

Mobile Money Use in Uganda: A Preliminary Study

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Abstract: As mobile phones proliferate in the developing world and Mobile Network Operators (MNOs) look for ways to diversify from voice and SMS, mobile money has emerged as an opportunity. While currently used mainly for money transfers, mobile money advocates are enthusiastic about its capability to transform the financial fabric of society, particularly for the poor. We report on a study of mobile money users in Uganda across 3 MNOs. Besides understanding current usage of mobile money, we explore different daily financial transactions of respondents. We investigate the relative importance of these transactions, their frequency, and methods of payment used. Satisfaction with current payment methods and strength of intention to use mobile money if offered for these transactions are captured. The goal is to identify potential new ways to use mobile money in Uganda.

1. Introduction

As mobile phones proliferate around the developing world, new services are emerging as mobile network operators (MNOs) diversify services to compliment voice and SMS in a progressively competitive environment where the goal is improving customer retention and reducing churn (Mendes, Alampay et al. 2007). A prominent emerging service is mobile money—a term used to loosely refer to money stored using the SIM (subscriber identity module) as an identifier as opposed to an account number in the conventional banking sense. A notational equivalent in value is then kept on the SIM within the mobile phone, which is also used to transmit payment instructions. The corresponding cash value is physically held by the MNO, a bank or another third party depending on the business model (Porteous 2006; Donner and Tellez 2008; Comminos, Esselaar et al. 2009). MNOs and their agents provide an interface between the two sides through cash-out (issuing cash on demand) or cash-in (convert cash to notational equivalent) functions providing convertibility between mobile money and cash (Morawczynski 2009).

There is great excitement about mobile money for two main reasons. Firstly, mobile money through an increasingly large mobile phone user base provides a platform that could potentially be leveraged to service the financial needs of the poor (Hughes and Lonie 2007; Lyman, Pickens et al. 2008; Mas and Kumar 2008; Morawczynski 2009). In the developing world, where the reach of banking infrastructure is severely limited, this is a big deal especially if we can reach more people faster and cheaper. Secondly, others believe that successful mobile money has the ability to enable and catalyse the development of mobile commerce (Herzberg 2003; Hu, Li et al. 2008), particularly in the developing world. The downside is that current implementations tend to operate only within an MNO's network locking-in customers, and excluding other potential players in the sector (Ndiwalana and Popov 2008).

This exploratory study looks at the nascent usage of mobile money in Uganda. Besides understanding current usage patterns, the study investigates different transactional needs and

priorities of a selected sample as an opportunity for diversifying the utility of mobile money. The next section provides a background that outlines related work and presents the methodology of the study. The third section details current usage of mobile money, covering the various types of transactions currently supported. Section four provides an assessment of everyday financial transactions and how users deal with them. A conclusion highlights the main findings and indicates how we can take advantage of existing gaps in the financial fabric of user transactions to extend the utility to mobile money.

2. Background

Mobile subscribers continue to increase as competition improves amongst the 5 MNOs—MTN Uganda, Orange Uganda, Uganda Telecom, Warid telecom and Zain Uganda (soon to be Airtel). There are now about 9.9 million mobile phone subscribers across all MNOs. About 0.6 million of these coming in the first quarter of 2010 and helping to raise mobile network penetration to 31.4 lines per person compared to a national tele-density of 32.2 lines across the whole telecommunications sector. Network traffic is still largely dominated by voice, with in-network traffic (local to MNO's network) still most prevalent thanks to the success of promotions like Warid's Pakalast and Pepeya (Warid Telecom 2010); Zain's Kika and Orange's Gyekiri (Orange Uganda 2010) that allow unlimited calling within networks for defined periods (that range from an hour to a week) on payment of a fixed fee (Uganda Government 2010).

SMS usage grew by 28% in first quarter 2010 to about 176 million messages (compared to 138 million in fourth quarter 2009) as MNOs encourage use through campaigns and innovative services like missed call alerts, call me back, etc that tend to be free. SMS usage is also still largely dominated by in-network usage. Mobile Internet access has grown thanks to increasing competition in data services amongst MNOs. The arrival of cheaper bandwidth via undersea cables coupled with increasing 3G-network coverage is driving down the cost of data services. In addition, MNOs have partnered with social networking sites like facebook to provide free mobile access (Uganda Government 2010).

Of the 5 MNOs, only 3 currently have a mobile money offering—MTN Mobile Money (MTN Uganda 2010), M-Sente from UTL (Uganda Telecom 2010) and Zap from Zain (Zain Uganda 2010). To comply with financial services regulation the MNOs have partnered with banks—MTN is working with Stanbic Bank, UTL with DFCU and Zain with Standard Chartered Bank. There is a reported partnership between Warid and Crane Bank, although no mobile money offering has been launched to date (Uganda Government 2009). There is no authoritative number of registered users of mobile money since MNOs are not mandated to disclose this information either to the financial regulator—Bank of Uganda nor the telecommunication regulator—Uganda Communications Commission. MTN Mobile Money, the first of the three to launch and arguably the biggest given MTN's position in the market, reportedly has registered more than 1,000,000 customers, setup over 1,500 agents/outlets across the country and transferred more than UGX 590 billion (US\$ 245 million) since its launch in March 2009 (MTN Uganda 2010). Zain launched Zap in July 2009, while UTL launched M-Sente in March 2010.

