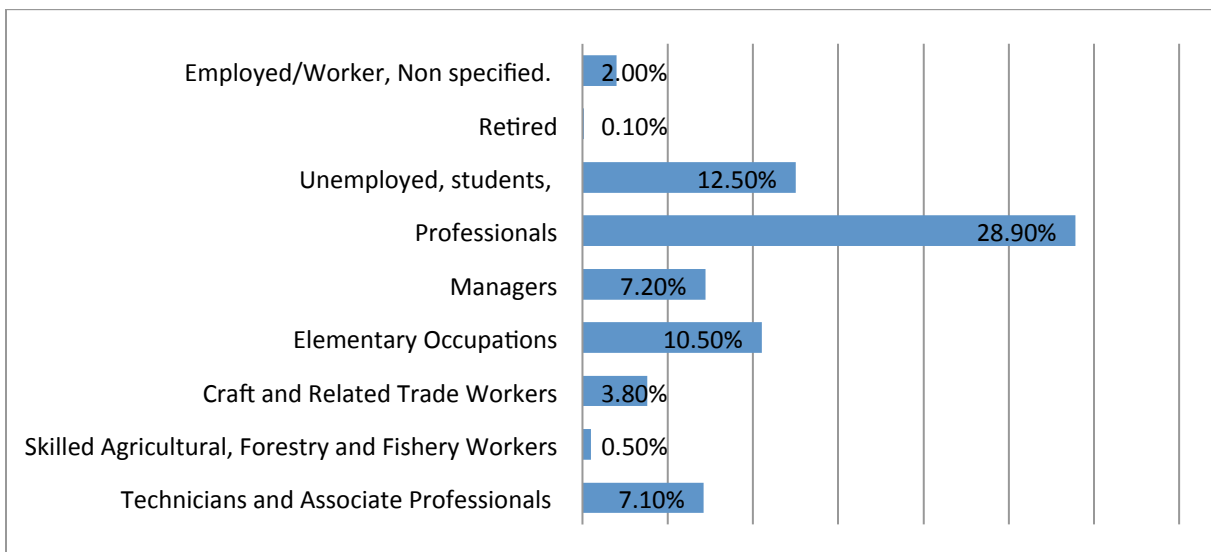


Figure 12: Sample, Occupation Overview

A large proportion of our sample owned a bank account (80.7%), and 71.9% owned a savings account. Given that at the time of the study, 60% of Zambians were assumed to be unbanked, this high level of banked participants observed may be a function of study location (urban setting). In contrast, 44.1% had registered for MM and 39.1% reported MM use (at least one time).

**Table 3: Occupation Categorization**

<b>Occupation Cluster</b>	<b>Examples</b>
Technicians and Associate Professionals	Administrative Assistant, Assistant Accountant
Skilled Agricultural, Forestry and Fishery Workers	Farmer, Garden Boy
Trade and Craft Workers	Bus Conductor, Brick Layer
Elementary Occupations	Hair Dresser, Security Guard, Waiter
Managers	Sales manager, government officer,
Professionals	Accountant, teacher, engineer
Unemployed, students,	Unemployed, house wife, student (non-income generating respondents
Retired	Retired
Employed/Worker, Non specified.	Employed, self-employed

### **Interviews**

A subset of 34 participants was recruited to participate in interviews, which served to provide more in-depth information than the questionnaires about adjustment to the rebasement, as well as preferences and usage of different forms of money. The interviews were conducted between five and seven months following the rebasement. The interviews were conducted in English, Nyanja and Bemba, depending on the participant's preference and language capabilities.

### **Data Analysis**

Quantitative data was analyzed using SPSS. Qualitative data was translated into English by the authors and transcribed. A thematic analysis was conducted on transcribed interviews.

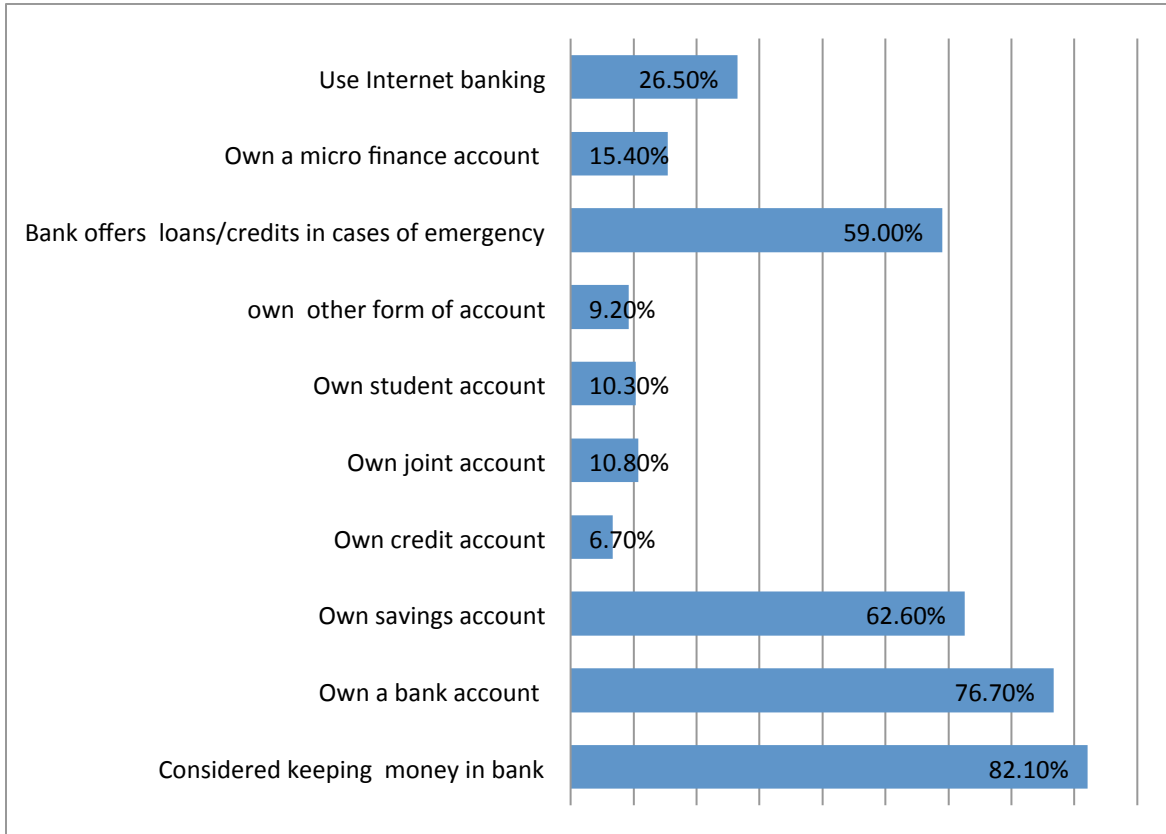


Figure 13: Sample; Level of Financial Inclusion



Figure 14 Airtel representatives interacting with visitors at social event in Lusaka.

## 5.2. KNOWLEDGE ASSESSMENT

Successful transitions to new forms of money at individual and group levels are contingent upon a level of understanding of the new payment method in terms of form and function. As such, it was important to assess what research participants knew about the new currency, whether they felt competent in its use for daily activities, and identify areas in their daily routines in which the rebasement had brought about minor and major changes .



Why was there a rebasement? 43.4% of respondents believed that the reason for rebasement was to reduce the bulkiness of the legal tender, about a third of participants (31.8%) thought that the rebasement was a policy the central bank had always wanted to implement, and 18.6% of respondents believed the rebasement was to make numbers involved in financial transactions smaller. There was some variation in participant recollection of exactly when the rebasement occurred, with 57.8% accurately remembering the timeframe within which the new currency was introduced to the nation.

Figure 15: Kwacha Rebasement Poster



### 5.3. USING THE NEW KWACHA

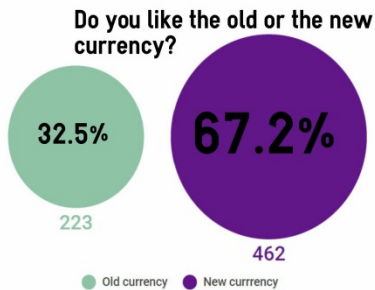
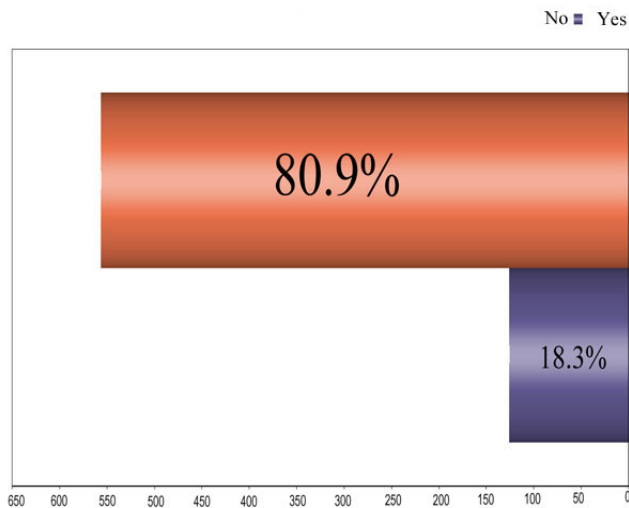


Figure 16 Post-rebasement Kwacha preference

What was the experience of learning how to use the new currency like? About half of the sample reported having an overall positive experience with the transition to the new currency, while 7.9% and 43.2% labelled their experiences with the rebasement as “bad” and “average” respectively. 67.2% of respondents preferred the new currency to its predecessor.

72% of respondents considered themselves to have fully adjusted to the new currency, while 5.3% reported that they had not adjusted to the rebasement at all. 22.7% of the sample considered themselves to be “still adjusting”. The most popular means of getting used to the new currency was via continued use, cited by 89.7% of respondents. 81.5% of respondents reported feeling comfortable conducting financial transactions in the new currency.

Are You Comfortable with the New Currency?



Do You Think That Other People Are Comfortable with the New Currency?

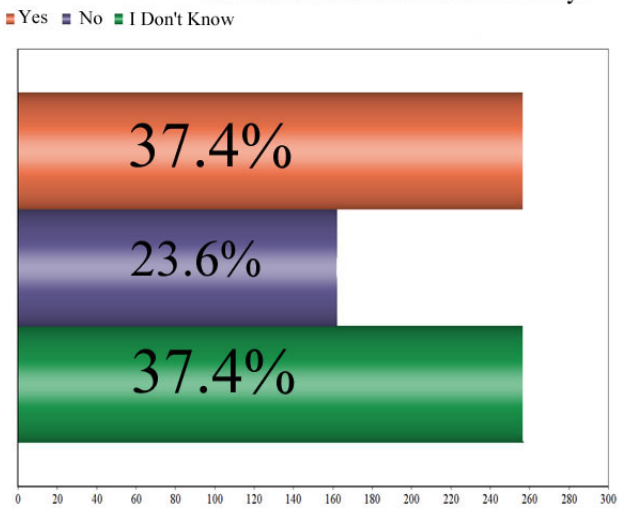


Figure 17 Assessing ease of use of new Kwacha

Previous research in the Eurozone (Hobijn, Ravenna, & Tambalotti (2006) and Ghana (Dzokoto, Mensah, Twum-Asante & Opare-Henaku (2010) indicate that in the aftermath of a rebasement, changes in pricing and consumer purchasing behavior can occur due to the change in the currency scale, and rounding practices. The Zambian experience was investigated in this study. Some respondents believed that the new currency had

impacted their daily purchases (30.5%) and the conduction of business (45.4%), for instance in terms of transaction amounts. Respondents diverged on their perception of the impact of the rebasement of the Kwacha on the prices of fuel, goods, and services. On the one hand, 45.5% of the sample perceived the rebasement as having resulted in price increases. On the other hand, 53.5% of the sample perceived the rebasement to have had no impact on prices. Because there had been an official (as in government-driven) increase in the price of fuel (due to the removal of a pre-existing fuel subsidy) around the time of the rebasement, and because fuel price increases often trigger increases in the prices of goods and services due to increased transportation costs, participants were specifically asked whether they thought that the rebasement had resulted in some price increases independent of the fuel price increase.



