

Research Report

MAKING SENSE OF MOBILE MONEY IN URBAN GHANA: PERSONAL, BUSINESS, SOCIAL AND FINANCIAL INCLUSION PROSPECTS.

Submitted to:

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ABSTRACT

The goal of the current study was to explore personal, business, and social money-related practices that have emerged with increased patronage of MM in Ghana. Of particular interest was the impact of MM on the urban poor who so far appear to be the sector of the population least aware of, and for now, the least likely to use MM in their daily lives. Research to answer these questions was conducted using surveys, spending diaries, interviews, and analysis of secondary data.

The results of this series of studies revealed the following:

1. Cash is King in Ghana: Cash is still the main form of payment for day-to-day purchases. Large payments generally involve involvement of the formal banking sector. Cashless payment forms have not yet begun to dominate the payment
2. Mobile Money knowledge and use has increased, but MM has not become a major means of payment for goods and services, or savings.
3. Mobile Network Operators have increased MM products available to the public, slowly creating a MM ecosystem. However, apart from money transfer, this ecosystem is largely targeting the middle and upper class.
4. Barriers to MM uptake remain: Information gathered from interviews indicates the persistence of regulatory, partnership, and educational barriers that hamper the growth of the MM industry in Ghana.

INTRODUCTION

The goal of the current study was to explore personal, business, and social money-related practices that have emerged with increased patronage of Mobile Money (MM) in Ghana. Of particular interest was the impact of MM on the urban poor who so far appear to be the sector of the population least aware of, the least likely to use MM in their daily lives.

BACKGROUND

Previous research on Ghana's urban poor (Mensah & Dzokoto, 2011: IMTFI final report) revealed a distinct pattern of exclusion from the formal financial sector. A knowledge gap was identified: the urban poor had limited knowledge of the banking industry and access to credit. The urban poor also faced geographic and bureaucratic barriers that served as obstacles to access to financial services in the formal sector. Finally, a savings and storage gap was identified in the population, with low rates and perceived ability to store wealth.

A similar pattern was found with regards to MM services (Dzokoto & Mensah, 2012: IMTFI final report). The urban poor were the least knowledgeable of MM and had the lowest degree of confidence in the utility of MM products. While there were limited geographic barriers to the access of MM services (compared to banks), some bureaucratic barriers (such as lack of a picture ID) were observed. Whether MM will continue to be an area of financial exclusion in this population remains to be seen.

The MM platform has clear advantages for Ghanaian businesses and consumers over fiat currency. While the initial pace of adoption of Mobile Money (MM) by Ghanaian consumers has been slow, Mobile Network Operators (MNOs) in Ghana have an optimistic outlook regarding its future.

The goals of the proposed study were to (i) investigate MM uptake patterns in year 3 of its re-introduction to Ghana, (ii) to explore the social and cultural interfaces between MM and existing money behaviors, including savings and money transfer practices in Ghanaians of different socioeconomic classes, and (iii) to investigate of the internalized (cognitive) representations of MM that Ghanaians develop. The study focused on the segments of the Ghanaian population and behavioral practices that were perceived as included and excluded from the MM adoption process.

CONCEPTUAL ISSUES FOR THE CURRENT STUDY

MM is projected to have significant impact on various money-related practices at the personal and business levels. MM is marketed in Ghana as a means of pre-paying for mobile phone units (for oneself and others) without having to purchase a phone card, as a mechanism for money transfer (for personal use, person to person transfer, and purchases (www.mtn.com.gh; [www. Airtel.com](http://www.Airtel.com))). In addition, market-wide adoption and use of MM in Ghana would eliminate the current challenges faced by Ghanaian consumers which include lack of access to the formal banking sector by the poor (Mensah & Dzokoto, 2011), hassles involved with dealing with the banking sector (including queuing for long periods of time to use existing banking services for those who have bank accounts), the need for carrying large sums of cash for large purchases (since credit cards were available and checks are accepted only from trusted customers that vendors have a long term relationship with), and the recurring problem of lack of change for small purchases (e.g. from street vendors).

We approached this study from the premise that Mobile Money uptake will be influenced by the following factors: Commercial acceptability of mobile money, impact of mobile money

on the poor, impact of mobile money in the social sphere (including unintended consequences of mobile money). Each of these is briefly discussed in the following paragraphs.

Commercial Acceptability: Furnham and Argyle (1998) point out that it is the commercial acceptability rather than the legality of a particular form of money that determines its usefulness. Commercial acceptability of crediting and debiting via the mobile phone in Ghana will be contingent upon the ability of MM to (i) replace the functions of cash, (ii) perform additional functions based on its unique characteristics and (iii) compete with existing alternate sources of money (both formal and informal) for legitimacy. Its potential users will need to comprehend how to use it, and the manner in which it relates to (e.g. converts into and from) alternate forms of money. If these conditions are not met, consumer resistance may occur, regardless of the potential of the money object or its economic utility.

Social Impact of Mobile Money: Consumer resistance to product uptake has been known to occur when adoption and use of the product require significant alterations in the consumers' value systems, as well as their "established behavioral patterns, norms, habits and traditions" (Kleijnen, Lee, & Wetzels, 2009). This resistance can lead to negative attitudes towards the product, resulting in its outright rejection (and hence non-adoption), postponement of use, or outright opposition, and thus, a market failure for the product (Bredahl, 2001, Grabner-Kraeuter, 2002; Lennon, Kim, Johnson, Jolly, Damhorst & Jasper, 2007).

Money that is easier to use within the socio-cultural context will result in positive attitudes and faster consumer adoption, whereas those that are not will be slower to be accepted or may be marginalized. Whereas economic development factors and technological advancement may warrant the introduction and use of novel systems of payment and stores of value (i.e. money), design aspects of these novel systems or objects can determine its adoption by consumers. In

addition, given the varied social functions of money in the Ghanaian social sphere (for example in the context of gifting in the observation of religious obligations and societal rights of passage), a question worth considering is whether MM will play larger roles in the lives of individuals and their families other than for money transfers, which facilitate people in meeting their familial financial obligations by providing financial support through remittances. Kusimba, Chaggar, Gross and Kunyla (2013) observed that MM can be associated with unintended negative social consequences. For instance, they observe that MM allows Kenyans to gift money (e.g. at weddings and funerals) without needing to physically be present. While this eliminates travel costs for the sender and therefore makes economic sense, there is a social cost of the individual not being physically involved in the ceremony. The authors also observe that a downside of the convenience of MM is an increased request for remittances.

Impact of mobile money on the poor. Proponents of MM have repeatedly argued that MM could make saving opportunities more accessible, especially for the unbanked (e.g. Wolman, 2012). While Kusimba, et al., (2013) observe that savings in general has been facilitated by the adoption of mobile money (in Kenya), and various Non-governmental organizations world-wide are adopting MM as a means of payment in various initiatives, it remains to be seen whether MM has any impact on the Ghanaian poor.

OVERVIEW OF STUDIES

Ethics Review: IRB approval for the studies was obtained from Virginia Commonwealth University. In order to protect the research participants, there was no documentation of informed consent and no collection of identifiers. Participants were given the option of not having their interviews recorded (in which case notes were taken during the interview), and interviews were

conducted in locations of the research participants' choosing so as to address issues of privacy, should the interviewees be concerned about it.

Methodology: Our research questions were explored using multiple methods including industry data, one-on-one interviews with consumers in Accra, and questionnaire data administered to a college student sample.

Compensation: College students obtained extra credit points for participation in the study. Non-merchant interviewees were compensated for their participation in the study, and participants in the survey were not compensated for answering our poll questions which lasted about 1-2 minutes.

STUDY 1: ADOPTION OF MM INTO PERSONAL FINANCIAL PRACTICES, A QUANTITATIVE INQUIRY.

Are people using MM in Ghana? If so, when and how is MM used? Do people prefer to use MM more than other modes of payments for goods and services? Exploration of these questions was accomplished by a series of studies.

1a. Monetary Preferences Study: Technology adoption research generally measures the likelihood of an individual using a novel product using a willingness to use (WTU) index. A shortcoming of this method is that the behavior (using the product) is considered in isolation from competing products. In many scenarios, individuals may in fact have a choice between using several products, each of which they may be willing to use to a different - or even similar - extent. A WTU index may therefore not be able to predict what decisions individuals will make in such cases. For this reason, we argue that asking people to engage in a series of forced choice scenarios in which they have to choose between two options might be better means of understanding an individual's likelihood of using a particular product, such as MM.

Preference for different monetary instruments (e.g. cash, ATM card, pre-paid card, phone card, checks, and MM) was assessed using a pair-wise comparison approach. 244 participants completed 408 pairwise comparisons of various denominations of Ghanaian currency, including MM.

Results.

Data analysis consisted of an enumeration of one-on-one comparison for wins and losses, with 16 comparisons for each form of money. If a form of money was more preferable overall than another, it was scored a “win” in that comparison.