The 3 mobile money offerings are largely similar, allowing registered users to load money into their accounts (cash-in), make transfers to other users (both registered or not), buy airtime top ups as well as withdraw money (cash-out). Each type of transaction attracts a predetermined charge, which varies across offerings. A fundamental difference perhaps is that transaction charges are automatically deducted from the user's account by the system in MTN Mobile Money and M-Sente, while Zap agents directly collect transaction charges. Zap charges are only recommended, implying that an agent can freely alter them according to supply and demand. Transactions costs are based on tiers that range from amounts as low as UGX. 5,000 to 1,000,000, the maximum transfer amount per day per user. Other house keeping functions like balance check, mini statements and PIN changes are also available.

The MNOs have presented their mobile money service to potential customers differently. MTN positioned their Mobile Money offering as a way to send money to others, just like M-

Pesa did in Kenya (Mas and Morawczynski 2009). Subsequent offerings thus had to find ways to differentiate them. Zain's Zap touts itself as being "much more than money transfer," although it was not much different at inception, granted their aspiration seems much wider as evidenced by options in their SIM menu application (Zain Uganda 2010). UTL's M-Sente, the latest offering to-date, has positioned their offering as a general payment method with "simply pay with M-Sente." Besides money transfers, other transactions are beginning to emerge and we discuss these as part of the study in the next section.

2.1. Related Work

Contrary to the great excitement about the potential for mobile money to address the financial needs of the poor, there is a shortage of studies that investigate actual financial needs of the poor (Donner and Tellez 2008; Duncombe and Boateng 2009). Even amongst the growing number of studies reporting on various mobile money implementations around the world (Wishart 2006; Hughes and Lonie 2007; Mendes, Alampay et al. 2007; Mas and Morawczynski 2009; Morawczynski 2009), only a few tend to depend on data from actual adoption and usage of the various systems (Ivatury and Pickens 2006; Mas and Morawczynski 2009; Morawczynski 2009). Donner & Tellez decry the lack of scholarly research on adoption and impact of mobile payments in the developing world and highlight the need to consider the social, economic and cultural environments within which such systems operate (Donner and Tellez 2008). While the focus on policy and regulations that facilitate innovation is important (Lyman, Pickens et al. 2008; Mas and Kumar 2008; Ndiwalana and Popov 2008), taking into account actual needs, usage and varying contexts can only help improve mobile money adoption. In addition, this can highlight new opportunities for MNOs and other innovators to help the poor by transforming mobile money beyond basic money transfers. It is towards this goal that this exploratory study aims to make a contribution.

M-Pesa from Safaricom (an affiliate of Vodafone) in Kenya is arguably the most famous mobile money implementation at the moment (Hughes and Lonie 2007; Morawczynski 2008; Mas and Morawczynski 2009; Morawczynski 2009; Morawczynski and Pickens 2009). While M-Pesa was not the first (launched March 2007) large-scale implementation, its rapid uptake is perhaps what differentiates it from Smart Money or G-Cash from the Philippines (Wishart 2006; Mendes, Alampay et al. 2007). Morawczynski and her colleagues have extensively studied M-Pesa (Hughes and Lonie 2007; Morawczynski 2008; Mas and Morawczynski 2009; Morawczynski 2009), which is predominantly used for domestic money transfers between different parts of the country (Morawczynski 2008; Morawczynski and Pickens 2009). International money transfers as well as linkage with Equity bank to provide M-Kesho—a bank account that links to M-Pesa enabling users to transfer money between the two (Equity Bank 2010) are some of the new features. They also noticed an interesting trend of users beginning to leverage M-Pesa as a savings vehicle (Morawczynski 2009). Vodafone has since been replicated M-Pesa in Afghanistan, Tanzania and more recently in South Africa. It remains to be seen whether the service will be as successful, particularly in South Africa, where the penetration of banking services is much better and Vodafone lacks similar market dominance.

Smart Money from Smart Communications (launched May 2003) and G-Cash from Globe Telecom (launched October 2004) in the Philippines are the other pioneer mobile money offerings (Wishart 2006; Mendes, Alampay et al. 2007). While they do not have many documented user studies, the two offerings have been an invaluable learning ground for other mobile money implementations around the world, showing us the contrast between different models of collaboration that can exist between the two critical sectors of banking and telecommunications. The unique role of international remittances within the context of the Philippines also greatly influenced their development, forcing them to explore international partnerships that allowed money inflows that were later widely distributed domestically. On the domestic front, G-Cash has collaborated with the Rural Bankers Association of the Philippines to extend mobile money further into the rural areas on the Philippines.

Wizzit in South Africa stands out amongst other mobile money offerings because of its independence from any MNO, allowing it to freely operate across all networks. Like Smart Money, it is also coupled with a bank account and debit card, enabling the service to easily leverage existing financial infrastructure like ATMs and bank branches in addition to Wizzit agents. Ivatury & Pickens undertook a study of 215 Wizzit users and found that while indeed many had low incomes, they were much better off than the average poor in South Africa and tended to be more technology savvy (Ivatury and Pickens 2006).