Figure 18: Post Rebasement Experiences (Affirmative Response Rates)





## 5.4. COINS: USING NGWEES

Previous research exploring currency rebasement in developing economies indicates that the re-introduction of coins as a means of payment for goods and services in a setting where notes had been the sole form of cash due to inflation can be met with quite a bit of consumer resistance. How did Lusakans feel about Ngwees? How were coins incorporated into everyday money behaviors such as storing, saving, and spending?



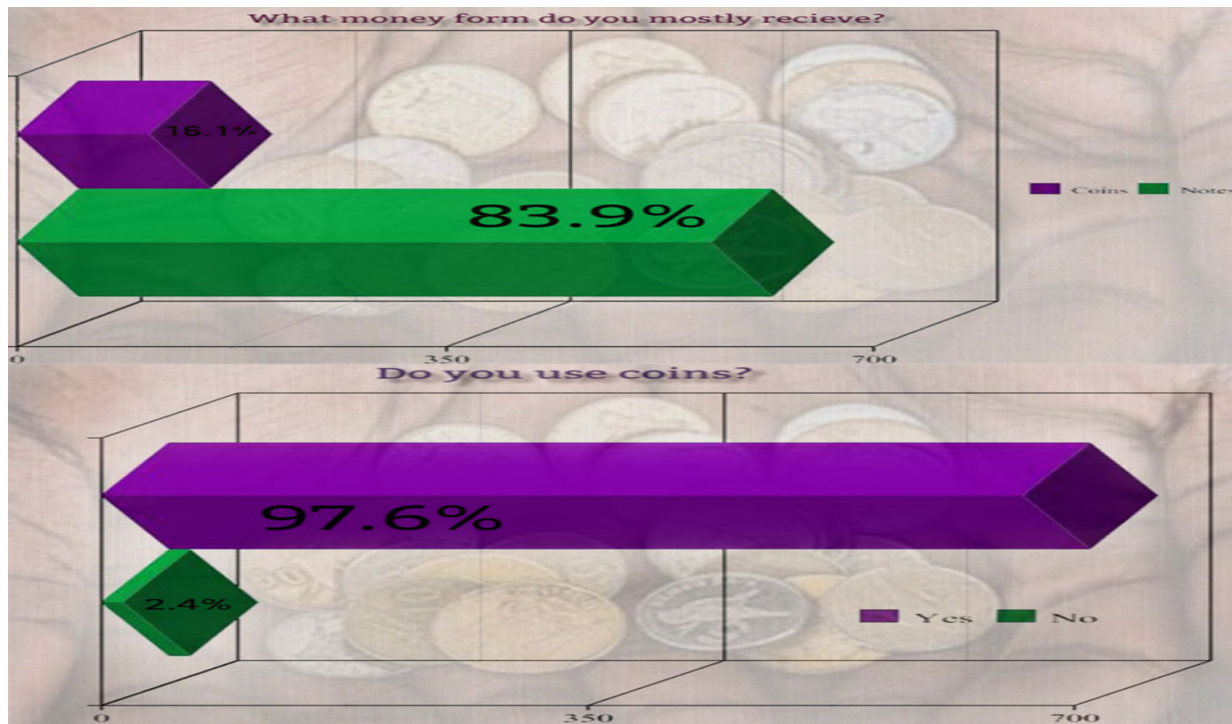
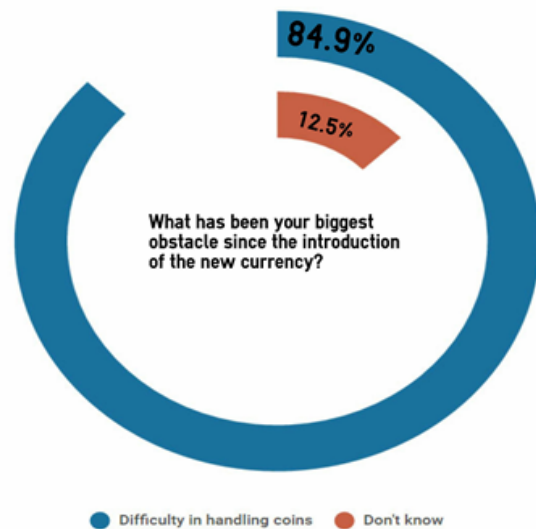
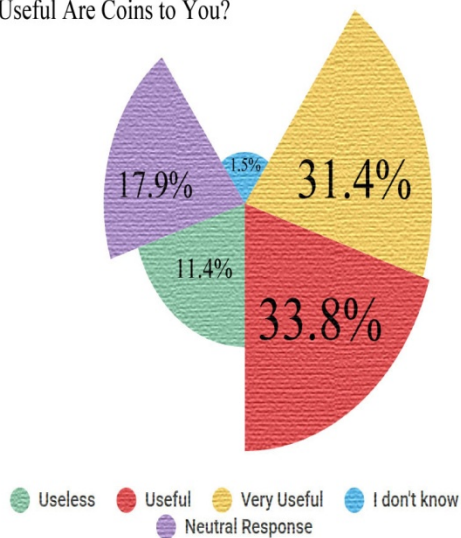


Figure 19: Post Rebasement Cash and Coin Use

As illustrated in the table above, Zambia's rebasement resulted in ngwee coins becoming a part of daily life. While notes were clearly the most dominant form of legal tender exchanged in payment for goods and services, 97.6% of respondents reported using coins. However, not all participants thought that coins were useful.

How Useful Are Coins to You?

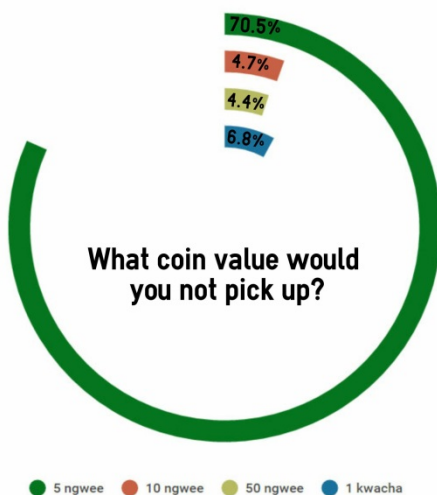
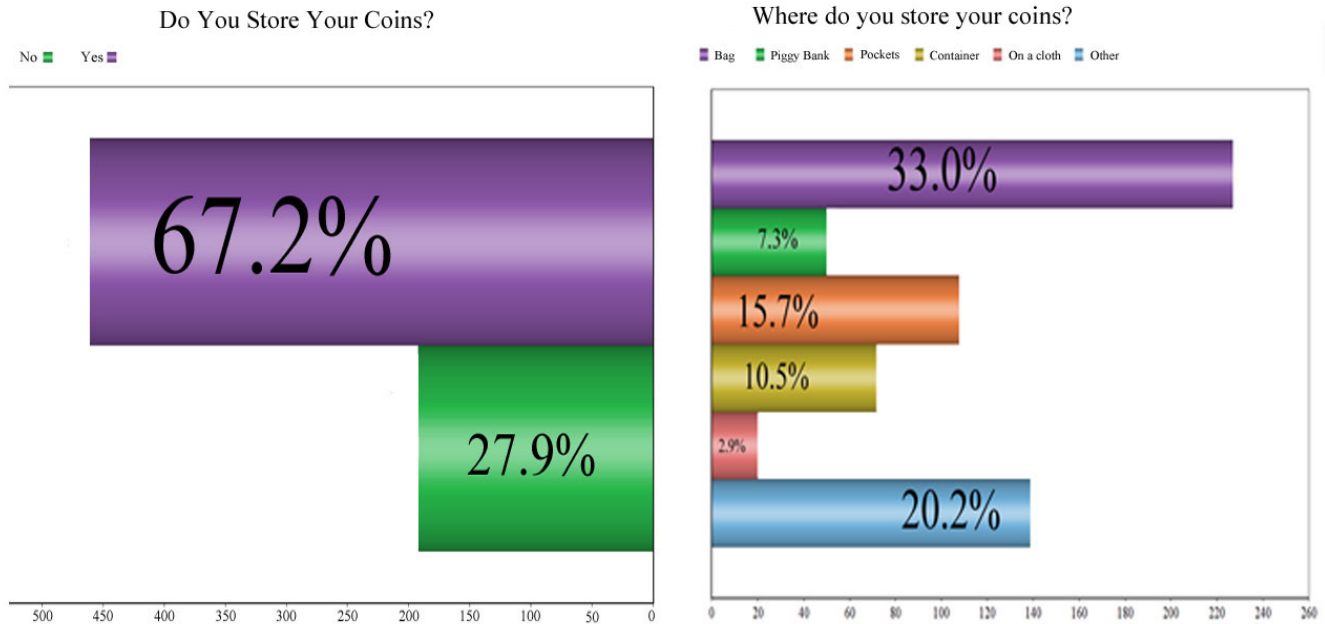


How were coins used? 10.9% of respondents reported giving their coins away, a third of the sample (34.1%) made the coins a part of their regular spending money, and 12.2% of respondents reported using coins to





purchase “small” items such as cigarettes and sweets. The majority of the rest of the sample used coins as a tool for general (7.1%), targeted (14.6%), emergency (18.1%) savings. Coins were stored in a variety of locations.



Due to previous research indicating that attitudes and behaviors towards coins may be a function of the monetary value of the coin, respondents were asked 2 questions related to what they thought they would do if they came across a discarded coin. While a majority of our respondents indicated that they would be inclined to pick up money in coin form if they came across it lying on the floor, 70.5% of the potential coin pickers would not pick up a 5 ngwee coin, compared to 4.7%, 4.4% and 6.8% 10 ngwee, 50 ngwee and 1 Kwacha coins respectively.

Table 4: Post-Rebasement Coin Experiences: Affirmative Response Rates

Post-Rebasement Experience	Affirmative Response Frequency	Affirmative Response Rate
Do you use coins?	664	96.70%
Do you mostly receive notes?	568	82.70%
Do you find coins useful?	232	33.80%
Are coins useful to others?	144	21.00%
Do you generally store your coins?	462	67.20%
Do you store your coins in a bag?	227	33.00%
Do you store your coins in a piggy bank?	50	7.30%
Do you store your coins in pockets?	108	15.70%
Do you store your coins in a container?	72	10.50%
Do you store your coins on a cloth?	20	2.90%



## 5.5. GOOD, BAD AND AVERAGE EXPERIENCES WITH REBASEMENT: A CLOSER LOOK

Additional analysis was conducted to further understand the experiences of respondents who reported good, bad, and average adjustments to the use of the New Kwacha and associated coins. Almost 70% of all our respondents reported no observed differences in daily financial transactions. Of these, participants who reported a good experience with the rebasement were in the majority (38.6%). However, an equal percentage of participants reporting either an average or bad experience with the rebasement (28.1% and 28.1% respectively) also did not think that the rebasement had affected daily purchases. This is indicative of an experience in the perception of daily transaction values post-rebasement in these groups similar to individuals who reported they had a more positive adjustment to the process. Analysis by adjustment category indicated that 80% of those reporting a good adjustment to the new currency reported no change in daily financial transaction values, compared to 45% and 64 % of bad and average adjusters respectively.