The pairwise data indicated a complete preference for Treasury bill over all other forms of cashless and cashlite money options. In every instance the Treasury bill was chosen more often than whatever it was being compared to (Figure 1). Conversely, Traveler’s check was chosen the least amount of times across the entire pairwise comparison survey, with it never being preferred more than any other money option. All other forms of cashless and cashlite money options were chose at variable amounts throughout the comparisons. For instance, Bank draft had a total of 93.75% of losses, indicating that the majority of respondents did not prefer using bank draft over other forms of money.

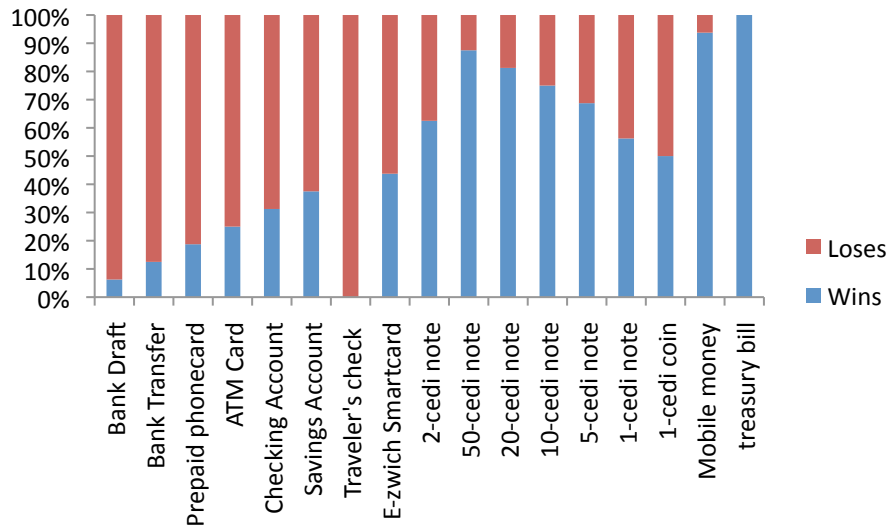
The wins of the different denominations of cash ranged from 9 to 14, with a mean of 11.5, indicating that cash was preferred to all other forms of payment at least 50% of the time. In terms of specific denominations, the highest value note (50 cedis) was the most preferred, and the lowest value note (1 cedi) was the least preferred.

How did MM money fare in comparison to various denominations of fiat currency in Ghana? Out of the 244 respondents, 60 preferred the Mobile Money to the 184 that preferred the 1-cedi coin. The effect was reversed for the denominations of cash (1, 2, 5, 20 and 50 cedi notes)

such that all respondents reported a MM preference. Collectively, Mobile money had a total of 93.75% of wins, suggesting that it had high preference among respondents for everything but coins.

Figure 1.

Comparison Data: Wins and Losses in Money type preferences.



Two card-based payment forms were included in the pairwise comparison options; ATM cards and E-zwich (biometric) smartcards. E-zwich cards were preferred over 7 payment forms including bank transfer, bank draft, prepaid phone card, ATM card, travelers' checks. ATM cards were preferred over travelers' checks, bank drafts, bank transfers and prepaid phone cards. Out of the 244 respondents, 52 preferred the E-Zwich card (a biometric card that has the capability of hosting multiple e-wallets), while 192 preferred Mobile Money. In sum, MM seemed the clear choice in comparison to various banking products and the lower denominations of currency which are used for everyday financial transactions.

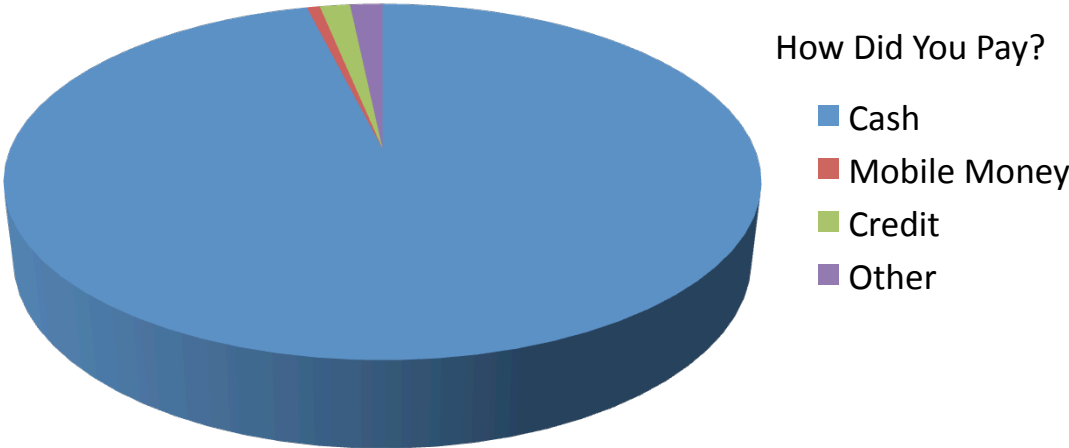
The results of the pair wise comparisons indicated a significant preference for prepaid phone cards than many other types of money in cashless form. For instance, over 90 percent of the target group reported a preference of prepaid phone card over bank drafts. Our findings also show that Ghanaians would rather transact business in physical cash than in any other form of cashless business transactions. While our results indicate an overwhelming 100% preference of notes to coins, there was no difference of preference between the 1 cedi coin and the 1 cedi note to consumers. However, the 50 cedi note, as expected was considered more valuable than any form of note or cashless money.

With regards to Mobile Money, we observed the following: Out of the 244 respondents, each of the following: Bank Transfer (n=61), Prepaid Phone Card (n=61), ATM Card (n=61), Checking Account (n=61), was less preferred than MM (n=183). Similarly, Savings Account (n=60) and Traveler's Check (n=60) were each preferred less when compared to MM (n=184). Finally, out of the 244 respondents, 52 preferred the E-Zwich card (a biometric card that has the capability of hosting multiple e-wallets), while 192 preferred Mobile Money. In sum, MM seemed the clear choice in comparison to various banking products.

1b. Spending Diary Study: Given the expressed preferences for MM by the sample of 244 university students, it was important to explore the extent to which these expressed preferences translated into actual behavior. While the results of the previous study indicated that MM was preferred in some settings, this was not the case for the lower currency denominations. To this end, a sample of 157 male and female University students in Accra was asked to keep spending diaries of their purchases for one week. Participants were asked to track what they bought and how they paid for the items that were purchased.

Results: Participants reported a total of 1220 cash-based transactions over the course of the week. Cash was the predominant form of payment for daily expenses. Mobile Money accounted for less than 1% of total purchases made over a 7-day period. In all, non-cash transactions made up 2.86% of all reported purchases. While most prices were quoted or priced in Ghana’s cedi, some respondents noted that some vendors still quoted prices in the old currency despite the termination of its circulation in 2008.

Figure 2: Money Method of Payment



Payment	Percentage
Cash	87.0
Mobile Money	0.6
Credit	1.4
Other	1.5

Missing	9.6
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Table 1: Money Method of Payment (Percentages)

**Significant majority of
Ghanaians use cash for
purchasing.**

Figure 3: Money Method of Payment by Price Listed in Old or New Currency

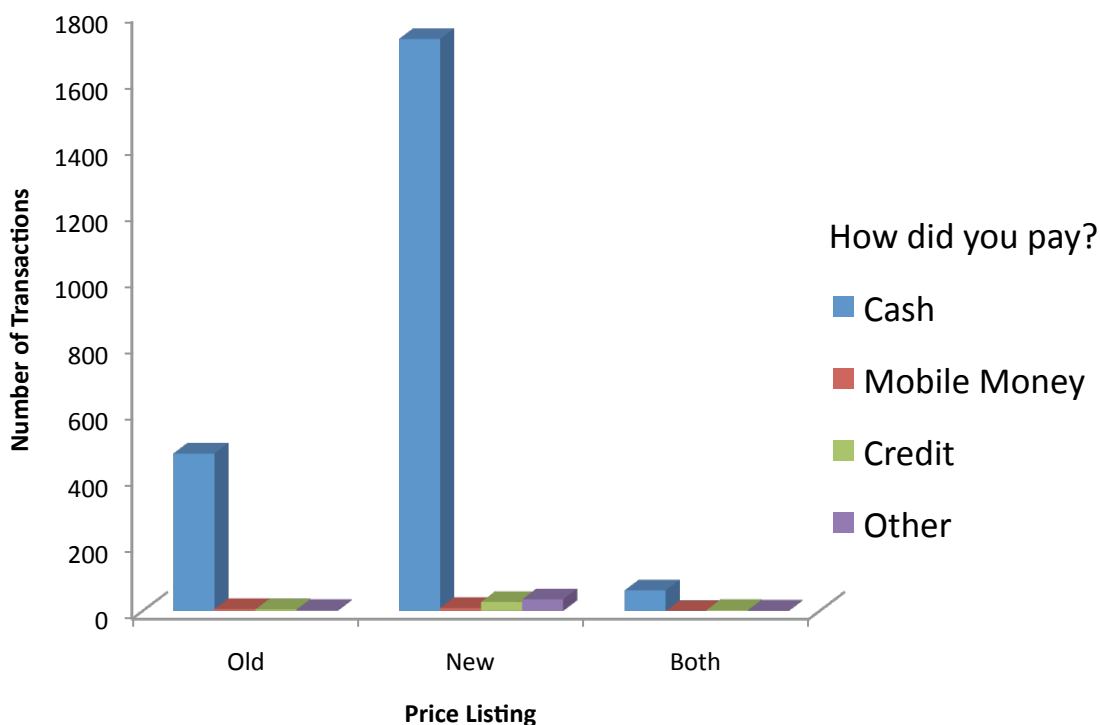


Table 2: Money Method of Payment by Price Listed in Old or New Currency

Price Currency	Method of Payment*			
	Cash	Mobile Money	Credit	Other
Old	475	6	5	3
New	1726	9	27	35

**Most items were priced
in the new currency.**

Both	62	0	3	1
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*Note: All payments were made in the new currency.