Comminos et al. (Comminos, Esselaar et al. 2009) analysed data collected from an e-Access & Usage Household Survey across 16 African countries with a representative sample in all but 2 countries which highlighted that more people had mobile phones compared to bank accounts. Amongst the unbanked respondents, between 41.2% – 69.8% indicated lack of a regular income as the main obstacle, compared to perceived high banking costs (0.2% – 20.7%) or perceived inability to qualify for a bank account (0.2% – 21.8%). In all countries, both domestic and international remittances played a role in supporting households with informal channels of money transfer being most predominant. Airtime transfers were common across all countries, usually as a favour to friends or family and in a few instances as payment for goods or services. The paper discusses limitations of airtime to cash convertibility within existing regulatory constraints and explores attitudes of respondents towards mobile banking as an offering.

3. Survey

Using a multi-stage process, we created a survey instrument for the study. Initially we reviewed literature and identified studies and theories pertinent to our work. The theories revolved around diffusion and acceptance of innovation as well as human behaviour. From this emerged questions that were polished through two focus group discussions of 12 individuals each. The focus groups also helped identify financial transactions that participants encountered daily and considered important. The resulting questions were used in interviews and discussions with high-level managers in both the telecommunication and financial sectors within Uganda. The whole process helped us appreciate different factors that both sides felt were important and how they could impact the use of mobile money within the country.

The resulting questionnaire was pilot tested with 10 mobile money users, resulting in three modified questions to eliminate ambiguity and two eliminated for redundancy. All survey questions were structured and included either single-option or multi-option variable. A 5-point likert scale was used for responses on an interval scale and an “other” option along with writing space provided wherever necessary to catch responses that did not match the structured options.

The final instrument was in English, with a luganda translation on hand that enumerators turned to when the need arose. The survey was interview-based with an enumerator asking respondents questions and then completing the questionnaire. Since the unit of analysis was an individual with prior usage experience of mobile money, we successfully sought access permission from providers and agents to be based outside agent locations and randomly selected users as they left an agent’s office. A typical session with a respondent lasted 30 minutes and each was given a reward of airtime worth UGX 5,000 (about 2.5 US\$) on a network of their choice for participation.

All respondents were drawn from different parts of Kampala, the capital of Uganda. The decision to focus on Kampala was made after discussions with service providers indicated that the bulk of transactions were happening in Kampala and even when they included a rural component, most transactions were initiated from Kampala. Actual data collection occurred in July 2010 and covered agent locations from all three MNOs, who currently provide mobile money services in Uganda—MTN Mobile Money, M-Sente from UTL and Zap from Zain. Please note that this sample was not selected to be nationally representative.

In the survey, we examined current use of mobile money for money transfers and other types of transactions, respondent motivations for using the service as well as perceptions about different aspects of the service—ranging from registration, customer care at agent

locations to trust and privacy of their information amongst a wide range of issues. For this paper, we focus primarily on current usage of mobile money and respondents' intention to use mobile money, if it were offered for new types of transactions. In addition, the study explored the relative importance of a range of financial transactions that people encounter in their daily lives. For each transaction, respondents were asked to register importance—to help prioritise different transactions; method of payment—to identify how respondents currently make payments and potential gaps; frequency of payments—to gauge potential new application areas for mobile money; and level of satisfaction—to help gauge respondent' willingness to seek alternative payment methods.

3.1. Demographics

The demographic characteristics of the sample are summarised in Table 1. The sample had 463 respondents with a 321:139 male:female ratio and the majority aged between 21-30 years. In terms of educational level, 56.2% had a post-secondary school qualification, helping to explain the high-level of self-reported literacy in own language of 94.3% across the whole sample.

Table 1: Demographic characteristics of respondents

Rank	Financial transaction	Frequency	%-share
Gender	Female	139	30.0%
	Male	321	69.3%
	Cumulatively	460	99.4%
Missing data		3	0.6%
Cumulatively		463	100.0%
Age	Below-20	36	7.8%
	21 – 30	292	63.1%
	31 – 40	98	21.2%
	41 – 50	29	6.3%
	51 – 60	5	1.1%
	Above-60	3	0.6%
Cumulatively		463	100.0%
Education	No formal schooling	7	1.5%
	Incomplete primary school	9	1.9%
	Complete primary school (P7)	13	2.8%
	Incomplete secondary school	76	16.4%
	Complete secondary school (S6)	94	20.3%
	Post secondary e.g. certificate, diploma, degree	205	44.3%
	Degree and above	55	11.9%
	Cumulatively	459	99.1%
Missing data		4	0.9%
Cumulatively		463	100.0%
Access to bank account	No	105	22.7%
	Yes, I have a personal account	330	71.3%
	Yes, through another household member	6	1.3%
	Yes, through work	7	1.5%
	Yes, through someone else	3	0.6%
	Cumulatively	451	97.4%
Missing data		12	2.6%
Cumulatively		463	100.0%
Number of SIM cards	5 SIMs	6	1.3%
	4 SIMs	14	3.0%
	3 SIMs	35	7.6%
	2 SIMs	143	30.9%
	1 SIM	263	56.8%
	Cumulatively	461	99.6%
Missing data		2	0.4%
Cumulatively		463	100.0%

Contrary to expectation (Ivatury and Pickens 2006; Hughes and Lonie 2007; Comminos, Esselaar et al. 2009), most respondents (72.6%) reported having access to other financial services through a personal account in a formal financial institution, perhaps a reflection that

our sample is more affluent than an average Ugandan. This roughly corresponds to the 72.7% who reported being currently employed. Employment in this survey was defined as having done a paying job in the last seven days prior to participating in the survey (Esselaar, Stork et al. 2007; Comminos, Esselaar et al. 2009). Only 22.7% indicated not having any form of access to a bank account and in-turn roughly correspond to the 27.3% who also reported being unemployed. All of the survey respondents had access to a mobile phone either through sole or shared ownership, with 69.8% indicating having shared ownership compared to 30.2% sole owners. Respondents were largely prepaid subscribers on different network and many had multiple SIMs as shown in Table 1.