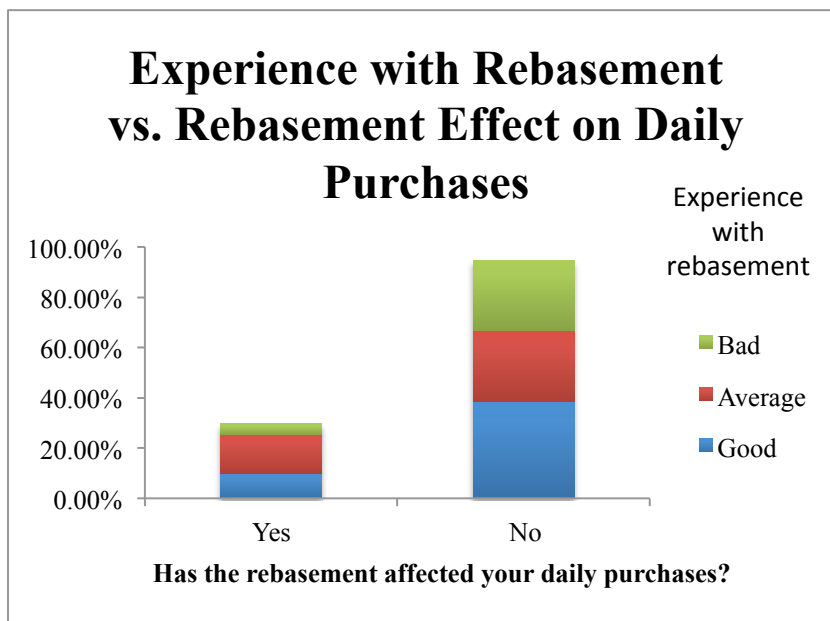


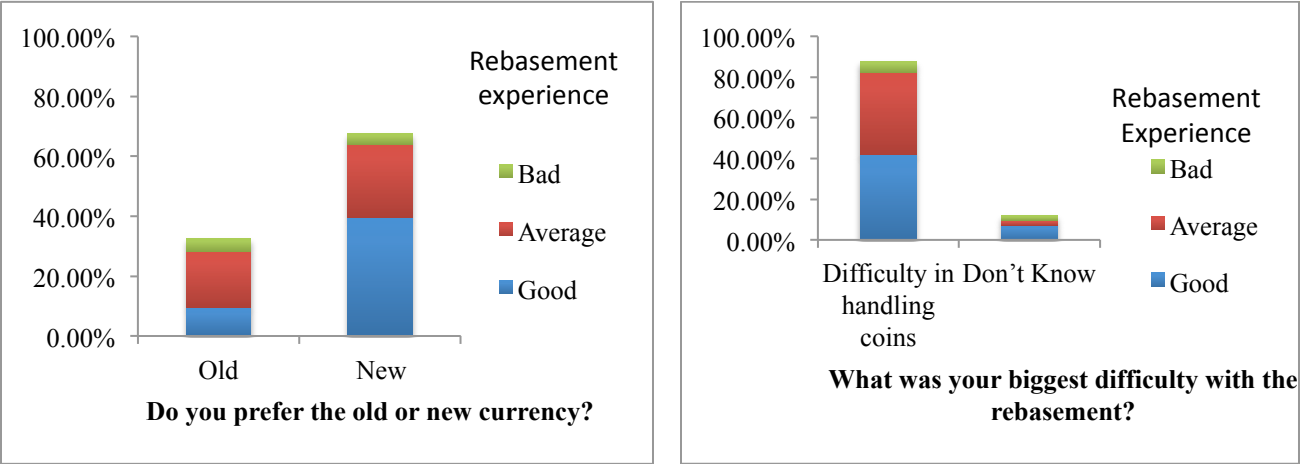
Figure 209. Experience with Rebasement and Perceived Rebasement Effect on Daily Purchases

64.6% of good adjusters reported no perceived impact of the rebasement on prices of fuel, goods and services, compared to 44.8% of average adjusters and 41.5% of bad adjusters. The majority of participants who liked the new currency more than its predecessor had either a good (39.7%) or average (24.3%) experience with the

rebasement. Analysis by adjustment category indicated that 80% of those reporting a good adjustment to the new currency reported a preference for the new currency, compared to 56% and 45% of bad and average adjusters respectively. 93% of good adjusters reported feeling comfortable using the new currency, compared to 78% and 22% of average and poor adjusters respectively. Only 13.5% of good adjusters considered themselves to be “still adjusting” to the new currency at the time of data collection, compared to 30.3% of average adjusters and 37.3% of individuals who reported bad adjustment experiences.

99.7% of good adjusters reported using coins, compared to 97.9% of average adjusters and 83% of bad adjusters. The majority of participants who had either a good (41.8%) or average (40.5%) experience with the

rebasement cited the difficulty in handling coins as the major rebasement-related issue. Analysis by adjustment category indicated that 46% of good adjusters, 24.7% of average adjusters, and 15.7% of bad adjusters considered coins to be very useful, while 8.3%, 9.5% and 49% of good, average, and bad adjusters respectively considered coins to be absolutely useless. Similar rates of perceptions of coins as useful (as compared with “very useful”) were observed across the three groups: 35.4%, 34.6% and 29.4% for good, average, and bad adjusters respectively. Similar rates of reluctance to pick up hypothetically dropped coins were observed, (e.g. 83.8%, 81.8%, and 75% for the 5 ngwee coin for good, average, and bad adjusters respectively). 85.1% of good and 94.7% of average adjusters reported that handling coins post-rebasement was a major obstacle. While only 69.8% of bad adjusters reported this, it must be noted that this group was the least likely to actually use coins, and almost half of them branded coins as useless.



In sum, our findings show that a self-reported “good” adjustment to the adoption of new notes and coins was characterized by higher rates of reporting liking the new currency, using coins, perceiving coins as very useful, and feeling comfortable using the new currency. However, even a “good adjustment” was not devoid of problems: it involved reports of hassles in handling the newly introduced coins, and for a small minority, reports of changes in spending behaviors.



## 5.6. MOBILE MONEY

88.8% of our respondents reported having heard of Mobile Money. 43.2% of our respondents were registered for MM, 35.7% reported previous MM use, and 37% of respondents reported current use. Discontinued MM use was attributed to not needing mobile money services (8.3%), lost Mobile phone (4.5%), and bad experiences such as problems with money transfer (6.3%).

**Table 5: Mobile Money Zambia, 2014 snapshot.**

Population	14.5 million
Mobile Phone Users	75% of population
Total Number, Mobile Money Accounts (per central bank)	3.4 million
Total Number, Bank Accounts (per Central	2 million
AIRTEL MONEY DATA	
Airtel Money Users	1.8 - 3.1 million
Airtel Money agents	800
Airtel Money Monthly Transactions (frequency)	0.5 million

Source: <http://www.itwebafrica.com/mobile/322-zambia/232961-airtel-zambias-mobile-money-users-top-31-million>



**Figure 21. Street Advertising**

The level of knowledge of available services and functions of MM products varied as shown below:

**Table 6: MM Knowledge**

1 function identified	37.3%
2 + functions identified	40.3%
High level of knowledge (e.g. wallet size, transaction limits etc.)	2.3%
Heard about it but don't really understand	12.8%
I don't know	6.9%
Incorrect knowledge (e.g. Confusing airtime transfer with mobile transfer)	.5

As indicated below, money transfer was the most popular use of MM, with convenience and speed being the most popular attributes of MM.

**Table 7:****MM, Reported use**

Spending & Bill Pay	6.9%
Airtime	25.0%
Money Transfer	60.9%
Savings	7.4%

**Table 8:****Preferred MM Attributes by users**

Convenience	71.70%
Transaction Speed	65.3%
Safety	32.6%
Conducive for saving	22.4%
Portability	43 %

The following were noted as obstacles to using MM by 70% of our respondent pool: Complicated to use, Network problems, Security issues, and Fraud (could be swindled). The other 30% did not answer this question, presumably due to perceived insufficient familiarity with MM.

**MOBILE MONEY INSIGHTS FROM INTERVIEWS**

Limited information about actual mobile money use was gleaned from our interviews due to low use rates among this sub-sample of respondents. For one respondent, consistent with our data highlighting preferred attributes of mobile money, convenience – including eliminating standing in a queue at a brick and mortar payment station was a major draw:

It is a convenient way of paying bills, my wife is the one that does that, because sometimes we would be in the bedroom and she would just say that I have paid the bills. I can't say (what I dislike about Mobile Money) because it is my wife that uses it. It is easy and convenient and we can do away with those things of standing in the queues waiting.

Male, sale and marketing consultant, declined to give age.

Interestingly, however, in discussion of his banking needs, this individual expressed a desire for more, rather than less, human interaction when dealing with money:

Banks have been very convenient for loans. The problem with Chilimba is that there is no interest in your money. I want my money to have more interest especially when I deposit some money. Banks should be educating us more about these accounts; they should be giving us more information on how we can increase our savings. *We should also be having personal relationship with banks, so that there could be someone I could talk personally to from the bank and not just those booklets they give.*

Our interviewee summarized his take on the connection between rebasement and rebasement in terms of change of scale:

I think it will be convenient to use the rebased kwacha on the electronic financial machines unlike the old thousands. The two actually complement each other.



## MOBILE MONEY AND REBASEMENT

How well did the rebasement and Mobile Money (and other electronic payment forms) use actually complement each other? Our survey respondents had varied opinions on the issue with a little over half the sample thinking there was no effect.