Figure 4: Money Method of Payment by Price Quoted or Visibly Marked

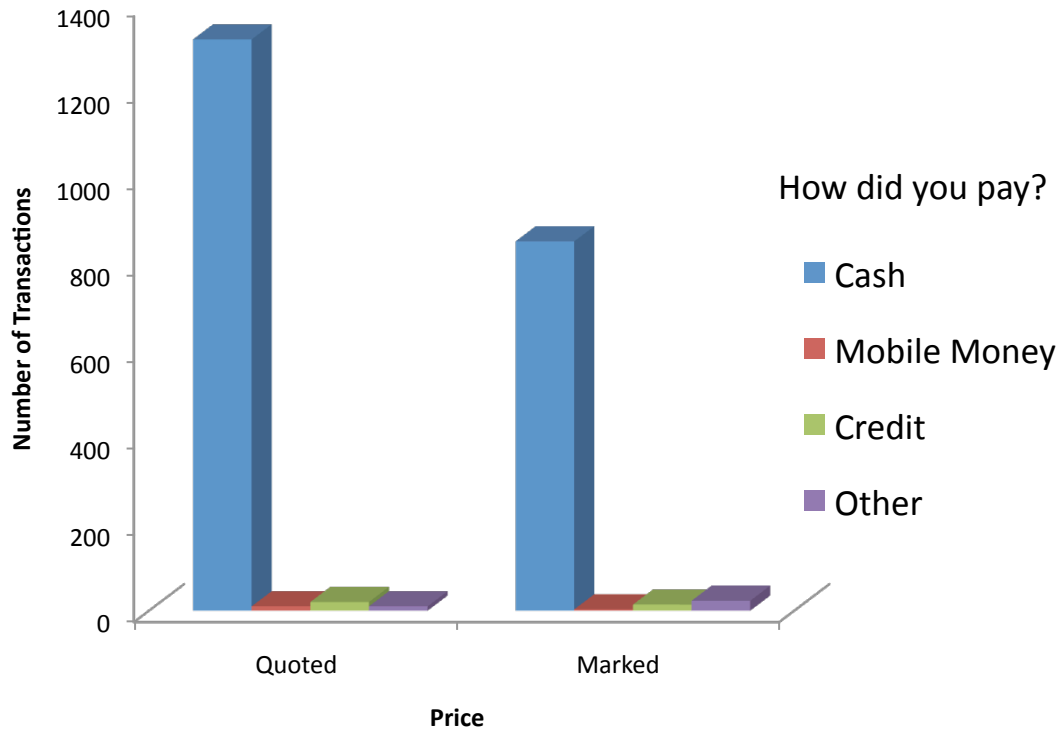


Table 3: Money Method of Payment by Price Quoted or Visibly Marked (Number of Transactions)

		Method of Payment			
		Cash	Mobile Money	Credit	Other
Pri	Quoted	1321	10	20	10
	Marked	854	3	14	23

Most prices of items were quoted.

Figure 5: Money Method of Payment by Bargaining

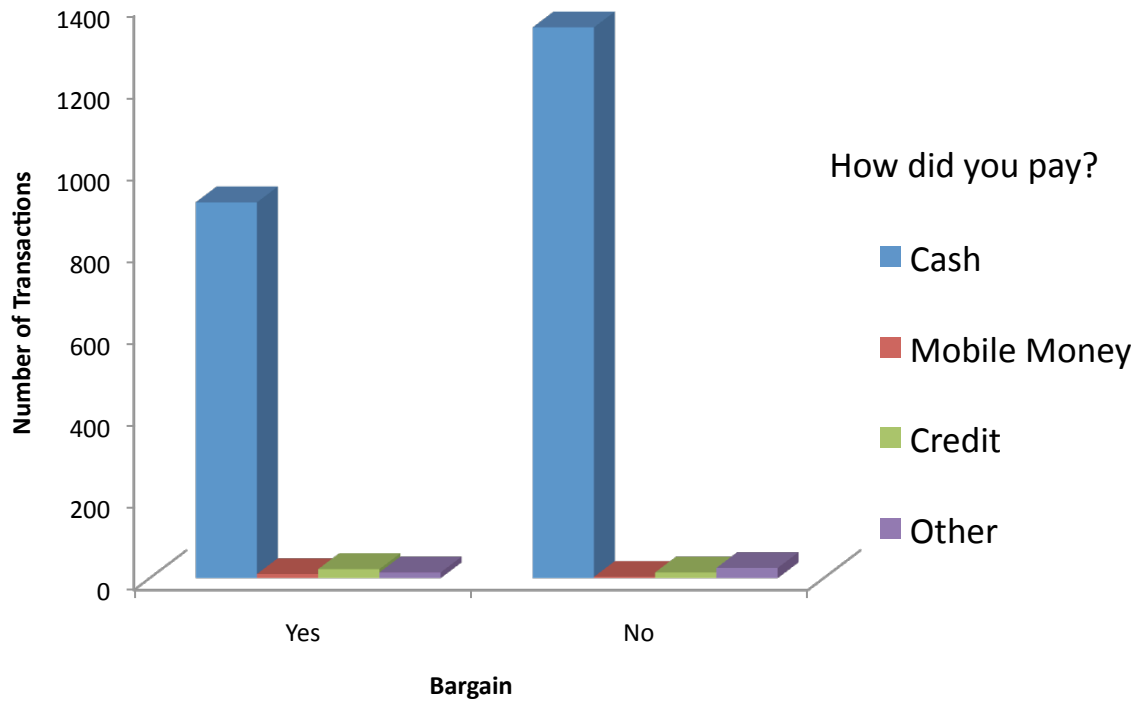


Table 4: Money Method of Payment by Bargaining (Number of Transactions)

B ar ga	Method of Payment			
	Cash	Mobile Money	Credit	Other
Yes	917	10	22	14
No	1344	3	14	25

Most participants did not bargain.