4. Current Usage of Mobile Money

From anecdotal evidence and discussions with different service providers it emerged that mobile money is currently predominantly used to transfer money between users without necessarily any accompanying exchange of goods or services (Morawczynski 2008; Morawczynski 2009; Morawczynski and Pickens 2009). As a result we paid particular attention to this type of transaction and we discuss our findings in section 4.1. Other emerging types of transactions and their usage are dealt with in section 4.2.

4.1. Money Transfers

More respondents (44.1%) indicated having both sent and received mobile money compared to those that had either only sent (25.9%) or only received (26.8%). On the whole, users that send money seem just as active with 48.1% having at least one transaction a month as compared to those that receive money, where 47.9% have at least a transaction a month. Usage frequency across the whole sample in terms of sending and receiving transfers is summarised in Figure 1. Amongst age groups, respondents send more than they do receive, with the exception of the 21-30 age group, who tend to send (49.1%) and receive (52.6%) similarly; and respondents below 20 years of age who receive (58.3%) more than send (27.8%). Perhaps this highlights the notion of dependence on others (Morawczynski 2008).

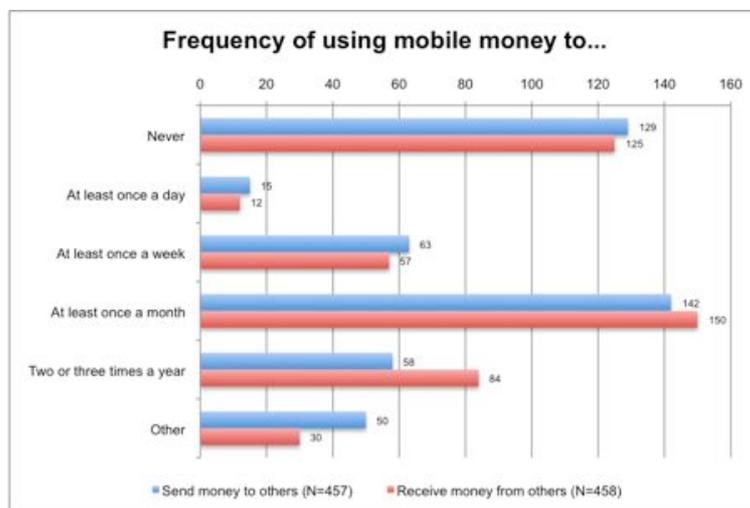


Figure 1: Frequency of using mobile money to send or receive money amongst respondents

Delving into the primary reasons that respondents use mobile money transfers, support for immediate family members dominated in all cases (Morawczynski 2008; Comminos, Esselaar et al. 2009) as indicated in Figure 2. Amongst the group that both sends and receives mobile money, payment for goods and services is the most common reason with 40.8% highlighting this as the primary reason that they receive money. But when it comes to sending money, 53.1% amongst the same group indicate supporting immediate family compared to 26.2% for goods and services as the primary reason. The survey differentiated between members of one's nuclear or immediate family verses the other relatives or extended family. In all cases support extended to the immediate family was more than that given to the extended family.

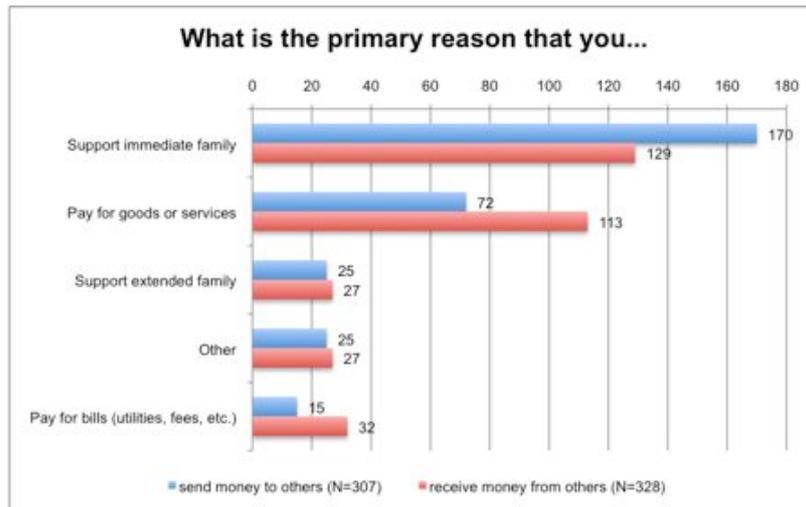


Figure 2: Primary reasons why respondents sent to or received money transfers from other people

Amounts of money sent and received via mobile money varied across the groups. On the recipients' side, 20.4% of respondents received between UGX 125,001-250,000, while 19.2% received between UGX 60,001-125,000 at the top end of the spectrum compared to 58.3% who received between UGX 5,000-30,000 and 9.7% below UGX 5,000 at the lower end. On the senders' side, the lower end of the spectrum is similar with 69.4% sending between UGX 5,000-30,000 and 8.8% UGX below 5,000. The upper end however differs in that while 21.5% sent between UGX 60,001-125,000, the next category was UGX 5,000-30,000 with 18.4% of survey respondents. The amount range was selected to coincide with the ranges used by the mobile money services for billing purposes.