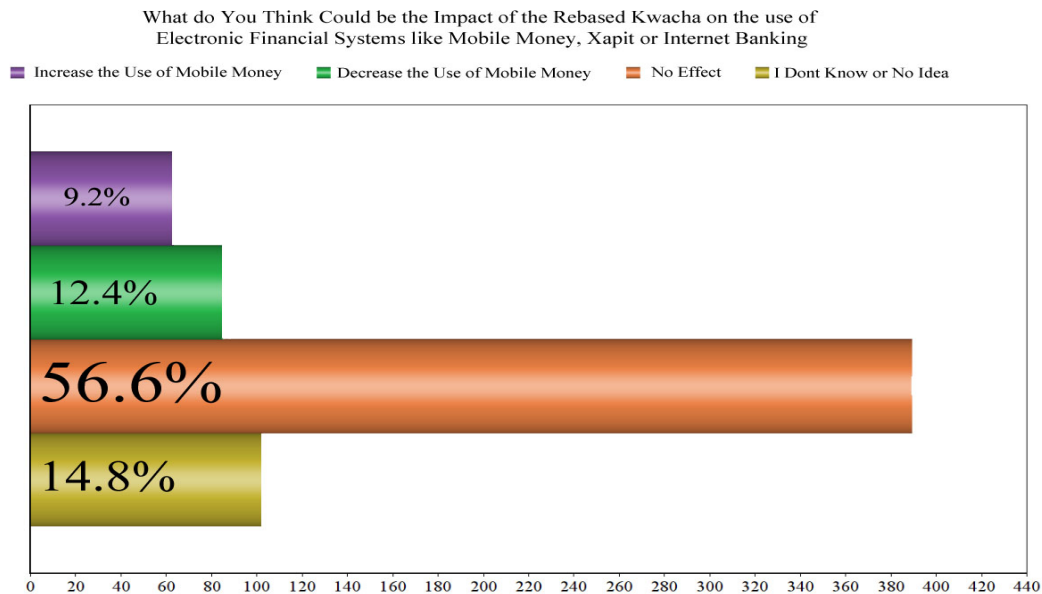


Figure 20 Perceived impact of rebasement on MM

The relatively high rate of individuals who thought there would be no effect of the rebasement on electronic money use suggests that the issue of scale (three dropped zeroes), highlighted by one interviewee, was not a major concern for most of our respondents, both users and non-users.

Table 9: Mobile Money Perspectives

Mobile Money Experience	Yes Response	Mobile Money Experience	Yes Response
Since the new kwacha notes are more portable, do you think that they will be less incentive to use Mobile Money?	12.40% (n=85)	Do you think people will use Mobile money only for specific purchases such as airtime or money transfer and use cash for other purposes?	53.90% (n=370)

Since few people thought that the rebasement would increase MM use, we asked respondents what would make them use Mobile Money or use it more often.

Table 10: Mobile Money Use Perspectives

What factors (Mobile Money Attributes) would lead you to use mobile money (or use it more often)?				
Convenience	Transaction Speed	Safety	Savings	Portability
43.80% (301)	44.10% (303)	19.4% (133)	17.30% (119)	27.10% (186)

Access to agents (compared to the competition) was also raised as an important consideration by one interviewee:

If there was no western union where I stay and there is an MTN mobile money service there, then I would (use Mobile Money to remit money).

**Bill Payments: ZESCO, DSTV, GoTV, Council rates etc.**

Transactions range		Customer Fee	
Old (K)	Rebased (KR)	Old (K)	Rebased (KR)
1-150,000	0.001 - 150	1,000	1
150,001 - 300,000	151 - 300	1,500	1.50
300,001 - 600,000	301 - 600	2,500	2.50
600,001 - 3,000,000	601 - 3000	3,500	3.50

**Administration transactions.**

	Old (K)	Rebased (KR)
Balance Enquiry		Free
Change PIN		Free
Top Up		Free
Monthly Fee		None
Minimum balance requirement		None
Maximum account balance	5,000,000	5,000
Maximum amount per transaction	3,000,000	3,000
Maximum transaction per day	5,000,000	5,000

**Welcome to the New World.**

**MTN Mobile Money**

**MTN**

*everywhere you go*

In sum, most of our sample was aware of mobile money, while a little over a third used it. There was a wide range of knowledge about Mobile Money, which was thought for the most part to not have been impacted by the national rebasement exercise.





## 5.7. REBASEMENT: INSIGHTS FROM INTERVIEWS

### “PRE-REBASEMENT” DISCOUNTING OF THREE ZEROES

The new notes were perceived by many as easier to use than their predecessors. Unlike in other countries (where currency denominations were initially the trigger of a considerable amount of confusion in old to new currency conversions), there seemed to be a sense that Zambians had largely experienced minimal confusion in their adoption of the new notes. Some interviewees suggested this relative ease of transition had to do with the font and form of the cash value printed on the old Kwacha note. For instance, the numerical value of the 10,000 kwacha note (old currency) in circulation prior to the rebasement exercise was not represented on the note as 10,000. Instead, the value was represented as “10<sup>000</sup>” - the last three zeroes were presented in an observably smaller font than the rest of the value of the note. As such, our interviewees argued they were already used to ignoring the three zeroes at the end of the currency, which were dropped in the rebasement.



The ease of transition to new notes may have also been influenced by the fact that the three zeroes at the end of the currency were ignored in the local nickname for the old currency. In local parlance, 1000 old kwacha was referred to as 1 “pin,” 10, 000 as 10 pin, etc. In this sense, there had already been a culturally-driven rebasement of sorts in the local representations of the old currency preceding the actual rebasement. In essence, the three zeros of the old Kwacha were being discounted long before the rebasement made this official.

Inquiries regarding the origin of the use of the term “pin” to refer to 1,000 kwacha in the old currency yielded varying, overlapping perspectives. There was a general consensus that the term originated from the paper clips (referred to as pins) that were used to bundle specific amounts of the old currency to facilitate financial transactions. It was recounted that during the late Frederick Jacob Titus Chiluba's presidential term (1991 to 2002), there was a period when K10 (10 Kwacha, old currency) was the highest denomination in

Zambia. For organizational purposes, bank tellers used a paper clip to hold together one hundred K10 notes to give a customer who was withdrawing any amount above K1000. Thus, an individual withdrawing K5000 would walk away from the bank with K5000 worth of paper notes organized by 5 paper clips, or 5 pins. Other sources indicated that it was K50 notes that were pinned in amounts of K1000 by bank tellers. It is unclear whether or not the practice started with K10 notes and moved to K50, or whether the different recalled denominations are a sign of mis-remembering due to the passage of time.



The teller-driven practice of organizing low value old kwacha notes into bundles of K1000 and securing each bundle with a “pin” resulted in people (e.g. street vendors) beginning to request for one pin rather than K1000. The term eventually became an integral part of Zambian vocabulary. Interestingly, the cultural practice of referring to K1000 as “pin” persisted after inflation and subsequent price increases necessitated the introduction of higher denomination notes (such as K1,000; K5,000; K20,000 and K50,000) which clearly could not be organized into bundles of K1000. The term also persisted despite the fact that the economy transitioned to one in which large volumes of cash were needed for everyday transactions (for instance, a loaf of bread cost between K4000 and K5000 in 2011). Clearly, in such a state of affairs, people would need to withdraw large amounts of cash, particularly for large transactions. This would necessitate bank tellers organizing the bundles of cash and securing the bundles. However, the meaning of “pin” was by then firmly established as K1000.



## POLITICS

Judging by what I am thinking, when this new government came in they thought if they did this some people will be happy and they would gain support from these same people and also most of the Zambia people would be happy about this move so that next elections they would win, it was some sort of campaign strategy.

60s (estimated age), male, security guard

Public education on the rebasement and official rebasement education literature focused on the practical aspects of the rebasement exercise. The advertised benefits of the rebasement of the Kwacha were: 1) easier business transactions with smaller denominations of money, 2) minimization of financial data input errors, 3) increased efficiencies in calculations and record systems, 4) overall simplified book keeping, 5) increased confidence in the currency in both consumers and foreign investors, 6) decreased cost of customizing standard packages through limiting the extent of such packages, (BOZ, 2012a), 7) increased use of financial technologies such as pay phones and vending machines, 8) more durable coins, 9) increased protection against counterfeiting because of greater security present in the banknotes, 10) the BOZ can introduce higher value denominations of cash in the future (BOZ, 2012b) and 11) increased convenience and safety for the consumer (Thoughts of Critical abbybytes, 2012). However, as illustrated above, there was an assumption, reported by several interviewees, that the rebasement was under the control of the government rather than the central bank, and that the rebasement exercise was politically motivated.

The reason for changing the currency that I know whether true or false is that when some government officials stole money and hid it in the ground, it hurt the current president so much and he decided to change the currency because some people could not have such huge sums of money to themselves. He changed the currency so that such people would at the end of the day be stuck with the old currency that they could not even use in any way.

33 yrs., female, fruit seller

I think these people were just being nostalgic; they had that craving for the past. It might have been political using this premise. When the PF government came into power they embarked on a witch hunt for those people who had stolen (money) in the MMD regime so they wanted to get them to surrender the money they had stolen for example Liato (political figure) had buried 2 billion kwacha in his house, so he had to obviously go to a bank to change his money. I think that was one of the reasons for rebasing the kwacha.

24 yrs., male, student

Clearly, in addition to the perception of the rebasement as a campaign strategy, some respondents linked the currency change to corruption control. As such, there was a perception that the rebasement was not simply an economic exercise, but also a political one. It must be noted that the Bank of Zambia-driven rebasement strategy did involve a reasonably long period during which the old currency could be swapped out for the new. Nevertheless, since engagement with the formal financial sector leaves a paper (or electronic) trail,





upgrading large amounts of cash stored outside of the formal financial sector would raise a red flag. The Lusaka Times (<https://www.lusakatimes.com/2015/08/24/convicted-former-labour-minister-austin-liato-released-from-prison/>) reported that Former Labour Minister Austin Liato, referred to by both of the respondents quoted above, was given a 2-year prison sentence with hard labor by the Lusaka Magistrate's Court for possession of K2.1 million "reasonably suspected to be proceeds of crime." While this ruling was later upheld by Zambia's Supreme Court. The Lusaka Times reported that Mr. Liato received a presidential pardon by Edgar Lungu on compassionate (medical) grounds.

### PERCEIVED HEALTH RISKS OF COINS

A theme of health concerns related to the coins was noted by some of our respondents. Interviewees observed that coins could serve as a potential choking hazard to children, and one interview made a link between a particular form of coin storing behavior and cancer.

...on the disadvantage part, when you look at the coins our worries ... when children start playing with them they will be putting them in the mouth and others will get choked and very soon we will start experiencing deaths due to coins.

24 yrs., female, sales woman

Women at the bottom (social class) like to keep their money on a Chitenge (cloth) and under their bra, coins are going to become a problem because it is going to lead to cancer for women at the bottom who keep their money in bras.

30 yrs., male store-owner

### AGE AND CLASS

A generational effect was observed in terms of individuals who had issues with coins. We observed that the elderly (mostly those that had an experience with the use of coins in the first and second republic) reported minimal challenges handling coins and stated that they were durable compared to notes.

My age mates are comfortable with the new currency because it is similar to the old currency. Not those that did not find or get to use that old currency during and just after Kaunda's Era. I am also comfortable and I think people that know what is happening about our currency are also comfortable. Most Zambian people are comfortable.

60s (estimated age), male, security guard

In contrast, younger interviewees were more likely to complain about handling coins, or have concerns about handling coins as illustrated below:

I prefer the old currency because of the coins, the coins are hard to handle.

24 yrs., female, sales woman

Our interviewees expected socioeconomic status differences to drive differences in the process of adjustment to the new currency, although there were different perspectives on what the nature of such an effect was.

Yes I think so I think they will adjust to the rebasement in different ways. I think people of low social class will...I would say ok maybe they will have difficulties you will find most of them are not very educated maybe they will have difficulties in calculating

24 yrs., female, sales woman

I think those who travel everyday using public transport, I think coins are useful for them. When they have to pay their transport they will use coins to add to the round off charge say if the price is 4 thousand 5 hundred, the will give maybe 2 2kwacha notes and maybe a 50 ngwee on top. They are useful in those lines.