Figure 6: Money Method of Payment by Bargaining in Old or New Currency

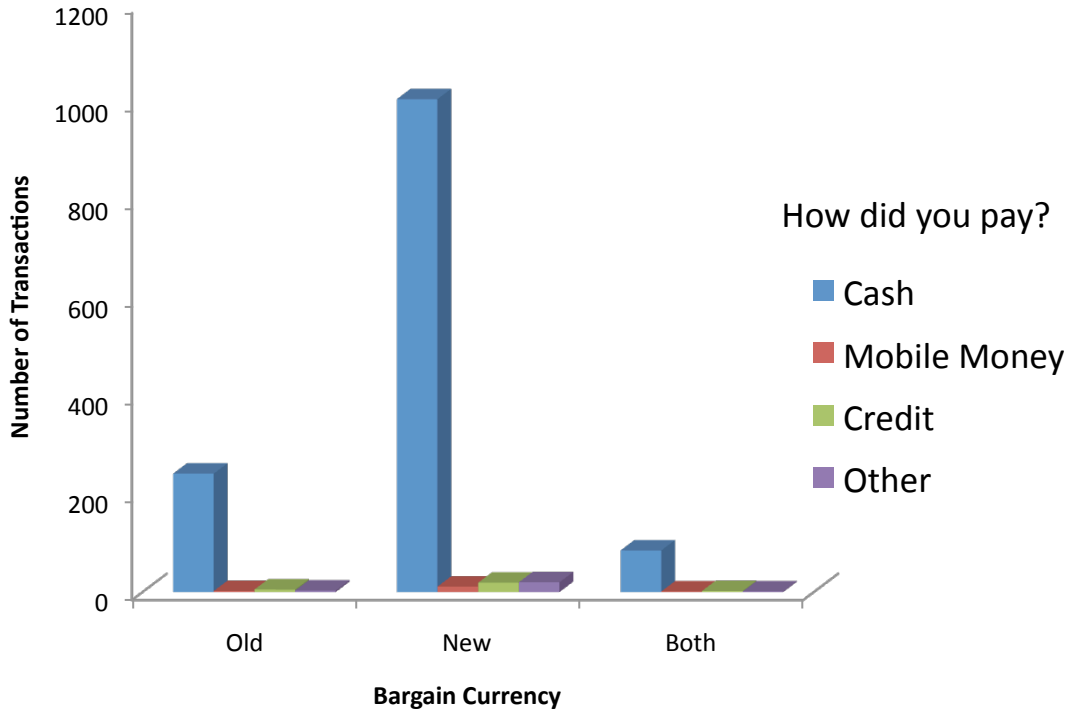


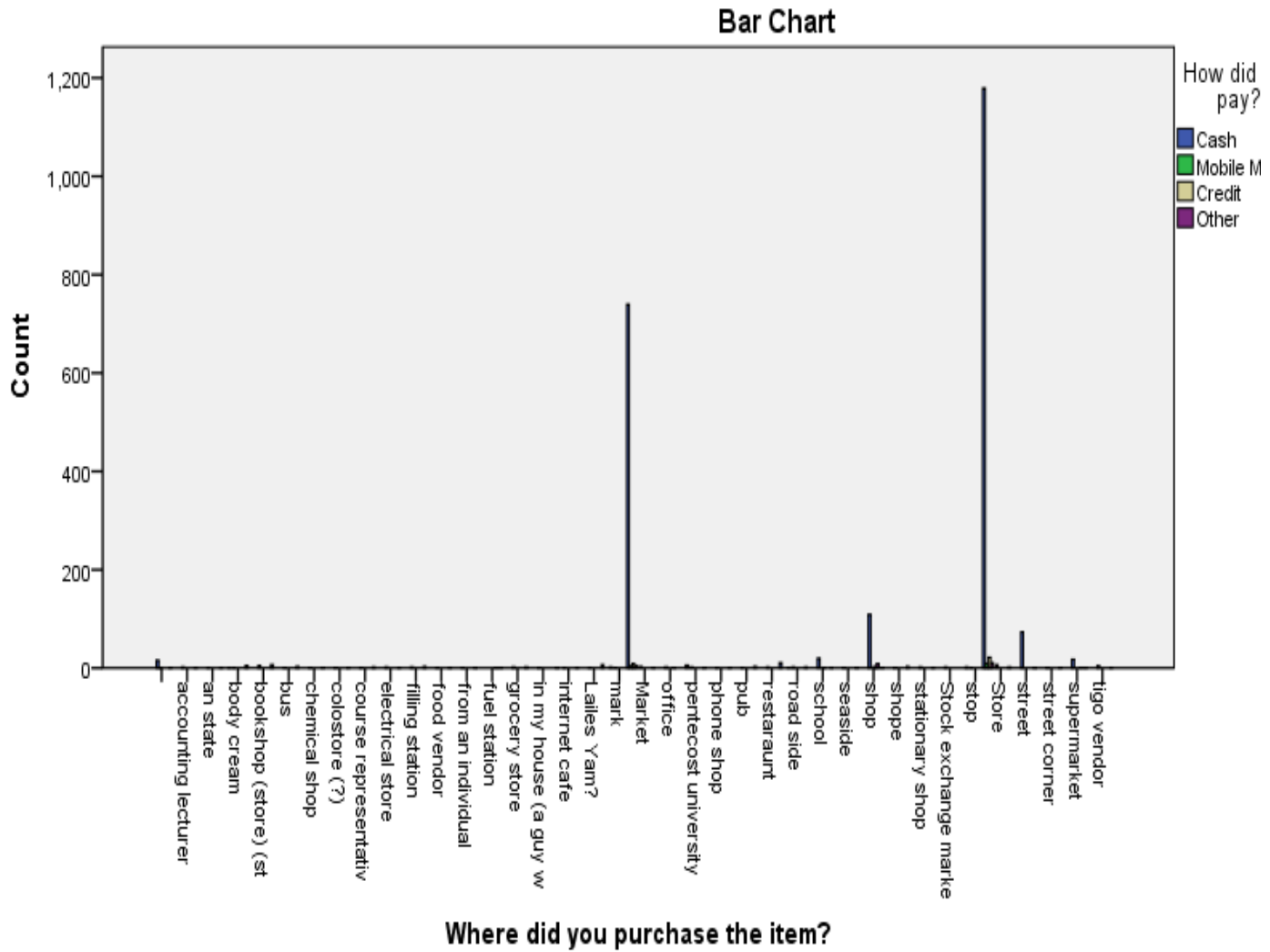
Table 5: Money Method of Payment by Bargaining in Old or New Currency (Number of Transactions)

Bargain Currency	Method of Payment*			
	Cash	Mobile Money	Credit	Other
Old	242	2	5	3
New	1008	11	19	20
Both	85	1	2	1

When they did bargain, most participants bargained in the new currency.

*Note: All payments were made in the new currency.

Figure 7: Money Method used for Payment by Location of Purchase



1c. Mobile Money Use Population Survey: Given the reality that college student spending habits may not necessarily be representative of the national sample, the focus of the next study was Ghanaian adults in Accra. For practical reasons including time constraints and extremely low anticipated return rates, it was decided to assess only rates of MM use in this population rather than collect spending diaries. Rather than asking individuals to estimate what percent of their financial transactions were made using MM, we asked participants about their lifetime MM use.

Results:

1250 adults were recruited from 10 suburbs of Accra in June and July of 2012 to participate in a brief poll about Mobile Money. Recruitment was done in busy public areas with a lot of human traffic (e.g. near transportation hubs and markets). The resultant sample was 57% male, with 25% of the sample who provided their ages being between 19 and 25.

A total of 179 males and females (14% of the sample) reported having used Mobile Money at least once. Of the MM users, 50% had used MM to receive a money transfer from someone else. 20% had transferred MM to someone else, 10% of respondents had sent and received money, and 5.6% had used MM to pay a bill or make a purchase. 3.4% of the sample reported having used MM to buy airtime. The most popular MNO in our sample for MM use was MTN, which makes sense since MTN currently has the largest mobile phone market share, and was the first MNO to launch MM in Ghana.