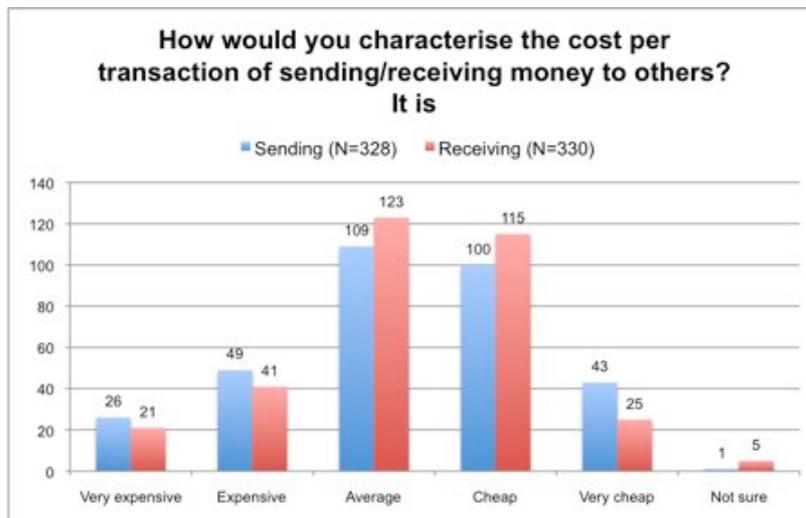


Figure 3: Respondents' perceptions on cost of sending or receiving money transfers with mobile money

Most respondents thought the cost of sending or receiving money transfers was average or cheap as highlighted in Figure 3. Amongst the groupings, 47.5% of respondents that had only received transfers thought that the service was expensive. This might be explained by the fact that informal money transfer methods like using the bus or someone carrying the money that respondents used prior though risky, normally they have no cost implications for the recipients (Mas and Morawczynski 2009).

4.2. Other Types of Transactions

Use of mobile money for other types of transactions besides money transfers is emerging. The most common usage is to buy airtime from your provider as indicated in Figure 4. Users can buy airtime (or credit) either for themselves or others by entering a destination number on the

parent network of the mobile money service. The cost is then deducted from their mobile money balance. Operators have heavily promoted this service, not least because it reduces costs that they incur along the conventional airtime distribution channel.

Other transactions have been introduced across different networks, but are yet to catch on like payment of cable television bills (DStv) and more recently school fees or tuition. The latter periodically causes congestion at banks as parents and students rush to meet payment deadlines, usually before the start of examinations. While banks offer both services, they normally charge a fee of about UGX 2500 (about 1.25 US\$) for depositing school fees. Paying utility fees tends to be free because banks accrue other benefits from having the utility company as their client.

When asked about the main benefit of using mobile money for these other transactions, most (77.7%) responded that mobile is faster than other methods (speed). Other benefits cited included having their mobile phone (hence their mobile money) with them all the time (69.5%) and cheaper than other methods (69.1%) (Comminos, Esselaar et al. 2009), rounding up the top three main benefits. Conversely, respondents were concerned about the liquidity of agents or their lack of cash (34.8%) (Mas and Morawczynski 2009), the fear of losing one's mobile phone (hence mobile money) by 31.5% and long queues at the agents' location (29.4%) as the top three main drawbacks.

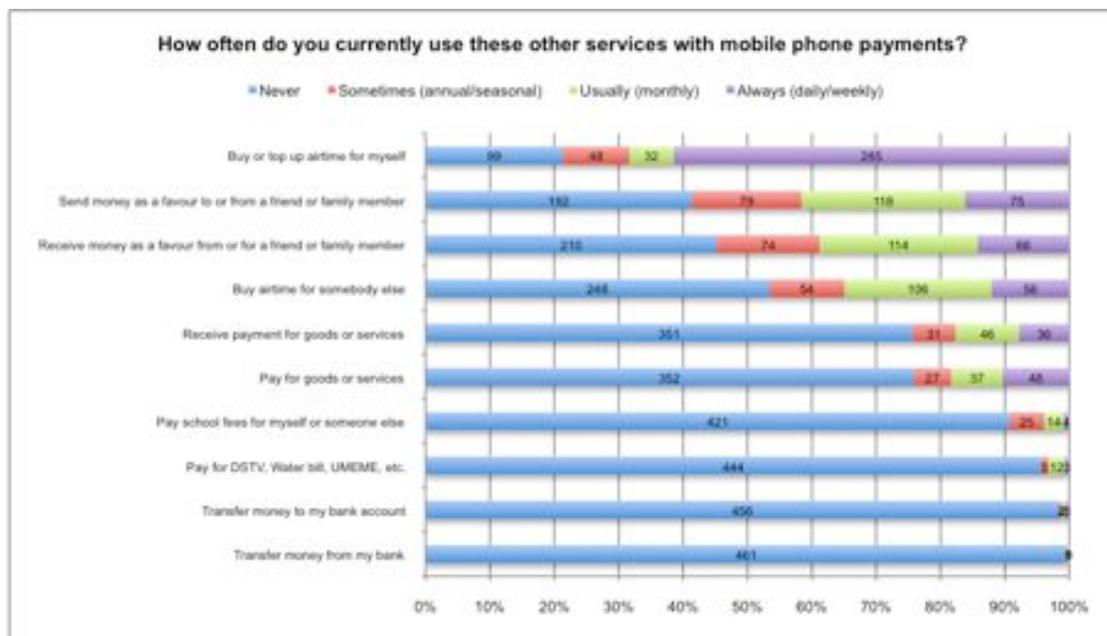


Figure 4: Respondents' usage of mobile money for other types of transactions (in descending order).