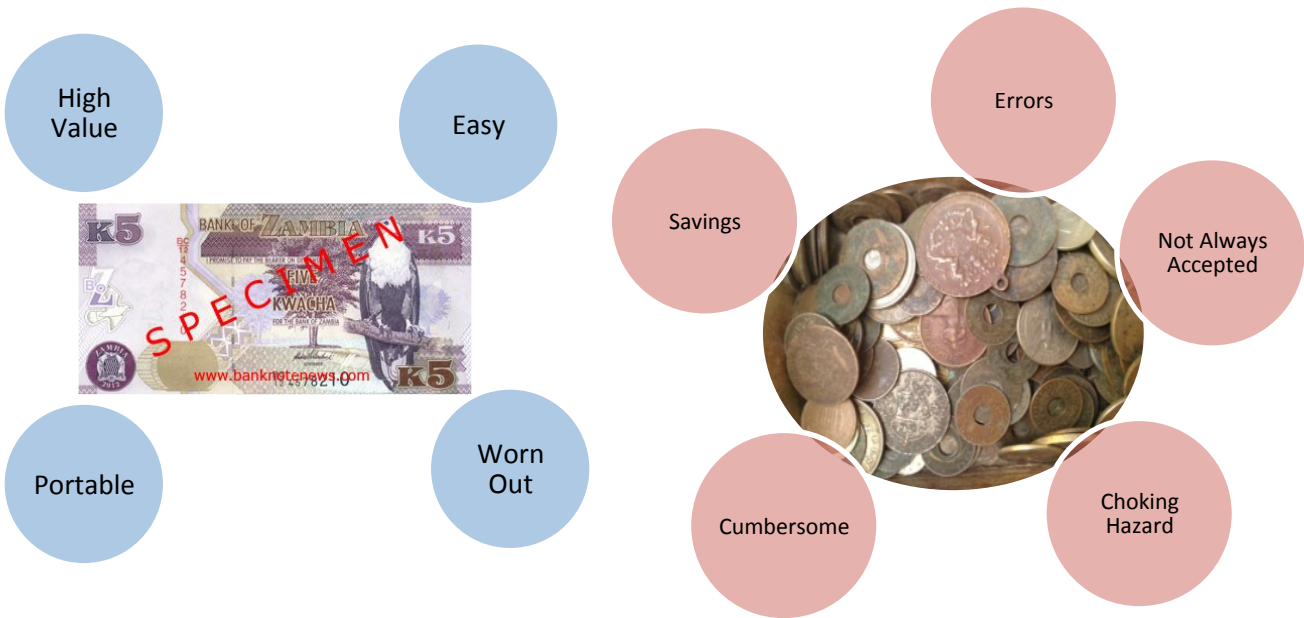
24 yrs., male student

Top people don't handle coins. That's why they say that the currency is just ok, but us at the bottom coins are a problem to handle...because you would put it on the table at home and your kids come and start playing with the coins and misplace them and others even swallow.

30 yrs., male store-owner

On the one hand, education was viewed as being important for an easy adjustment to the rebasement. Thus individuals with limited education were perceived to be at a disadvantage. On the other hand, frequent use was viewed as being important for an easy adjustment to the rebasement. Thus individuals who handled coins on a daily basis were seen to be at an advantage in terms of getting used to the coins, but also at a disadvantage in having to handle them on a regular basis in the first place.

NOTES VERSUS COINS





Our respondents reiterated what data from the questionnaire portion of our study had noted: Coins and notes were experienced differently. On the one hand notes were more portable, and made high value transactions much easier. However, there were concerns about the durability of some of the new Kwacha notes.

What I don't like about the rebasement is the quality of the notes; they are too light and fade easily compared to the old notes

40s., female, midwife

I find the new paper a bit of poor quality especially five kwacha they fade away badly I prefer the old material was quality than this one

24 yrs., female, sales woman

The old currency was better compared to the new one for example the two kwacha note it wore out fast and the coins people get to lose their coins unlike the paper was good

Informant, no demographic info provided

I like the 20 and 50 kwacha in durability, the 2 kwacha not is poor quality.

24 yrs., female lawyer

I think the two kwacha material is fake and also the five kwacha. If they can make that material like in the last government (plastic).

30 yrs., male store-owner

Coins, on the other hand, were a good mechanism for saving since individuals tended to store their coins rather than spend them as often as they did notes. As such their perceived cumbersome nature may have had a silver lining.

Actually the coin .... At least I am able to save a little more than before (the Rebasement) cause you tend to neglect them and store them somewhere by the time you realize you don't have money so you check where you keep the coins and just find that you have a lot of money

24 yrs., female sales woman

## DENOMINATION EFFECT

A final theme concerned the denomination effect, which impacted behaviors related to pricing, conversions, and perceptions of value. For instance, our interview data revealed a pricing-related tension of precision versus rounding in determining prices and the giving of change. Both appeared to be post-rebasement realities.

They are giving the exact change now because it is to the last ngwee as compared to the last time when they used to round it off like in shoprite they give you. Before the rebasement they would give you a rounded off figure like a 50 kwacha when it was 29 ngwee. Well the rebasement makes spending much more clear.

24 yrs., female lawyer

Well some people have taken advantage of that so people don't want to deal with coins so they will just up their prices so that they can just get the notes. In a market they will sale for 1 kwacha or 2 kwacha tomatoes, so they have less (sic) coins to deal with.

24 yrs., female, sales woman

While old-note to new-note conversions seemed easy because the difference was dropping three zeroes, conversions from the old notes to coins sometimes was a source of confusion:

The conversion of kwacha to ngwee (has been the biggest Obstacle since the introduction of the new currency) especially when it comes to calculating ngwees. It's kind of hard and difficult for people including myself.

24 yrs., male student

In addition to the Kwacha-Ngwee conversion obstacle, dropping three zeroes was associated with a change of scale, which required some getting used to, even for larger values:

(The Rebasement) wasn't hard for me....apart from the bigger amounts like 1 million kwacha because I can't say a thousand. It's difficult for me to say a thousand.

24 yrs., male student

The change of scale and values of notes was accompanied by the potential to discount low value amounts that would have been taken seriously in the old currency's scale.

I tend to use the bigger notes faster, that means I get broke faster, the lower denominations are more like valueless to me when I get them I don't consider them as money.

24 yrs., male student

From the look of things it seems they (other people) are (comfortable with the new currency) even through there have been a little complaints here and there, people have been complaining as I said before concerning the coins, they don't consider coins to be money so at the end people end up thinking they don't have a lot of money, they think they have less money. Then some people tend to not want to accept coins when you go buy

24 yrs., female sales woman

The last two interview excerpts above refer to categorization of coins as not "real money," consistent with the observation that coins and notes are conceptualized, handled, and spent differently from each other.

Collectively, our interviews revealed perceived political undertones of the currency rebasement, health-related concerns of coins, and concerns about the wear and tear of the lower denomination Kwacha notes. Additionally, our interviews provided additional information on the different patterns of perceived value and use of coins and notes, which was influenced in part by the denomination effect.





Figure 22 Coin stash being spent when low on funds.

# 5.8. PAYMENT ECOSYSTEM

Payment form choices are partly due to individual preferences, and thus studying consumer behavior is important. It is important to recognize, however, that consumer preferences may be constrained by external factors. An important determinant of the payment form(s) that can be used to settle a financial transaction is the individual on the other side of the financial transaction: the vendor. It is thus crucial to understand the payment options that merchants and small-scale retailers make available to the consumer.

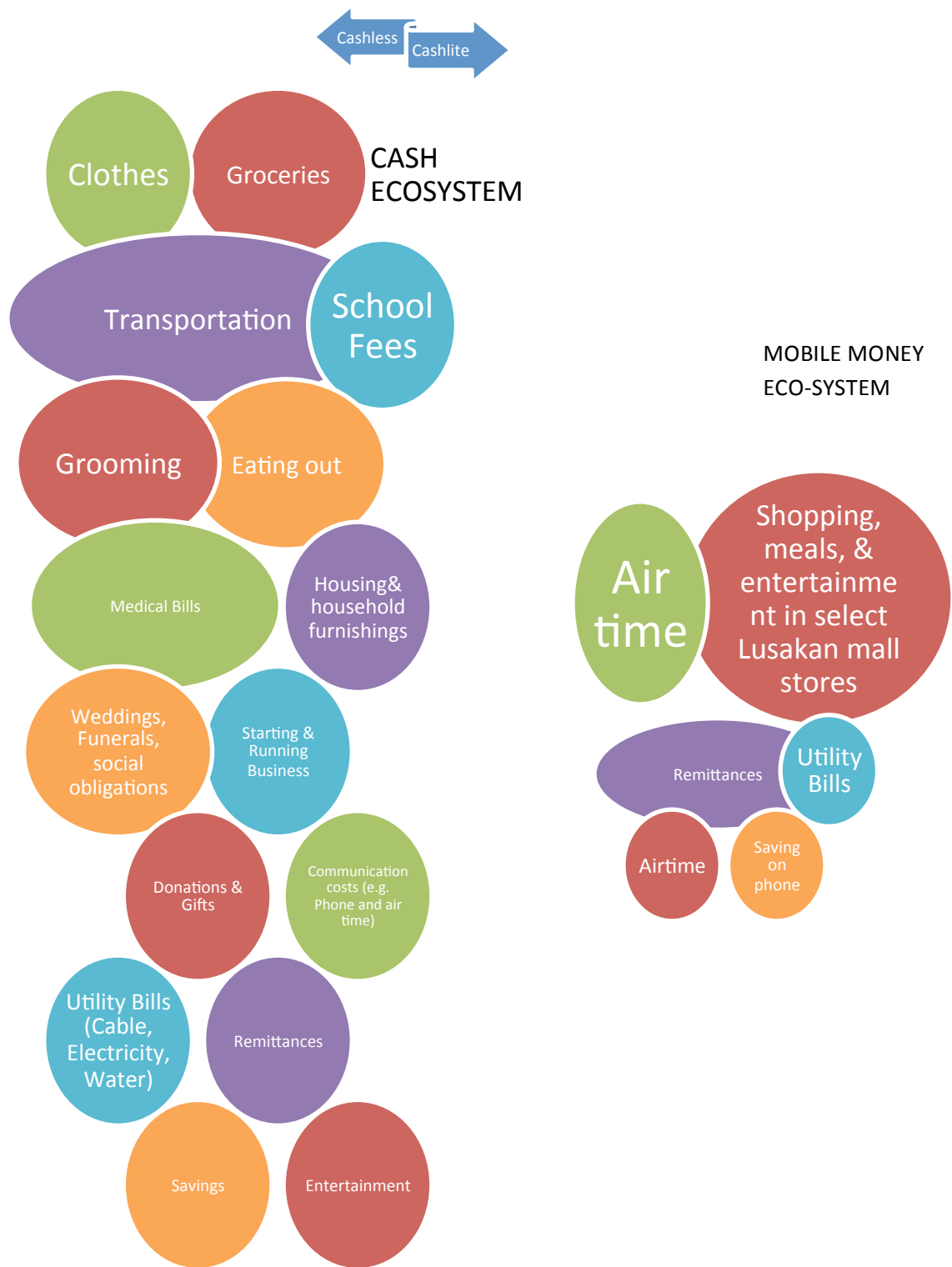


money had a narrow scope of payment options compared to cash as illustrated below:

We obtained Information about the cash and mobile money ecoystems around the time of the rebasement by visiting and observing a variety of centers of commerce in Lusaka. This included large (e.g. Soweto) and small (e.g. neighborhood stalls) markets, shopping malls (e.g. Manda Hills, Arcades), department stores (e.g. Shoprite), neighborhood stores, and public transportation avenues. In settings where no Mobile Money signs were posted, employees were asked whether their establishments accepted mobile money for payment at the time. The goal of this exercise was not to gain frequency counts of sites that accepted mobile money, but to determine what expenses Mobile Money and cash could be used to pay for.