Figure 8: Age Range of Participants

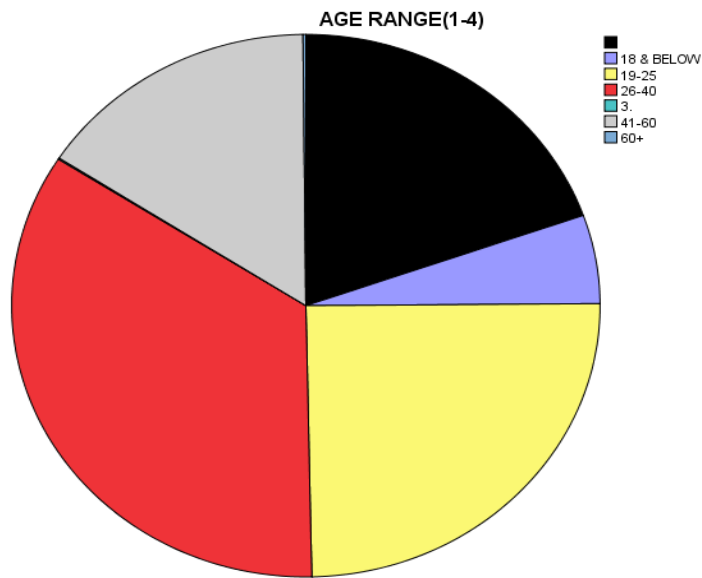


Figure 9: Use of Mobile Money Services

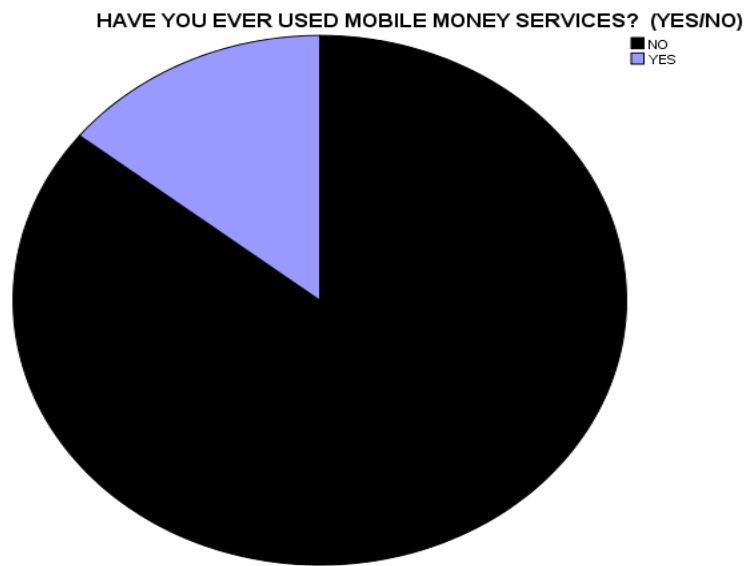


Figure 10: Purpose for which Mobile Money was Used

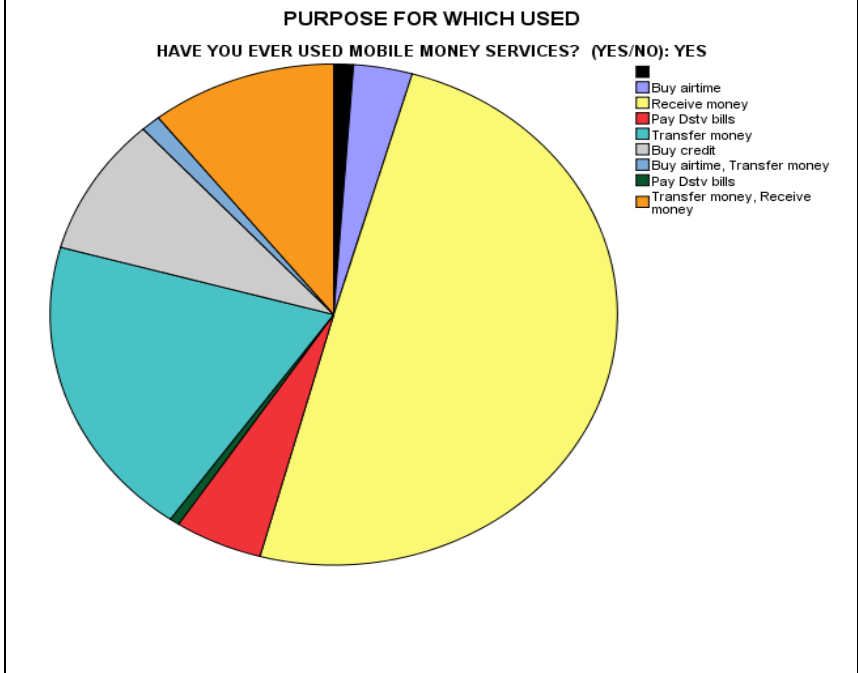
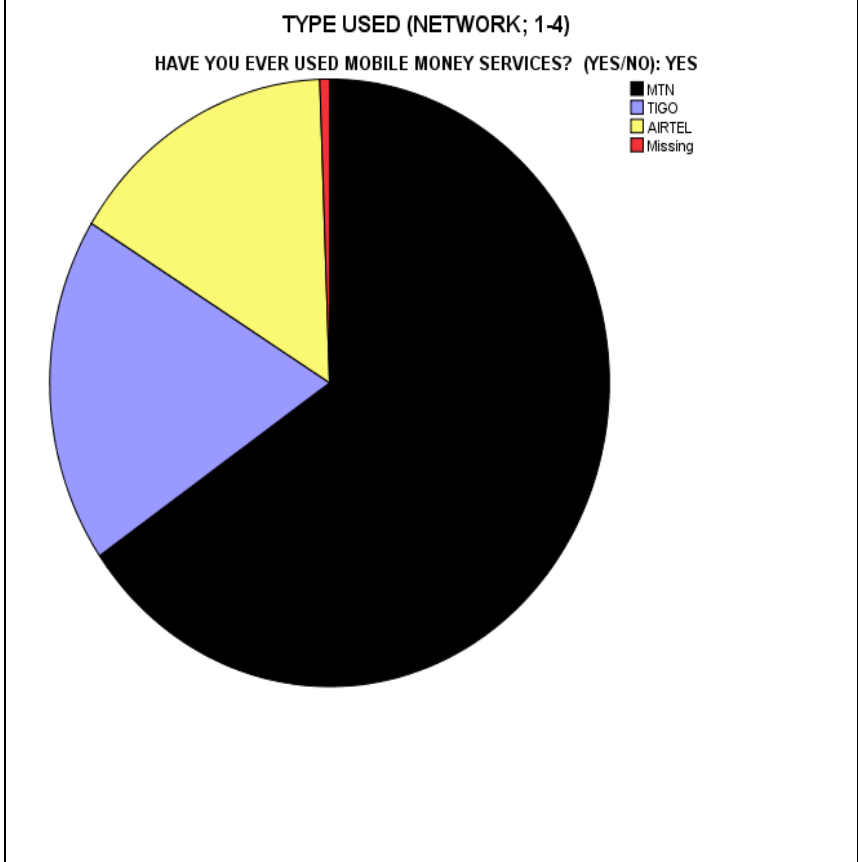
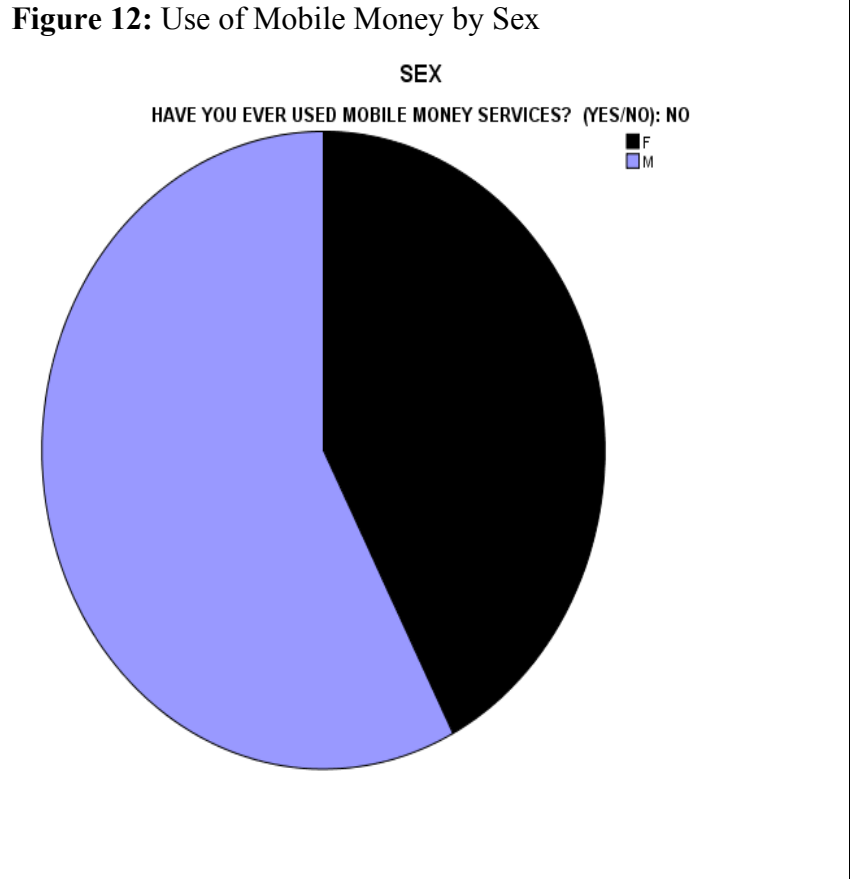


Figure 11: Mobile Money Network Used





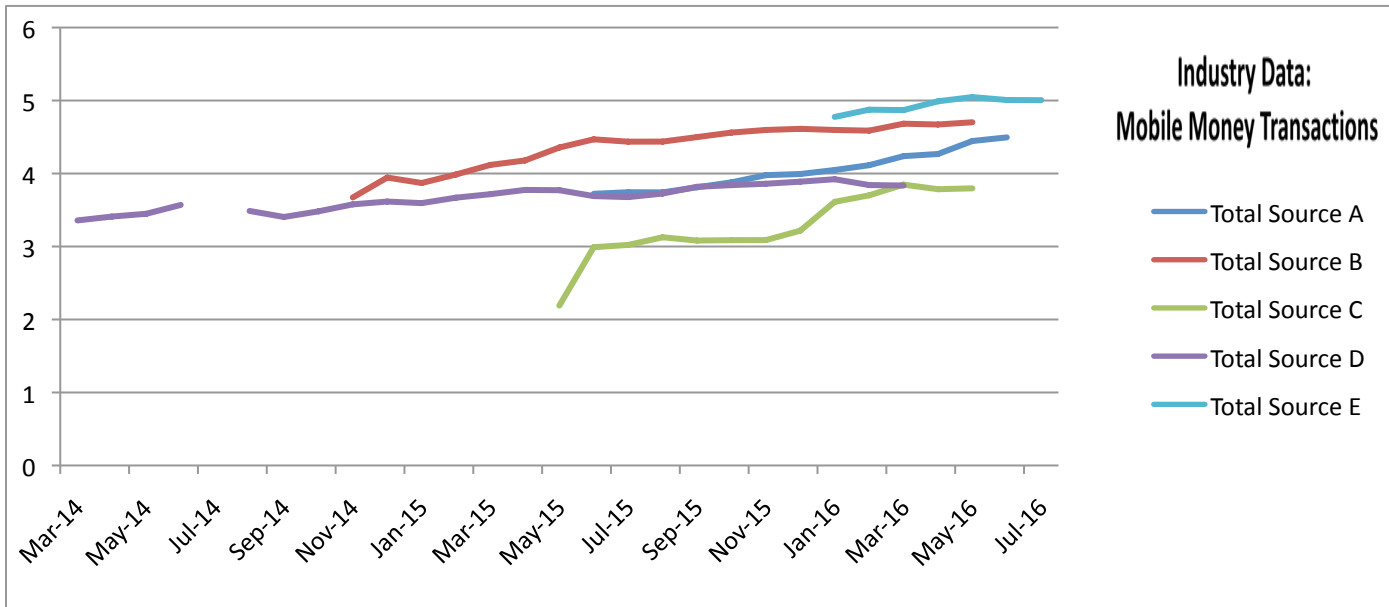
The results are consistent with the spending diary data: MM did not feature prominently in financial transactions. Instead, MM was largely used as a means of money transfer. Given that none of our respondents indicated that they had used MM to save, it can be inferred that MM recipients cash out.