5. Financial Transaction Needs

Given that the bulk of our respondents already had access to formal financial institutions, they correspond with early adopters identified in other countries (Leishman 2010). But do not fit the conventional mould of users that most literature expects to gain most advantage from use of mobile money (Porteous 2006; Lyman, Pickens et al. 2008; Mas and Kumar 2008; Comminos, Esselaar et al. 2009). Perhaps this is an indication of the limitations and coverage of the formal financial sector in Uganda, signifying the need for more collaboration between financial institutions and MNOs. In this section, we explore some of the different financial transactions that respondents deem important, their frequency and current methods of payment that respondents use to perform these transactions as well as their satisfaction with these methods.

5.1. Importance of Transactions

There are three types of transactions that respondents ranked more important than domestic money transfers as highlighted in Table 2. First, is the need to make airtime purchases or top-ups for mobile phones which comes as default with all mobile money offerings, followed by the need to pay transport (taxis/matatus, buses, etc.) and then hospital/clinic bills. While mobile money can feasibly be used within the transport sector as is, the Ugandan context has some peculiarities that warrant closer scrutiny. Besides sharing the same means of transport, for example a taxi, users can get on and off as well as pay anywhere in-between the start and end of their journey. In addition, the fare is not always fixed as different people can pay different fares even when they start and end in the same places. How does the matatu conductor ensure that all passengers have paid him in all of this confusion?

Most of the other transactions could be easily supported within the current mobile money framework. Besides solving the chicken and egg problem between merchants (getting merchants to sign up as agents while customers are still few) and customers (getting mobile subscribers to sign up as customers while agents are still few), perhaps the other challenge is to ensure timeliness of the transaction, particularly in point-of-sale scenarios like paying for petrol at a station or for groceries at the supermarket. Implementations for utility bills and school fees using mobile money are in early stages; it will be interesting to see how their usage and costing evolves vis-à-vis the bank. Banks tend to make a fortune from such transaction fees and now suddenly have to share them with MNOs or even lose them entirely.

Table 2. Importance of various financial transactions to respondents (ranked)

Rank	Financial transaction	Mean score	N
1	Airtime purchases (pre-paid top-up)	2.44	425
2	Transport (taxis, cabs, buses, etc.)	2.26	400
3	Hospital/clinic bills	2.02	356
4	Domestic money transfers to/ from other people	2.01	376
5	Markets purchases (owino, kalerwe, etc)	1.84	333
6	Utility bills (Umeme, Water, DSTV, etc.)	1.68	299
7	Supermarkets, groceries, pharmacies	1.52	309
8	School fees (tuition)	1.50	264
9	Paying restaurants/bars/ fast food	1.41	294
10	Contributions (weddings, churches, funerals, harambes, etc.)	1.26	270
11	Petrol/Paraffin at Petrol Stations	1.15	217
12	Receive your monthly salary payments	0.87	154
13	Mobile banking (access to you bank account for withdrawals and deposits)	0.78	142
14	International money transfers to/ from other people	0.72	145
15	Internet or online purchases	0.60	121
16	Send money to myself (i.e. load mobile in one location and withdraw cash in another for safety)	0.59	116
17	Pay taxes to Uganda Revenue Authority	0.58	139
18	Tickets to movies, concerts, other events	0.51	124
19	Radio announcements, promotions (Birango)	0.46	101
20	Betting, lottery (g-lotto, sports betting)	0.34	86

(Scale: 0 = n/a; 1 = not important; 2 = important; 3 = very important)

Ranking in importance is largely similar between male and female, except for *send money to myself* ranked 14th by male respondents compared to 19th by females and *tickets to movies, concerts and events* ranked 15th by female respondents compared to 19th by males. Indications perhaps that male are more security conscious about cash, while women tend to care more about social engagements. Amongst different age groups, those below-20 ranked *betting, lottery* higher (10th) compared to most others who ranked it last, while older people (51 and above) ranked *radio announcements, promotions* much higher, reflecting their inclination towards social obligations.

5.2. Payment Methods and Level of Satisfaction

Cash is the most dominant payment method amongst respondents. There are only two transactions where cash's dominance was challenged and in both its limitations are obvious. In the domain of International money transfers (N=139), 33.8% of respondents reported using

forex bureaus, 32.3% western union/moneygram compared to 19.4% who reported use of cash. The other is when users load money onto mobile phones for security reasons to avoid travelling with cash. For former, it is not always easy to find travellers going across borders coinciding with one's need to send cash, while for the latter travelling with cash is the actual problem respondents are trying to avoid. Even when it comes to domestic transfers and airtime purchases, where mobile payments are making inroads, cash was still the most dominant payment method across respondents. For airtime purchases (N=421), 79.3% of respondents reported using cash compared to only 18.1% who use mobile money while for domestic transfers (N=371), 58.5% of respondents reported using cash compared to 33.2% who use mobile money.