Mobile money was not accepted as a form of payment in markets or neighborhood stores. At the time of data collection, a limited number of stores and businesses (e.g. restaurants in and near malls) accepted mobile money as a form of payment, with some store attendants not being certain of whether mobile money would be adopted as a form of payment in the near future. As such, consumers interested in using mobile

Figure 23: Airtel Money Business Partnership (Fresh View Cinemas)









**Figure 24 CASH VERSUS MOBILE MONEY ECOSYSTEMS AT TIME OF DATA COLLECTION**





**MTN Mobile Money**  
*is better money.*


On any cellphone you can:

-  **Send and receive** money.
-  **Deposit** money into your account.
-  **Withdraw** at any MTN Service Centre or MTN Mobile Money Agent.
-  **Buy** airtime.
-  **Pay** Zesco bills.
-  **Pay** DSTV and GOTV bills.

Simply visit any MTN Service Centre or authorised MTN Mobile Money Agent to register and enjoy the lowest money transfer rates in Zambia.

Dial \*303# to access your account.

**Welcome to the New World.**



everywhere you go

Terms and Conditions apply. E&OE.

Figure 25: Uses for MTN Mobile Money



**say bye to queuing**

now, pay for your Sangwapo advert using your phone!



**Step 1** Go to your phone menu & select 'airtel'

**Step 2** Select 'airtel money'

**Step 3** Select 'make payments'

**Step 4** Select 'pay bill'

**Step 5** Select 'Sangwapo'

**Step 6** Enter Business Name (e.g. Sangwapo)

**Step 7** Enter amount in K (e.g. K50000)

**Step 8** Enter PIN

Figure 26: How To Pay Bills with Airtel Money

The difference in the size and scope of the post-rebasement financial ecosystems in Lusaka limit the fairness of the cashlite versus cashless question. While individuals may prefer to pay for goods and services using a particular means of payment, their ability to do so is restricted by whether or not the vendor permits him or her to do so.



## 6. DISCUSSION

The goal of the current study was to explore the potential synergy between cash-lite and cash-less transitions following the rebasement of the Zambian kwacha. On 23<sup>rd</sup> January 2012, the Government of the Republic of Zambia approved the recommendation of the Bank of Zambia Board to rebase the national currency. The new currency was introduced at a time when several Mobile Network Operators were promoting Mobile Money. Would people prefer to use the more portable version of the currency, or go completely cashless via mobile money?

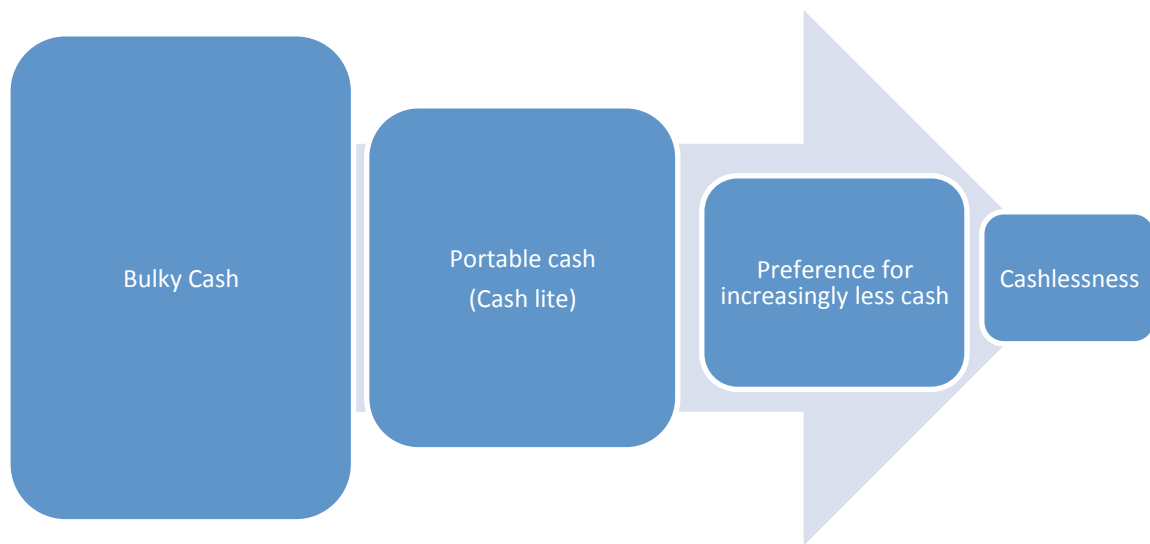


Figure 27 Hypothesized rebasement effect on payment preferences

On the one hand, our data suggests that cashlite was a popular choice. More than half the sample preferred the new currency to the old, felt comfortable with the new currency, and thought they had adjusted to the new currency. Almost 40% of respondents suggested that the rebasement had not affected their daily purchases. Such participants stated that since the value of the kwacha had not changed their daily purchases could not have also changed. A small percentage of our interviewees reported instances where they would either be charged more or not be given change due to the lack of understanding of the currency prior to its introduction. This is similar to the case in Ghana during the redenomination where traders and customers were losing money due to calculation errors in the conversion process of the new and old currency (Dzokoto et al, 2010). However, transaction errors did not appear to be a widespread problem in Lusaka.

Unfortunately, cashlite was associated with a state of “coin heavy”, due to the introduction of new ngwee coins and a 1 kwacha coin, which most respondents reported using but reported as being cumbersome to handle. The cashlite transition was also associated with thinking that others had not adjusted to the new

currency, and some who preferred its less portable predecessor. The latter, however, was the sentiment of a small minority.

On the other hand, cashless seemed the way to go when one wanted to send money outside of Lusaka. Our interviews indicated that participants considered mobile money as the quickest, cheapest and safest way to send money. However, our questionnaire data indicated that most participants had limited knowledge of mobile money and most were not registered users. This is particularly informative given the fact that our sample was a relatively highly educated one. High levels of education imply a sample more likely to be exposed to literature about Mobile Money. Such a sample could benefit from multiple modes of education about Mobile Money, compared to individuals with lower levels of literacy. Given that our sample was also relatively highly banked, it is unclear whether the available banking services served as a barrier to more mobile money uptake than was observed.

The potential utility of mobile money after the Kwacha rebasement was hampered by its’ limited range of uses at the time of data collection. While money transfer was a popular choice and default opportunities for utility payments existed, there were limited opportunities to use MM to pay for everyday goods and services, except in select malls during our data collection period.

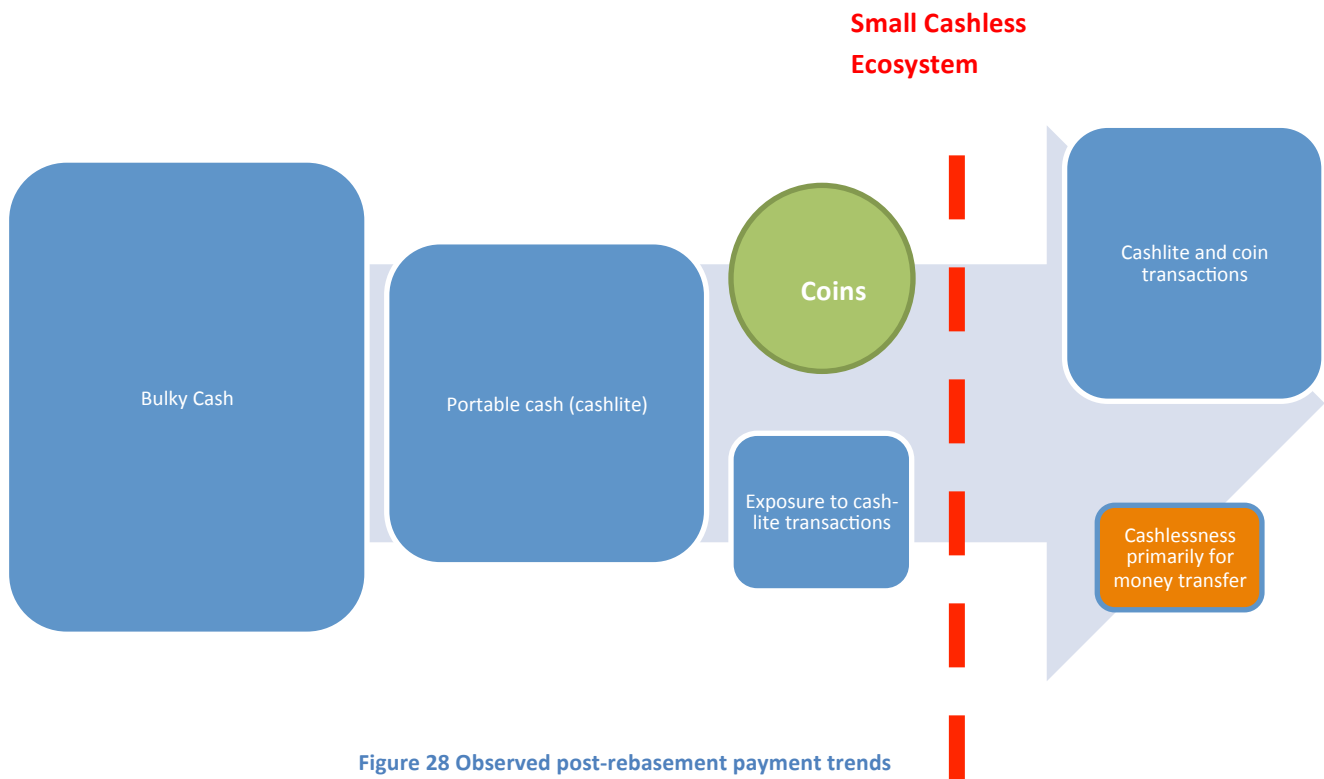


Figure 28 Observed post-rebasement payment trends



Given the rather small Mobile Money ecosystem at the time, the question of cashless versus cashlite may not be a fair one. The spending playing field was simply not equal. A possible means of answering this question, therefore, could be examining a sector in which the playing field was somewhat equal at the time of rebasement. An example of this would be the examination of Zesco (Zambia Electricity Supply Corporation) or DSTV bills (or Zesco pre-paid units) which could be paid for with Mobile Money at the time of rebasement.