1d. Industry Data: To supplement our user-driven data about preference and use of MM, Mobile Network operators and their partners were contacted and requested to provide data on MM uptake. Majority of people we contacted declined to provide data, and the ones that did requested that we kept the source anonymous. In order to keep the data anonymous, the scale of the volume of the transactions has been transformed. The data obtained from each source showed

an upward trend. A Time Series Analysis for Mobile Money Transactions was conducted to determine whether or not these increases were statistically significant.

Results:

Figure 13: Time Series Analysis for Mobile Money Transactions



Using E-views, trend extrapolation is best estimated using the OLS on trend. The estimated output is shown in the table below. From Table 6, it is evident that both the trend and intercept are significant at one percent and five percent, respectively. The F-statistic is also significant indicating the model has good fit. The diagnostic test with the error, which is not shown in the paper, also indicates that the residual is well behaved as the correlogram indicates no autocorrelation in the model. This can be interpreted as a significant uptake in mobile money use based on the provided data.

Table 6: Mobile Money Transaction Trends

Dependent Variable: SER01
Method: Least Squares
Sample: 2010M01 2011M12
Included observations: 24

	Coefficient	Std. Error	t-Statistic	Prob.
	-			
C	31633.84	11857.49	-2.667836	0.0141
TREND	7437.061	829.8516	8.961917	0.0000
R-squared	0.784980	Mean dependent var		61329.42
Adjusted R-squared	0.775206	S.D. dependent var		59354.97
S.E. of regression	28141.64	Akaike info criterion		23.40754
Sum squared resid	1.74E+10	Schwarz criterion		23.50571
	-			
Log likelihood	278.8905	Hannan-Quinn criter.		23.43359
F-statistic	80.31595	Durbin-Watson stat		0.606507
Prob(F-statistic)	0.000000			

The model employed is the trend extrapolation. This method is useful if the data or series historic trend in the data is smooth and will continue on its present course into the near future. The data under consideration as exhibited in the figure below indicates some trend hence the study used this technique for the analysis. However, at a point in time, there is a drop in the trend, which in part could be explained by the missing data in the sample. Therefore the data for the analysis was shortened; hence, it was simply not enough to generalize the results for Ghana. The availability of qualitative explanation from the sources of data will determine why we are getting this drop in the trend.

Conclusion: The forecast equation from the above table is given by $Y = \alpha + \beta X$

where

Y is the dependent variable, (α) is the intercept and (β) is the trend coefficient, and X is the independent variable.

The estimated values $Y = -31633.84 + 7437.061X$

where Y specifically is the *number of transactions made with electronic devices* and X is the year we want to predict. The *theil inequality test* was also conducted to confirm whether the model is fit to predict correctly. The result (0.1637) means the model indeed could predict rightly. Since the intention is to forecast how the use of mobile money would look like in the future, and if there were enough data from many sources, a 2-3 year forecast could have been done to confirm the behavior of the variable, mobile money usage.

STUDY 2: ADOPTION OF MM INTO PERSONAL FINANCIAL PRACTICES, A QUALITATIVE INQUIRY.

Interviews were conducted with various MM stakeholders in June, July and August of 2012. Interviewees included individuals working in the MM industry, retailers, consumers, and non-users of MM. Majority of the interviews were recorded. However, in a few cases, interviewees declined to be taped. Notes were taken in those cases. All interviews were transcribed. Non-English interviews were translated into English. Thematic analysis was used to summarize the interview data.

2a. Interviews with individuals in the MM industry.

10 interviews, lasting between 30 minutes to an hour, were conducted with individuals involved in various aspects of Ghana's MM industry. These included individuals working in companies that provided or intended to provide MM services (e.g. Mobile Network Operators (MNOs)), Banking partners of MNOs, software developers, and regulators. Due to the concerns about proprietary information by some of the interviewees, identities and companies will not be

revealed. Furthermore, permission was not given in most cases for individuals to be quoted verbatim; hence general themes will be mostly discussed without illustrative interview excerpts.

Results.

Collectively, interviewees addressed the following themes which they considered to be barriers to MM uptake in Ghana: Limited Utility of MM in the financial sector, Agent-specific issues, Lack of information, difficulties in developing effective Bank Partnerships and Other Regulatory Issues, issues related to financial inclusion, and competition between MNOs. Nevertheless, most interviewees considered there to be significant potential for growth in the MM industry in Ghana. Interviewees affiliated with or who frequently interacted with MNOs observed that many of the MNOS were using evaluations of their previous MM marketing strategies to inform new endeavors, and many companies would be embarking on new initiatives, the results of some of which would become evident after data collection for the current project had concluded. As such, the analysis of the interviews should not be taken as an exhaustive summary of industry and regulatory factors impacting the growth of the MM industry in Ghana.

Limited Utility of MM: The need for a larger MM ecosystem of products to increase the utility of MM was addressed by many respondents. MNOs were working on increasing their partnerships with various organizations in order to make this possible. Majority of the early products appeared to be targeted towards middle to upper class urban residents to facilitate the payment of items such as airline tickets and food delivery services. For proprietary reasons, interviewees declined to disclose products under development.

Agent Issues: Interviewees observed that a reliable agent network was important for the success of MM in Ghana. Two main issues were observed: profitability and availability. While

MNOs reportedly initially recruited large numbers of MM agents, some MNOs have had to reorganize their agent networks. One major concern for agents was the lack of profitability. Many interviewees reported that the agents perceived the MM profit margin as being too low, indicating that it was in fact more profitable “to sell Pure Water” (pure water is a Ghanaian brand of water sold in 500 ml sachets, used primarily for drinking) than to sell MM. A second concern for agents noted by our interviewees was that the initial MM settlement period was 7 days, which hampered the cash flows of their businesses. These concerns led to some agents to discontinue vending MM, leading to a decrease in the availability of agents.

The growth of the use of MM in Ghana was also acknowledged to be affected by the lack of agents in some parts of the country, such as in rural Northern and Central regions at the time of the study. In addition, some agents had limited hours, or did not accurately anticipate the amount of e-value or cash they would need to have on hand. As such, customers were not necessarily guaranteed service even if an agent was supposed to be available. In sum, the agent relationship was acknowledged as an area that needed improvement.

Information Gap: Despite an increase in the channels used to communicate information about MM products to the general public, some respondents noted occasional problems in getting the information across to its intended recipients. For instance, it was noted that on 2 separate occasions, a regional director of an agency sent the Bureau of National Investigation to arrest people from a company that allowed people to pay their electricity bills with MM. Electricity payments are one of the widely advertised functions of MM from MTN, Airtel, and Tigo, the MNOs that provided MM at the time of data collection. This indicates that despite the partnerships formed, the approvals obtained, the marketing conducted, there appeared to be a break in the communication in some levels of management, leading MM payments to be viewed

with suspicion. Some of the respondents noted that despite advertisements on television, radio, billboards, and print media, there was still low public awareness of details of MM. For example, it was noted that some people thought that terms made popular through MM advertisements were simply new terms to refer to the MNO company, or airtime. It was recognized that more strategic marketing strategies were needed, and several MNOs had plans to engage with their potential customers in new ways. Illiteracy and low education levels were perceived as barriers to the public education efforts.

Bank Partnerships and Other Regulatory Issues: MM regulations at the time of data collection, according to the Bank of Ghana (Ghana's Central Bank), required that MNOs worked in partnership with financial institutions. This restriction was perceived as somewhat problematic to rapid MM uptake. There were different perceptions of what the role of banking institutions was in these partnerships, ranging from holding the float for the MNO and agents, to being active partners in creating and promoting products. A sentiment that MNOs would be able to achieve more on their own was expressed.

The lack of a national agenda on MM was also reported as a barrier to MM uptake in Ghana. It was argued that different MM stakeholders were involved in various initiatives independently of each other. These initiatives could benefit from coordination, which could be facilitated by having all the stakeholders communicate with each other. Instead, an interview observed, "you have all these things sitting in silos trying to do different things with a common objective because there is no national agenda, so it is all over the place".