There is some correlation between importance of a transactions and satisfaction with the current method of payment as indicated in Figure 5. Some of the highly ranked transactions in terms of importance, for which there is low satisfaction include:

1. Utility bills (Umeme, Water, DSTV, etc.)
2. School fees (tuition)
3. Hospital/clinic bills
4. Transport (taxis, cabs, buses, etc.)

These transactions feature prominently amongst potential mobile money usage scenarios for which respondents indicated likely/very likely intention to use, if they were offered. The proportion of respondents who indicated a likelihood of using mobile money for various transactions is summarised in Figure 7.

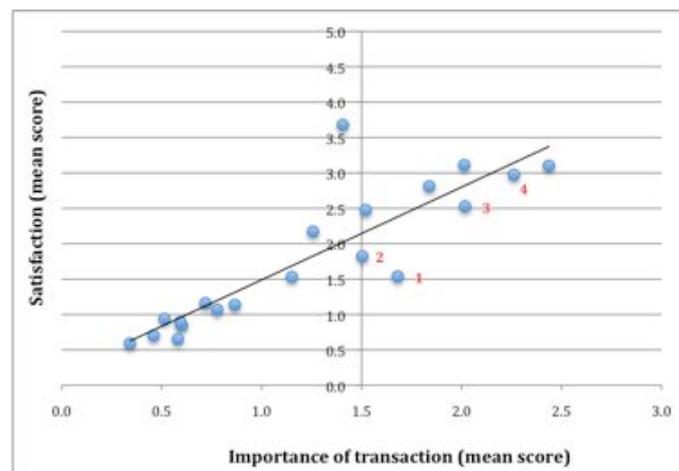


Figure 5: Correlation between satisfaction and importance of given financial transaction

5.3. Frequency of Transactions

The frequency with which respondents make payments for transactions tends to match the importance that they attribute to those transactions as highlighted in Figure 6. Payments for some of the transactions that respondents indicated as important happen rarely or infrequently. These include:

1. Hospital/clinic bills
2. School fees (tuition)
3. Utility bills (Umeme, Water, DSTV, etc.)

There are also some transactions for which respondents do make regular payments, but were not regarded as particularly important. Examples include:

4. Supermarkets, groceries, pharmacies
5. Paying restaurants/bars/ fast food
6. Markets purchases (owino, kalerwe, etc)

Perhaps one aspect to take away for MNOs and innovators who would like to build solutions on top of mobile money is the fact that the infrequent transactions tend to involve more money than more frequent transactions, and as such users might be willing to pay bigger premiums for the convenience of completing them. Variations in frequency of payments

across gender and age groups are not significant except for *betting*, *lottery* amongst the below-20s where it ranked it 9th compared to 19th across the whole sample.

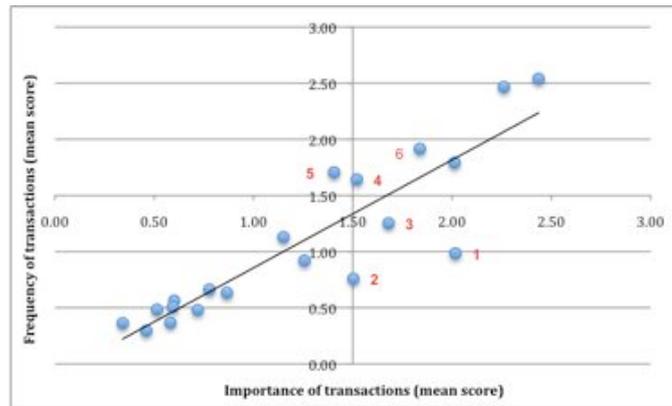


Figure 6: Correlation between frequency and importance of given financial transaction



Figure 7: Intention to use mobile money for various transactions if made available at roughly the cost of an SMS (ranked by likelihood of mobile money use) across whole sample

6. Discussion

Shared ownership and use of mobile phones in the developing world has been noted to contribute towards improving access to communications (Chipchase and Tulusan 2006). On the contrary, there is not much on what this means for the success of mobile money. In this survey, 69.6% of respondents reported shared ownership versus 30.2% sole owners. Even if shared ownership was construed to mean shared usage, its prevalence does underscore need for attention as one of many peculiarities of phone usage with the potential to influence widespread usage of mobile money. What implication does use of mobile money have for the embodiment of the mobile phone, as we currently know it and consequently the way people use them? Conversely, how will mobile money adoption change the way people think about money? Would they spend more amounts, more easily because mobile money is intangible?

The demographics indicate that the sample was more educated and had much better access to formal financial services than the national average (Uganda Government 2007). This corroborates finding that M-Pesa early adopters were more educated and richer than

non-users (Leishman 2010). While these early adopters can help bring on board other users, to leverage mobile money to improve and extend the reach of the formal financial sector on a national level presents a number of challenges. In rural areas, where formal financial services have least penetrated, literacy levels are still very low. Given that all mobile money services are currently text driven, this may necessitate new mobile phone interfaces that help bridge the literacy inadequacies of our population (Donner and Tellez 2008; Medhi, Ratan et al. 2009). While dealing with airtime has helped equip users with concepts of using notational value, many reportedly also lack the mental models necessary to work with virtual currency to navigate this new landscape (Hinman and Matovu 2010).