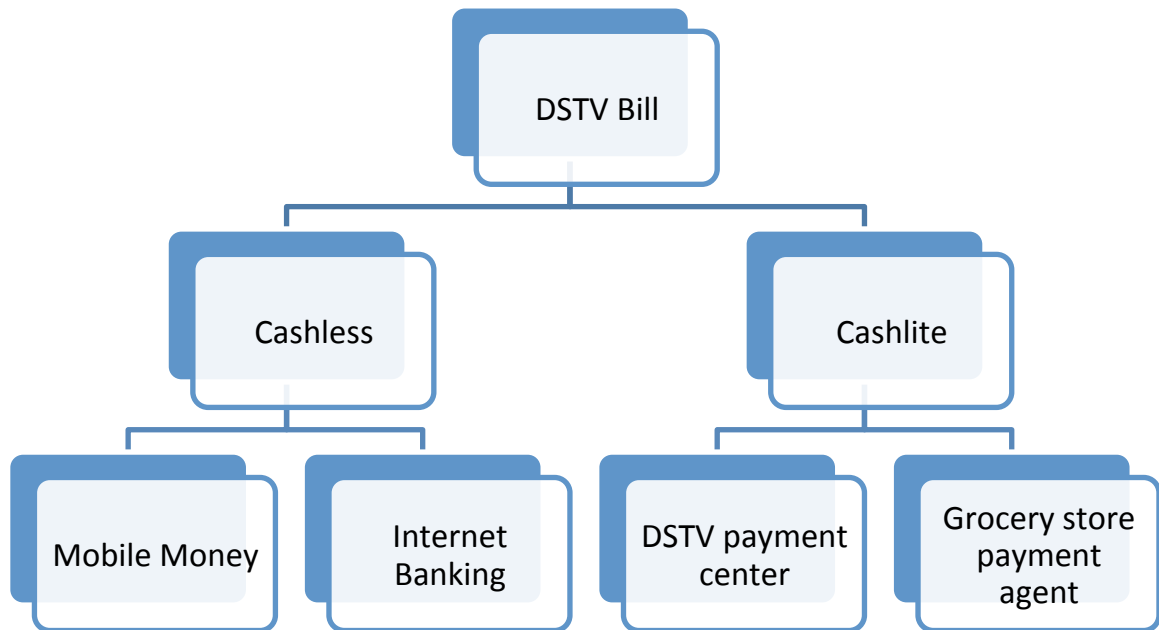


Figure 29 Options for Cable Bill Payment at time of Data Collection

Thus, one could ask the following question: post-rebasement, did individuals prefer to pay their DSTV bills with the new currency or did they prefer cashless options of payment? Such an analysis was not part of our study due to lack of access to much of the proprietary information required to follow this line of enquiry. Visits to DSTV payment centers and grocery store-based payment collection agents (to obtain a sense of patronage of cash payments) suggested that many people patronized the face-to-face payment transaction opportunities. Discussions with a select number of patrons indicated a preference for having a person to trouble-shoot with, if necessary, as a driver for in-person cash payments in contrast with the anonymity of cashless payments. An interview with an owner of multiple grocery store-based cash payment centers (Web Lounge), and observations of these payment centers in operation indicated that convenience for the consumer was an important

consideration in their establishment. While none of our questionnaire sample specifically reported Mobile Money-based DSTV payments at the time of data collection (because that category was subsumed under bill pay), we assume that convenience and speed of transaction would be drivers of DSTV bill payment via mobile Money or Internet banking. This assumption is in part supported by our data reviewing preferred attributes of Mobile Money.

The limit of the suggested analysis, however, is that long-term increases in cashless payments cannot necessarily be attributed exclusively to a cashlite –driven preference towards using less and less cash, resulting in eventual transition. Such a change, if observed, could be due to promotion activities of different cashless sectors (Mobile network operators, the formal banking sector, cashless microfinance opportunities, and the like). Nevertheless, initial post rebasement transaction volumes in the different sectors may be informative.



Figure 30 User-centered factors that can influence Cashless Behavioral Shift

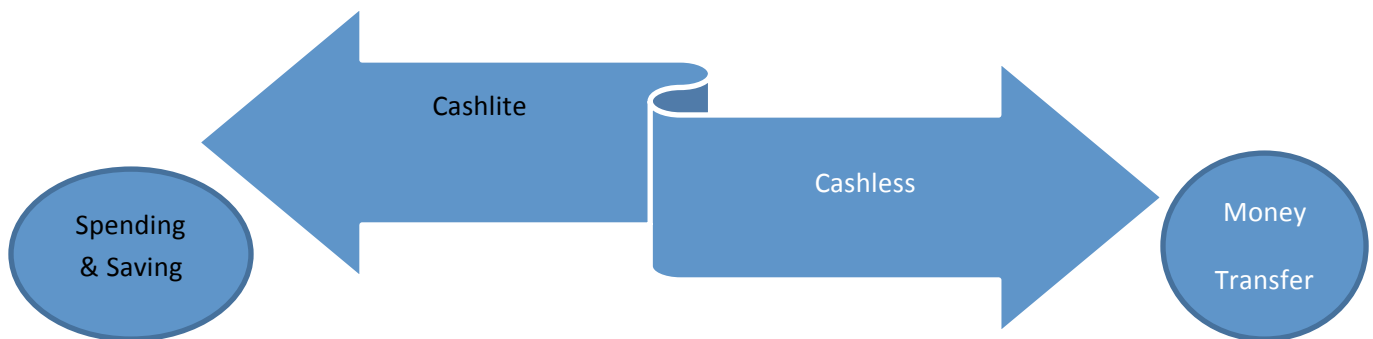
Another possible way to test the hypothesized rebasement effect on cashlessness would be to explore whether MM use went down immediately after the rebasement. Such a dip would suggest that that the rebasement may have impacted the use of MM. However, once again, such an enquiry would require access to





proprietary information. Given lack of access to such data, our assessment of the matter in the current study consisted of asking our respondents directly what they thought the impact of rebasement on MM use would be. Respondent opinions on the matter were divided, with a little over half the sample thinking that there would be no impact, and almost equal amounts thinking that the rebasement would either decrease or increase MM use. Overall, according to this assessment, no direct or immediate impact of the rebasement on MM money use occurred. However, this determination was based on individual understandings of personal use of different payment forms, and not on empirical data.

A potential reason why the Kwacha rebasement may not have had a direct or immediate impact on MM use could be due to the most popular use of MM reported by our MM users: Money Transfer. While a more portable form of cash may be more convenient for everyday financial transactions, the lighter form of money does not eliminate the need for a courier in order to remit money to another part of the country. MM, on the other hand, eliminates the need for a courier because it uses a network of agents who are already in place wherever MM cash out services are offered. As such, cashlite payment forms may be convenient to spend and save, but cashlessness is convenient in the case of money transfer.



Finally, our findings suggest that socioeconomic class impacts both cashlite and cashless experiences. First, there was the predominant expectation that people in different socioeconomic classes would adjust differently to the rebasement (66.9%). These respondents were of the opinion that more educated Lusakans would have a better understanding of, and an easier experience adjusting to, the rebasement. A class effect was observed in MM exposure and use. Those in high socioeconomic classes had higher registration rates of MM, were more familiar with uses of MM and the companies that provided such services than low income participants.

All in all, our data suggests that there is no easy answer to the cashlite versus cashless question when it comes to exploring the aftermath of a currency redenomination (labeled in the Zambian context as a currency rebasement). The different financial ecosystems and functions of the diverse payment forms as well as other impacting factors discussed here and in the results section obscure the possibility of a precise answer to our

research question. Given these limitations, the answer from our Lusakan data appears to be: neither cashless alone nor cashlite alone, but **BOTH**.



**Figure 221: Word Cloud, Themes from Data**



## 7. POST-FIELDWORK DEVELOPMENTS

Since the completion of our data collection in Lusaka in 2012, the company Zoono, interestingly a nonMNO, has become a major player in Zambia's mobile financial service marketplace. Zoono reports a monthly outlet growth rate of between 7 and 15%, an estimated 1000 actively operating outlets across the country (Tredger, 2015), an average of 200,000 monthly transactions with an estimated value of USD 14 million (Enright, 2013), and an overall monthly growth rate of 20% (InfoDev, 2014). McNally (2014) cited the estimated number of registered end users as 600,000+, but it is unclear whether or not all of these are in Zambia, since Zoono operates in multiple countries. A distinctive feature of Zoono's product is that its platform operates independently of a mobile wallet. Instead, the key points of entry to the system are agents, mobile phone accessible websites, SMS and USSD (Tredger, 2015, Enright, 2013).

The Zoono platform was built with the aim of empowering "micro and small businesses in Zambia to process mobile money transfers for the 85% of Zambians that were unbanked" (Quinn, 2014, p1). Using a network of agents recruited from small and micro enterprises, Zoono launched in 2009 as an agent-based instant money remitting service (Enright, 2013). Currently, additional services provided include bill pay (C2B, B2B, and B2C) as well as mobile wallet cash deposits and withdrawals. A defining feature of Zoono's growth is its partnerships with institutions such as Airtel (one of the MNOs cited by our research participants), for whom it provides cash in and cash out services, and Zambian Breweries, for whom it provides a distributor payment rail. Zoono has also partnered with several NGOs, such as the World Food Programme (McNally, 2014) and Kiva (Bongohive, 2013). Another possible factor driving growth is Zoono's capital financing packages that are made available to small and micro businesses contingent upon their (the businesses') customers' use of mobile money (World Bank Group, XXX). Zoono reports a "traction by action" approach to customer-centered product research and development, which includes idea generation and experimentation (McNally, 2014). By the end of 2015, Zoono aimed to have (i) established a network of 3,000 outlets (agents, distributors and retailers), (ii) have 1 million end users, and (iii) increased the value of monthly payments to USD 100,000,000 in Zambia (Enright, 2013).

It is worth noting that Zoono was operational in Zambia prior to the launch of MNO Mobile Money services 2011 (Airtel) and 2012 (MTN) and bank-led mobile financial services (2013). (UNCDF briefing note: Digital Financial services in Zambia, 2014). However, it was due to partnerships with USAID's project PROFIT (McNally, 2014), and investments in 2012 from venture capitalists (The Omidyar Network, Accion Frontier Investments Group and Sarona Asset Management Fund) that the company developed into what it is in the present time (Quinn, 2014). It is also worth noting that none of our participants mentioned Zoono, which

suggests that consumers may conceptualize mobile money as primarily being an MNO and bank-associated product.



Figure 32 ZoonA Money transfer Price List



## 8. CONCLUSION: CASHLITE AND CASHLESS

The current endeavor provided limited evidence to support the possibility that the introduction of a more portable version of cash would have a **negative** impact on MM adoption. Equally interesting, however, is the observation that the data obtained in the current study did not provide support for an effect in the opposite direction: the possibility that the introduction of a more portable version of cash would have a **positive** impact on MM adoption. In fact, half of our sample indicated that the two processes might be independent of each other.

The new currency was more portable than its predecessor, but also meant the use of coins, which were largely perceived as cumbersome. Mobile Money was viewed as great for Money Transfer and less so for utility bill payments, but at the time of data collection, was not accepted in many retail spaces. Clearly, at the time of data collection, neither form of money was perfect, equally functional, equally accessible, or equally desired and sought after.

Our interviews, quantitative data, review of newspaper articles, and informal mapping of MM advertising and agent locations collectively suggest that the initial slow adoption of mobile money was not due to the currency rebasement but rather was influenced by:

- (i) the limited “payment spaces” in which it could be used,
- (ii) lack of awareness, and
- (iii) unclear distinctions between online banking and mobile money for banked consumers.

In the year and a half since the fieldwork was conducted, mobile money use has increased in Zambia, indicating that the accessibility of a more portable version of legal tender alone does not serve as a technology-adoption barrier. Clearly, MM has a functional advantage over cash, especially when it comes to the need to transfer money. Those benefits have and will most likely continue to drive its increased adoption and use in the Zambian marketplace. Nevertheless, cash continues to be a very important avenue of conducting financial transactions for the average consumer – even in highly educated urban dwellers in Lusaka, who in a post-rebasement economy have access to both cashlite and cashless means of paying for goods and services. In sum, in the aftermath of a currency redenomination, it is possible for BOTH cashlite-ness and cashless-ness to have their place.