Competition: Some interviewees observed that MM departments in MNOs have been beleaguered with personnel issues due to fierce competition between the MNOs. Reported examples some interviewees had heard of included alleged employee poaching, accusations of

sabotage, high rates of employee turnover, and departmental restructuring. While personnel changes might be conceptualized as necessary growing pains, discontinuities in staffing could have had an impact on consistent implementation of planned programming.

Financial Inclusion: Interviewees were asked whether they perceived MM in Ghana as being a means to financial inclusion. The prevalent impression was that up to the time of the current study, MM had been successful in creating more financial payment channels for the banked (multi-banked, since banked Ghanaians tended to own more than one bank account), but had not yet become an important tool for the unbanked, except for recipients of money transfers. According to some respondents, MM use was increasing over time, both for bill payments and money transfers, but most recipients of MM transfers cashed out, indicating that MM was not popular as a savings tool. The low profit margin on MM products and services, in conjunction with the required partnerships with banks was seen as a barrier to promoting financial inclusion. An interviewee pointed out that it was important to remember that “At the end of the day, a bank is a business, and has got to make a profit”.

Potential for Growth: Despite the observed obstacles, most respondents expressed the opinion that there was potential for growth in the MM industry in Ghana, for different segments of the population. Given the credit card restrictions for online commerce at the time of data collection, MM was seen by programmers as a payment solution for online commerce in Ghana. MM was also seen as having great potential for financial inclusion in Northern Ghana which has a lower density of banks than the southern part of the country, as well as with partnerships with microfinance companies.

Optimism of increased MM uptake was communicated by statements such as “we will get there”, “the building blocks are there”, “It will work. I believe strongly that it will work”, and “We (interviewee’s MNO) have plans in place to get there”.

The expressed optimism was in contrast to the experiences of some interviewees who had unsuccessfully tried to market new MM products to retailers and MNOs. Some innovations were rejected outright, while others received verbal support but no commitment or action from potential partners. These interviewees were of the perspective that there was a need to build trust of MM as a safe, convenient, and robust payment system, as well as a need to promote an environment of openness to innovations. Until then, MM would continue to have stunted growth in Ghana.

In summary, interviewees discussed several barriers to mobile money adoption. While they expressed a mostly positive outlook on the future of MM in Ghana, these obstacles will need to be overcome in order for MM uptake to increase.

2b. Interviews with Consumers (both users and non-users of MM):

The interview sample consisted of forty (40) low income individuals (described as urban poor), and an equal number of individuals of in higher income brackets living in the Accra metropolis. Urban poor were recruited from selected professions such as the unemployed, market porters (kaya ye), street sellers (those who sell on the road), food hawkers (people who peddle food and other items), kiosk merchants who do not own their own businesses, hair dresser assistants, shoe makers, carpenters, day laborers (e.g. construction day laborers), bus or “trotro” conductors, truck pushers, and squatters. Previous research indicates that this potential sample has irregular income which averages 1-2 dollars a day. Attempts were made to have equal representation in terms of gender.

Results

Consistent with the pairwise comparisons, our non-college student population expressed a preference for cash over MM. Unlike our college student sample, however, they did not make a distinction between the higher and lower denominations of Ghanaian currency, reporting an overall preference for cash over MM.

Table 7: Interview Comments on Barriers to Mobile Money Use

Lack of Knowledge
<ul style="list-style-type: none"> ○ “I’ve heard about it, but I don’t know how to use it” ○ “I need more information” ○ “Ei. What if I lose my phone?”
Preference for Cash
<ul style="list-style-type: none"> ○ “As for me, I prefer cash” ○ “There is NO WAY you can convince a Kwahu woman not to use cash” ○ “I have it, but have never used it” ○ “I have no need for it” ○ “Everybody knows that we don’t use it here [Market]”
Anti-Mobile Money Perspective
<ul style="list-style-type: none"> ○ “I don’t trust it” ○ “Its 666, oh” ○ “It’s for rich people”
Pro-Mobile Money Perspective
<ul style="list-style-type: none"> ○ “Life is now easy with Tigo Cash” ○ “I used it to send money to my mother” ○ “I use it for airtime and DSTV but I don’t trust the other utility companies” ○ “We have a long way to go, but we have just started” ○ “I’ll use it when others do”

As the table indicates, there was an expressed lack of trust of MM by some interviewees. Majority of our respondents did not think that they would want to use MM for the payment of goods and services. Reported basic knowledge of MM was higher than in previous years, indicating that the public education activities of MNOs seem to be having some impact. However, many people reported needing additional information about how MM operates.

2c. Interviews with early adopters

10 in-depth interviews were conducted with early adopters to explore what factors shaped early use of Mobile Money in Ghana. Interviewees were asked to recount events that led up to their first use of MM, and asked questions about their use of technology and personality (specifically, propensity of experiment and openness to new experiences). While it was anticipated that early adopters would consider themselves more technologically savvy than the average population, this was not found to be the case.

All participants were male adults, employed in a variety of professions. In all ten instances, the first time use of MM was situation- rather than personality-driven. Each participant reported that they unexpectedly found themselves needing to send money to someone in another part of the country urgently, and the normal means of sending money were not available for a variety of reasons (e.g. bank system was unexpectedly down, bank was closed, the transaction needed to be done after banking hours). Mobile Money was recommended by someone as a means of solving the problem. After a successful use of MM for money transfer, 9 of the 10 interviewees used it again.

2d. Interviews with retailers.

40 store merchants, recruited from stores in Malls and Mini-plazas in the Airport area (Accra Mall), and East Legon (a suburb 10 miles Northeast of downtown Accra), and Oxford street in Osu were interviewed about current or potential use of MM in their businesses. In addition, 20 Market women selected from various markets around Accra were interviewed. Similar to the interviews conducted in 2011 with the same populations, retailers were not using MM in commerce. Trust of the product was a recurrent theme interviewee responses, with concerns about flawed operability due to network problems, as well as the susceptibility of MM

transactions to fraudulent activity being cited as barriers to MM use in daily commercial transactions.

In contrast to the interviews conducted in 2011, knowledge of MM had increased. Some chain stores (e.g. Woodin, Shoprite, Game, Maxmart) had point of sale machines that accepted Ezwich cards, and others were in talks to start the use of MM. Nevertheless, cash was the predominantly used form of payment in retail spaces, particularly in those patronized by low income Ghanaians.

2e. Mobile Money in the Church

Ghana is 78% Christian, and participation in Christian activities forms a major part of life for many urban residents both during the week and during the weekends. Money (through offerings, tithes, donations, and fund raising) plays an important part of many church goers. The actual and potential role of MM in church activities was explored in interviews with all interviewees in the study. In addition, 5 officials in churches were asked about the potential role that MM could play in the church.

The consensus from the interviews was that the nature of MM (intangible and mobile-phone based) made it undesirable for incorporation into church activities, given that many of the current money collection practices in the church took into consideration the tangibility of money (e.g. offertory bowls and bags, tithe envelopes, and in some churches, dancing to the front of the church to deposit the contribution).

For similar reasons, MM was not perceived as desirable for financial payments at funerals and weddings, where the notion of sending money by phone was perceived as a hindrance to the festivities or scheduled activities. It was perceived that physical donations at a designated gift or donation table allowed for accountability.

Document Reviews

A document review focusing on MM was conducted. Available information indicated the following:

- a) A high rate of awareness of MM
- b) A growing use of MM
- c) A growing ecosystem of MM products

Table 8: General Statistics on Mobile Money in Ghana

Statistics	Source
Awareness of Mobile Money	
2013: 93% of Ghanaians are aware of mobile money	GhanaWeb. (2013, April 22).
2013: 67% of Ghanaians feel they have a “clear understanding of mobile money”	GhanaWeb. (2013, April 22).
2013: 90% of Ghanaians aware are aware of MTN Ghana	GhanaWeb. (2013, April 22).
Mobile Money Access to Coverage	
1999-less than 1% 2009-over 55% Rising since 2009	Aker, J. C., & Wilson, K. (2013).
Mobile Phone Usage	
2000-150,000 of Ghanaians used mobile phones	Aker, J. C., & Wilson, K. (2013).