Many potential usage scenarios are embedded within sectors that are still developing. Consider the public transport sector in Uganda today. A taxi (or matatu) can originate and end anywhere. Passengers can get on and off as well as pay anywhere in-between the start and end of their journey. In addition, the fare is not always fixed as different passengers can pay different fares even when they start and end in the same place depending on their negotiation skill. How does the matatu conductor ensure that all passengers do pay in all of this confusion? Application of near field communications (NFC) in mobile phones, thanks to the GSMA's Pay-Buy-Mobile initiative (Fischer 2009) can help address some of the obstacles inherent in such usage scenarios or other point-of-sale scenarios like paying in the supermarkets, groceries or petrol stations. Despite its progress, we are not aware of any pilots of mobile NFC technology in Africa. In addition, we should not take for granted that merchants and other small businesses that dominate African economies will jump at the opportunity of investing in new contactless infrastructure that is a prerequisite for the success of such technology. So there is need to be more innovative within the constraints of what we currently have and push it to the limits as usage and adoption become more mainstream.

The survey also confirms use of multiple SIMs as a strategy to minimise communication costs across networks (Tusubira, Kagawa et al. 2007). 43.6% indicated having multiple SIMs to get cheapest rates on each network, while 38.8% indicated that friends and family were on different networks hence the need for multiple SIMs. While such fragmentation maybe accommodated for voice and SMS services, it is not quite clear what impact this has for mainstreaming mobile money. Should we compel MNOs to make their mobile money services interoperable to enable users to transfer money to others on different networks to create better economies of scale? Would it be helpful to plug the mobile money ecosystem into the existing national payments system? Or would this just stifle continuing innovation? (Bellis and Nagel 2010).

While mobile money might still be a new phenomenon in Uganda, with the first service launched only in March 2009, respondents described a positive experience of using it. More than half of the respondents indicated strong intention to use it for other frequent transactions like paying at the supermarkets, groceries and pharmacies as well as transport (taxis, cabs, buses, etc.) as highlighted in Figure 7. 70.8% of respondents wanted a linkage between mobile money and their bank account to facilitate withdrawals and deposits, given that 73.3% already had a personal account. This alludes to the potential that mobile money could play in inculcating and enhancing people's saving culture (Morawczynski 2009; Morawczynski and Pickens 2009).

The ability to transcend temporal and spatial constraints differentiates mobile money from other payment methods currently available in the developing world today. Coupled with this is the notion that a mobile phone can be a "smart wallet" capable of leveraging environmental cues like a user's location for their benefit. While mobile money is operational in Uganda today, we have barely "scratched the surface" in terms of its ability to consummate different types of financial transactions. While on one hand the possibilities are alluring, on the other hand they accentuate how little we know about this new world.

7. Conclusions

In this paper, we explored the current usage of mobile money in Uganda using a questionnaire and interview survey of respondents drawn from Kampala, the capital. In addition, we

investigated the relative importance of different financial transactions amongst respondents, the frequency of those transactions and methods of payment used to settle them. Satisfaction with current payment methods and strength of intention to use mobile money if offered for these transactions were also captured in a bid to identify gaps and new opportunities to leverage mobile money in Uganda.

Mobile money has the potential to extend the limited nature and reach of the formal financial sector. Besides helping to organise the hitherto chaotic scene of domestic money transfers, mobile money can improve the national payments system by providing innovative ways to meet the transaction needs of ordinary people. Success at this calls for a better understanding of people's needs, current adoption and usage patterns of mobile money along with accompanying motivations and perceptions (Donner and Tellez 2008). Perhaps with the exception of M-Pesa (Morawczynski 2008; Mas and Morawczynski 2009; Morawczynski 2009; Morawczynski and Pickens 2009), our knowledge of mobile money usage is still limited. When you factor in contextual differences that arise with each deployment, then the knowledge gap becomes glaring (Donner and Tellez 2008; Duncombe and Boateng 2009).

Europe has been a breeding ground for various business models and mobile money equivalents that have not been successful at scaling during the last few years (Dahlberg, Mallat et al. 2008). This failure has been attributed to lack of collaboration amongst different stakeholders in the various business models as one of the main reasons (Pousttchi, Schiessler et al. 2009). While Uganda's context might be different with no serious mobile money competitors besides cash and indications that telecommunications and finance sectors are starting to work together, one key lesson does emerge—access to mobile money will not automatically translate into usage. Rather, usage is something that needs nurturing and by many players. What is the role for progressive policy and regulation? Should MNOs, banks and other potential players in the ecosystem be mandated to work more closely together to help speed up the process or continue laissez-faire?

The regulatory environment in Uganda has spawned a variety of business models whose nuances we are yet to appreciate. As an example, what impact has an implementation like MTN mobile money where transaction charges are rigidly defined and automatically deducted by the system compared to Zain's approach where charges are only recommended and the agent has the power to modify and collect them as they interact with the customer at their location? As we seek to transform mobile money into a vehicle that can truly serve the financial needs of poor people, answers to such questions will be helpful in formulating progressive regulatory policy and more user studies can provide a useful source for some of the answers.

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