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# **APPENDIX 1**

## **QUESTIONNAIRE**

## **SECTION 1: EXPERIENCE WITH REBASEMENT AND COPING STRATEGIES**

Q1. How has your experience with the rebasement been?

- 1) Good 2) Average 3) Bad

Q2. Do you remember when the Rebasement happened?

- 1) 6 Months ago 2) 3 Months ago 3) Last Month 4) Other Specify

Q3. Why did they change the currency?

- 1) It was a policy the central bank had always wanted to implement  
2) To reduce on bulky cash  
3) To make numbers smaller  
4) Others specify

Q4. Do you like the old or new currency?

- 1) Old Currency 2) New Currency

Q5. How will money habits (e.g. spending) change after the Rebasement?

Q6. What about Rebasement impacts your spending behaviors?

Q7. Will the Rebasement have an impact on saving?

Q8. Has Rebasement affected your daily purchases? 1) Yes 2) No

Q9. Have you been able to adjust to the new currency? 1) Yes, 2) No, 3) Still Adjusting

Q10. How did you get used to the new currency? 1) By using it Everyday 2) Others Specify

Q11. Are you comfortable with it? 1) Yes 2) No

Q12. What strategies (conversion, etc) did you use?

Q13. Do you think that other people are comfortable with the new currency?

- 1) Yes 2) No 3) Don't Know

Q14. Do you think that other people in different socioeconomic classes will adjust to the Rebasement in different ways? 1) Yes 2) No 3) Don't Know

Q15. Biggest Obstacle since the introduction of the new currency?

- 1) Difficulty in handling Coins  
2) Don't Know

Q16. Has business been affected by Rebasement?



- 1) Yes 2) No 3) Don't Know

Q17. Are people giving more, less, the same amount as prior to the Rebasement?

- 1) More 2) Less 3) The Same 4) Not giving at all

Q18. Apart from the price increase that resulted from the fuel issue, do you think that the rebasement has resulted in some price increases?

- 1) Prices have remained the same  
2) Prices have increased  
3) Prices have reduced

## **SECTION 2: COINS**

Q1. Do you use coins? 1) Yes 2) No

Q2. What money form do you mostly receive? 1) Coins 2) Notes

Q3. How useful are coins to you?

- 1) Useless 2) Useful 3) Very Useful 4) I don't know 5) Neutral response

Q4. How useful are coins to others?

- 1) Useless 2) Useful 3) Very Useful 4) I don't know 5) Neutral response

Q5. Do you store your coins? 1) Yes 2) No

Q6. Where do you store your coins?

- 1) Bag 2) Biggy Bank 3) Pockets 4) Container 5) Cloth 6) other

Q7. If you found some money lying on the floor in coins would you pick it up? 1) Yes 2) No

Q8. What coin value would you not pick up?

- (1) 5ngwee (2) 10 ngwee (3) 50 ngwee (d) 1 kwacha

Q9. How do you spend your coins?

- 1) Give them away  
2) Add to my regular money  
3) Save them  
4) Save them and use them for something specific  
5) Save them and use them when I am broke  
6) Use them to get small items like cigarettes, sweets etc  
7) Other

## **SECTION 3; MOBILE MONEY**

Q1. Have you heard about Mobile Money?      1) Yes      2) No

Q2. What is mobile money?

- 1) One function of mobile money (Money transfer, Bill pay, Airtime purchase)
- 2) More than one function of mobile money (Money transfer, Bill pay, Airtime purchase)
- 3) High level of knowledge ( e.g. wallet size, transaction limits etc)
- 4) Heard about it but don't really understand
- 5) I don't know
- 6) Wrong answer ( e.g. confusing airtime transfer with money transfer)

Q3. Do you know which companies provide Mobile Money services?

- 1) Partial correct Knowledge (Airtel or MTN but not both and not Zamtel)
- 2) Accurate Knowledge (Airtel and MTN but not Zamtel)
- 3) Incorrect Knowledge ( Zamtel included in answer or Zamtel only)

Q4. Have you registered for Mobile Money use?      1) Yes      2) No

Q5. Have you ever used Mobile Money?      1) Yes      2) No

Q6. Do you currently use Mobile Money?      1) Yes      2) No

Q7. What do you use Mobile Money for?

- 1) Spending    2) Airtime    3) Money transfers    4) Saving

Q8. If you used to use Mobile Money, and no longer do, why did you discontinue use?

- 1) I didn't need it
- 2) Lost mobile
- 3) Bad experience ( e.g. network failure sending, problems with receiving money)
- 4) Other: \_\_\_\_\_

Q9. What do you like about Mobile Money?

Convenient    1) Yes    2) No

Faster      1) Yes    2) No

Safe      1) Yes    2) No

Saving      1) Yes    2) No

Portable    1) Yes    2) No

I don't know

Other \_\_\_\_\_

Q10. What do you dislike about Mobile Money?

- 1) Complicated
- 2) Network problems
- 3) Security Issues



4) Fraud ( could be swindled)

5) other \_\_\_\_\_

Q11. What factors would lead you to use Mobile Money (or use it more often)

Convenient 1) Yes 2) No

Faster 1) Yes 2) No

Safe 1) Yes 2) No

Saving 1) Yes 2) No

Portable 1) Yes 2) No

I don't know

Other \_\_\_\_\_

#### **SECTION 4: MOBILE MONEY AND REBASEMENT**

Q1. What do you think could be the impact of the rebased kwacha on the use of electronic financial systems like mobile money, Xapit or internet Banking?

(A) Increase the use of mobile money

(B) Decrease the use of mobile money

(C) No effect

(D) I don't know/ no idea

Q2. Since the new kwacha notes are more portable, do you think that they will be less incentive to use Mobile Money?

(A) Yes

(B) No

(C) Not at all

(D) I don 't know/ no idea

Q3. What do you prefer making transactions with?

(A) Electronic Money Services (eg. mobile money or internet banking)

(B) Rebased kwacha

(C) Old kwacha

(D) I don 't know/ no idea/not sure

(E) All of the above

Q4. Do you think people will use Mobile money only for specific purchases such as airtime or money transfer and use cash for other purposes?

(A) Yes

(B) No

(C) I don't know/ no idea

## **SECTION 5; FINANCIAL RESOURCES**

Q1. Where do you keep your money?

Bank (B) Home (C) Safe (D) Loan people (E) Local group (f) other:

Q2. Have you ever considered keeping your money in the bank?

(A) Yes (B) No (C) Not at all (D) N/A

Q3. Do you own a bank account with any banking institution?

(A) Yes (B) No

Q4. What type of bank account do you have?

(A) Saving Yes/No

(B) Credit Yes/No

(C) Joint Yes/No

(D) Student Yes/No

(E) Other Yes/No

Q5. How have been your experiences (if any) with banks or any other financial institution?

(A) Bad (B) Moderate (C) Fairly Good (D) Good

Q6. Do you have any banking needs?

(A) Savings (B) Loans (C) Investments (D) Bill payments (E) Money transfer (F) Other

Q7. Does the bank that you are attached with offer loans/credits in cases of emergency?

(A) Yes (B) No

Q8. Do you own Micro-Finance account with any financial institution?

(A) Yes (B) No (C) N/A (D) Don't know

Q9. If you have a bank account, do you do internet banking?





(A) Yes (B) No

Q10. Are your banking need/financial services met?

(A) Yes (B) No (C) Don't know

## **SECTION 6: BACKGROUND INFORMATION**

Gender

Age

How far did you go with school/general professional background

Occupation

Marital status

Family status (size, number of dependents):

## **APPENDIX 2**

### **INTERVIEW GUIDE**



## **ZAMBIA REBASEMENT AND MOBILE MONEY INTERVIEW GUIDE**

### **Part I: Experience with Rebasement & Coping Strategies.**

Tell us about your experience with the Rebasement (Likes, dislikes, specific events you can remember)

Do you remember when the Rebasement happened?

Why did they change the currency?

Do you like the old or new currency? Explain:

How did your money habits (e.g. spending, daily purchases) change after the Rebasement?

Will the Rebasement have an impact on your saving?

Have you been able to adjust to the new currency?

How did you get used to the new currency? ( Are you comfortable with it? What strategies (conversion, etc) did you use?)

Do you think that other people are comfortable with the new currency?

Do you think that other people in different socioeconomic classes will adjust to the Rebasement in different ways?

What has been the biggest Obstacle since the introduction of the new currency?

Has business been affected by Rebasement, and how? (Only ask people working in stores, etc)

Are people giving more, less, the same amount as prior to the Rebasement?

Apart from the price increase that resulted from the fuel issue, do you think that the rebasement has resulted in some price increases?

### **Part II: Coins**

Do you use coins?

What money forms do you mostly receive? Coins or notes? Which do you prefer?

How useful are coins to you?

How useful do you think coins are to other people?

What do you think about Zambia's transition to using coins in addition to notes?

How (or where) do you store your coins?

If you found some money lying on the floor (in coins, would you pick it up if it was 5ng, etc)? What's the lowest coin value you would pick up?

### **Part III: Mobile Money**

Have you heard about Mobile Money?

Do you know which companies provide Mobile Money services?

What can MM be used for?

Have you registered for Mobile Money use?

Have you ever used Mobile Money?

Do you currently use Mobile Money?

If they use mobile for money transfer, ask: why did you decide to use mobile money and not Moneygram or Western union, or a similar service?

If they use Mobile money to pay bills, ask: why did you decide to use Mobile Money to pay your bills and not something else, for example Xap it, or a similar service?

What do/did you use Mobile Money for? (e.g. spending, airtime, money transfers)

If you used to use Mobile Money, and no longer do, why did you discontinue use?

What do you like about Mobile Money?

What do you dislike about Mobile Money?

What factors would lead you to use Mobile Money (or use it more often)?

### **Part IV: Mobile Money and Rebasement**

What, if any, will be the impact of the Rebased Kwacha on the use of Electronic financial systems (e.g. Mobile Money, Xappit, Internet Banking)? (For example, do you think the rebasement will increase, decrease, or have no effect on the use of Mobile Money? Or Since the New Kwacha notes will be more portable, do you think there will be less incentive to use Mobile Money?)

Would you prefer making transactions using electronic money services (cashless) or the rebased currency (which is a more portable version of the old currency)?

Do you think people will use Mobile Money only for specific purchases (e.g. airtime purchase or money transfer) and use cash for other purchases?

### **Part V: Financial Resources**



How/ Where do you keep your money?

If not in a bank, would you ever consider keeping your money in a bank? Why or why not?

Do you have a bank account/ do you do chilimba/ do you have a savings or any other form of account with a financial/ microfinance institution?

What (if any) have been your experiences with banks/chilimba/other financial institutions?

Do you use internet banking e.g. Xapit?

What (if any) are your banking/financial service needs?

Do you have access to credit or loans from a person or a financial institution (e.g. if you had an emergency)?

## **Part VI: Background Info**

Interviewee #:

Venue:

Gender:

Age:

How far did you get in school?

Occupation:

Marital Status:

Family Status (size, number of children):