2009-11 million of Ghanaians used mobile phones	
2011-2012: of Ghanaians 90% used mobile phones	Dowuona, S. N. N. (2012, September 5).
Mobile Money Usage	
2012-less than 2% of Ghanaians used Mobile Money	Aker, J. C., & Wilson, K. (2013).
2011-2012: 9% of Ghanaians used Mobile Money	Dowuona, S. N. N. (2012, September 5).
2012-less than 200,000 of Ghanaians used Mobile Money	Zetterli, P. (2012, July 24).
2009-2011: MTN-9.5 million transactions worth GHC 113 million (\$58 million)	Dowuona, S. N. N. (2012, August 6).
2013: MTN- 11 million subscribers-2 million users in Ghana	Matinde, V. (2013, March 19).
MTN Mobile Money: 3 million subscribers, with 1.5 million transactions amounting to GHS 52 million monthly	http://www.technologybanker.com/mobile/tigo-ghana-has-highest-volume-of-mobile-money-users
Tigo: GHS 11 million mobile money transactions daily in Ghana	http://www.technologybanker.com/mobile/tigo-ghana-has-highest-volume-of-mobile-money-users
Tigo: 3.75 million subscribers-13% use 5-6 a month	http://www.technologybanker.com/mobile/tigo-ghana-has-highest-volume-of-mobile-money-users
Tigo: 156,000 active Tigo Cash Users	Dowuona, S. N. N. (2012, November 6).
Airtel Money has approximately 900,000 subscribers, with a monthly transaction of 540,000	http://www.technologybanker.com/mobile/tigo-ghana-has-highest-volume-of-mobile-money-users
2012: Airtel Ghana- more than GHC 4million (40 billion old cedis) circulates on the platform per day	Dowuna, S. N. N. (2012, October 29).

2012: Airtel-900,000 Airtel Money customers: average of about 18,000 conduct mobile money transactions daily.	Dowuna, S. N. N. (2012, October 29).
Benefits of Mobile Money	
2013: Benefits- primary benefits: “safety of having to carry around a lot of cash” (88%) "speed of sending money" (73%) "ability to have cash and send it in case of an emergency" (61%)	GhanaWeb. (2013, April 22).
Uses of Mobile Money	
2013: The ability to quickly send money to family members (90%) Saving money for the family (69%) Keeping spending for myself (46%)	GhanaWeb. (2013, April 22).
2013: 1% send money 1.5% receive money 0.9% pay bills of perform allied services	Sedzro, A. (2013, April 27).

Mobile Money products

Table 9: Mobile Money Products in Ghana per Company

Mobile Money Services	Mobile Money Products	Source
MTN		

<ul style="list-style-type: none"> ▪ Transfer money to friends and family ▪ Immediate access to money anytime, anywhere ▪ Withdraw cash and check balance from your account using mobile phone ▪ Top-up MTN airtime ▪ Purchase goods and services ▪ Pay utility bills ▪ Speed and convenience ▪ Security-use a PIN number 	<ul style="list-style-type: none"> ▪ Paying bills: <ul style="list-style-type: none"> ○ ECG ○ MTN Postpaid bills ○ DSTV ▪ Purchase airline tickets: Starbow Airline ▪ Payment for Restaurant Delivery <ul style="list-style-type: none"> ○ MONIcliq ○ Runners Delivery ▪ Purchase cell phones: Sell Phone ▪ Purchase Insurance: <ul style="list-style-type: none"> ○ SIC ○ Milife ▪ Purchase goods online: <ul style="list-style-type: none"> ○ Family Paradise ○ Ghana buys ○ Ghanamart ○ Deals Ghana Limited ○ Sepha Clothing Ltd ○ Afrochic ○ Ugodeal 	<p>MTN Ghana. (2012).</p>
Airtel		
<ul style="list-style-type: none"> ▪ Pay bills - utility bills ▪ Pay for goods and services ▪ Direct payment for your savings and loans contributions ▪ Buy airtime for yourself, friends and family ▪ Purchase Airtel data bundle ▪ Send money from your Airtel Money account to other Airtel money customers and people on other networks ▪ Receive money on your Airtel Money account ▪ Deposit and withdraw 	<ul style="list-style-type: none"> ▪ Pay airtel Postpaid Bills ▪ Banking: <ul style="list-style-type: none"> ○ Standard Chartered Bank ○ United Bank of Africa ○ Ecobank Ghana ○ Zenith Bank (Ghana) Ltd ▪ Pay monthly cable TV subscription with DSTV ▪ Purchase goods at outlets <ul style="list-style-type: none"> ○ Daily Needs Ventures ○ Forsmuel Shopping Center ○ Reinsamira Daily Ventures ○ Koala Shopping Center ○ Maxmart Supermarket ▪ Purchase goods for students at School Chopbox.com ▪ Payment of hospitality services at Yahaya Iddi Memorial Lodge ▪ Investment Contributions <ul style="list-style-type: none"> ○ Databank Brokerage 	<p>Airtel Ghana. (2011).</p>

<p>cash on your Airtel money account</p> <ul style="list-style-type: none"> ▪ Send money to and withdraw money from your bank account ▪ Use your mobile phone to check your bank balance and request for bank mini statement 	<p>Limited</p> <ul style="list-style-type: none"> ○ Faith Co-operative Credit Union ○ Gesro Co-operative Union ○ Mobisave <ul style="list-style-type: none"> ▪ Loan Repayment <ul style="list-style-type: none"> ○ Faith Co-operative Credit Union ○ Gesro Co-operative Union 	
Tigo		
<ul style="list-style-type: none"> ▪ Send cash to anyone, anywhere, on any network at anytime ▪ Buy airtime ▪ Pay for goods and services in Ghana ▪ Deposit and withdraw cash <p>Corporate:</p> <ul style="list-style-type: none"> ▪ cash payment to multiple people in dispersed locations in one city or across the country ▪ cash mobilization from various locations or individuals ▪ tracking and accountability of cash moved in or out of the organization 	<ul style="list-style-type: none"> ▪ Food Delivery Companies such as Hellofood, etc. ▪ Health Service Providers ▪ Product Distributors 	<p>http://www.tigo.com.gh/tigo-cash/tigo-cash-3-easy-steps</p>

Discussion and Conclusion

The goal of this series of studies was to understand how Ghanaians from different socio-economic backgrounds were making sense and use of mobile money in urban Ghana in their personal, business, social lives. This research questions was explored by a mixture of qualitative and quantitative research methodology whose results are summarized in the table below.

Table 10: Summary of Current Studies

Study 1: Adoption of MM into Personal Financial Practices, A Quantitative Inquiry	
Monetary Preferences Study	Participants favored cash above all other forms of money and favored prepaid phone cards over other forms of cashless money, yet MM was preferred over many other forms of cashlessness and also higher denominations of cash.
Spending Diary Study	Cash was the predominant form of payment for daily expenses while Non-cash transactions made up 2.86% of reported purchases and MM accounted for less than 1% of transactions.
Mobile Money Use Population Survey	14% of sample reported using MM at least once in order to receive a money transfer and/or send a money transfer, pay bills, make purchases of goods and purchase airtime, where MTN was the most popular MNO.
Industry Data	There was a significant uptake in MM use based on provided data,
Study 2: Adoption of MM into Personal Financial Practices, A Qualitative Inquiry	
Interviews with Individuals in the MM industry	Interviewees cited regulatory, agent, educational, pricing and profitability issues as barriers to MM uptake, but respondents were optimistic about the potential for growth in the MM industry in Ghana.
Interviews with Consumers (both users and non-users of MM)	Participants expressed an overall preference for cash over MM, and displayed a lack of trust of MM, yet basic knowledge of MM was higher than in previous years.
Interviews with Early Adopters	First use of MM occurred in a situation where the individual had an urgent need to send money to someone in another part of the country. 9 of 10 participants used it again.
Interviews with Retailers	Retailers predominantly used cash over MM in commerce because of lack of trust (network problems and concerns about fraudulent activity), yet knowledge of MM among retailers had

	increased.
Mobile Money in the Church	The nature of MM (intangible and mobile-phone based) made it undesirable for incorporation into church activities (including funerals and weddings).

The results of this series of studies revealed the following:

1. Cash is King in Ghana: Cash is still the main form of payment for day-to-day purchases. Large payments generally involve involvement of the formal banking sector. Cashless payment forms have not yet began to dominate the payment scene.

2. Mobile Money knowledge and use has increased, but MM has not become a major means of payment for goods and services, or savings, even though it is a preferred means of payment..

3. MNOs have increased MM products available to the public, slowly creating a MM ecosystem.. However, apart from money transfer, this ecosystem is largely targeting the middle and upper class.

4. Barriers to MM uptake remain: Information gathered from interviews indicates the persistence of regulatory, partnership, and educational barriers that hamper the growth of the MM industry in Ghana.

In conclusion, the answer to the question of how Ghanaians from different socio-economic backgrounds are making sense and use of mobile money in urban Ghana in their personal, business, social lives is a simple one. The use of MM is increasing over time, and the commercial settings in which MM can be used is slowly growing due to the development of new products and business partnerships, but cash remains the major means of payment in urban Ghana. Also, majority of the MM products are aimed towards the middle and upper classes to the

exclusion of lower income groups. For instance, willingness to use MM especially in markets was low at the time of data collection. It is therefore hoped that as the MM ecosystem grows, new products that benefit lower income segments of society will be developed.

Socially, MM is gradually establishing itself as a means by which individuals can fulfill their financial obligations to extended family members in financial need. Apart from sending remittances, however, these series of studies indicate that MM has not widely permeated the social sphere, and thus has so far not had a salient impact on social life (e.g. churches, funerals, weddings). Whether or not this will change over time remains to be seen.

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