LUND UNIVERSITY
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Reciprocity, Nepotism or Costly Signaling

– Evidence from Mobile Phone Money Transfers in Nairobi

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Abstract

The purpose of this thesis is to test whether the theories of reciprocal altruism, nepotism due to kin selection and costly signaling can explain patterns of human altruism. A new way of investigating this has surfaced since the introduction of mobile phone money transfers in areas where social sharing is frequently exercised. Data was collected from 167 respondents in Nairobi, Kenya on their latest mobile phone money transfer, the recipient and themselves.

Multivariate regression analysis concluded no significant effect of variables to support the strategies mentioned. Significant effects were however found in the variables of age and gender of the recipient, affecting generosity negatively. Control variables for relatedness however revealed that nepotism probably is exercised.

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1 Introduction

The sharing of resources with peers is a phenomenon that can be observed among people all over the world. Many animals also share food with their peers, but the human patterns of sharing are more complicated and unique. Not only do we share with our offspring and closest relatives like animals may share within their herd, but we also share with friends not related to us, and in more complex patterns of cooperation. Among evolutionary biologists, the altruism in the human kind constitutes an explanation for the success of our species.

Research investigating human altruism has been conducted on food sharing in different cultures by looking at factors like reciprocity, and the value of protecting your own kin. The studies have mostly taken place in small societies making their livelihood on hunting, gathering and agriculture, somewhat resembling the ways hominids lived as hunter-gatherers for the over 2 million years of their evolution. These studies do not only provide important insights into the evolutionary history of humanity, but can also help to explain our human behavior, and how it is formed by economical thinking.

Other research studying social sharing has taken the shape of experimental studies such as "the ultimatum game" where the players are handed a sum of money, and then have to interact with each other to determine how to divide it between them. A variant of this is "the dictator game" where the allocation is completely decided by one of the players being the "dictator". What is interesting about the dictator game is that it typically generates an outcome where the player is allocating money to another player even if it seemingly does not benefit himself.

Still, social sharing cannot be dismissed as a phenomenon that took place in the hominid past and as being relevant only in hunter-gatherer societies or artificial experiments. It is very much a common occurrence in our modern societies today. For developing countries it even plays a crucial role when it is taking place in the shape of remittances. As is concluded in a report from the World Bank; *"remittances constitute a developmental contribution that is different than, but indirectly complementary to, public interventions"* (Sander and Maimbo 2005). This means that the mechanisms of social sharing are making up for insufficiencies of government development policies. By studying social sharing, we could therefore achieve a better understanding of how and why people are helping each other which hopefully could lead to new insights into how to design new policies for development or at least make sure that policies impeding social sharing are not put into use.

A new possibility of studying the strategies involved in social sharing has surfaced during the last few years as money transfers now can be performed using the mobile phone. These new services have greatly simplified the transfer of remittances in many developing countries. Kenya was the first country to adopt a money transfer service of this kind.

1.1 Purpose

The aim of this thesis is to test whether the theories of social sharing can explain patterns of human altruism. The theories in focus are reciprocal altruism, nepotism based on kin selection and costly signaling.

This is carried out by gathering data on mobile phone money transfers taking place in Nairobi, Kenya and studying it with multivariate regression analysis.

1.2 Outline of the Thesis

First, the theories of social sharing are presented, explaining the rationales behind why the individual would take part in social sharing. Some empirical evidence related to these theories is presented. This is followed by a background section based on official Kenyan statistics discussing the socio-economic structures in Kenya and Nairobi. By this we will see not only that social sharing is taking place there, but that it is doing so in order to mitigate hardships. The background on mobile phone money transfers will also be discussed in order to better understand the setting.

The data material will then be presented with descriptive statistics followed by method of analysis and the results of the regression analysis. This is followed by a sensitivity analysis and further discussion of the generality of the results. The conclusion section will sum up the findings and give recommendations for future research.

1.3 Exchange Rates

The value of currencies used is that of May 2010 (Central Bank of Kenya).

KES 100 = SEK 9.790 = EUR 1.012 = USD 1.273

SEK 1 = KES 10.21 EUR 1 = KES 98.79 USD 1 = KES 78.54

2 Theories of Social Sharing

2.1 Reciprocal Altruism

The concept of reciprocal altruism was first introduced by Trivers (1971). It suggests that an altruistic act incurring a cost on the helper can be beneficial as that act will induce the person receiving help to be helpful at some later time.

The strategy has been studied in terms of food sharing among hunter-gatherer societies where it has been seen that the types of food and the associated difficulty of securing these determine the sharing patterns. Typically, the hunting of animals involves a great deal of chance where you are sometimes lucky, and sometimes not. This results in high variance of the presence of meat. Due to diminishing returns to consumption of large quantities of food, the individuals could maximize their inter-temporal utility of food by adopting a strategy that allows them to receive smaller portions of meat in a more regular manner. Reciprocal sharing is a way to achieve this and is practiced by hunter-gatherer societies. In this way, time and energy can be devoted to the pursuit of high-quality foods, instead of focusing on more reliable but time consuming and low-quality foods (Gurven 2004a).

This strategy can be viewed as a social insurance providing risk-reduction. The probability of individuals to be able to return the favour should therefore be a determinant of this behavior. This goes along with what Osinski (2009) underlines; that the probability of future encounter, which involve their health status and age, should be of importance. Whether the person is perceived to be trustworthy and has a pro-social attitude also affects the probability of receiving help.

2.2 Nepotism Based on Kin Selection

Evolutionary biology states that natural selection will favour altruism towards kin, as this will improve the living conditions of those with whom you are sharing genes, in turn increasing the probability of further spreading them. Individuals should according to this model be favoured in relation to the amount of genes shared. Thus, closer relatives should be favoured over more distant ones (Gurven 2004a).

This can be expressed in a more formal way: *"The conditions which favor kin-selected sharing can be defined by a simple version of Hamilton's rule (1964), as rB > C. An*

individual should give to kin when the benefits, B, to a recipient, weighted by Wright's coefficient[1] *of relatedness, r, outweigh costs, C, to the donor."* (Gurven 2004a)

It is important to note that nepotism may take place not only due to selection of kin. The reason behind sharing with your kin could be a result of reciprocal altruism or costly signaling rather than favouring the survival of your genes. Kolm (2006) acknowledges that there might be intergenerational reciprocities where people may *"give to their aging parents given that their parents have given to them and to their own parents, and their children will give to them."*

2.3 Costly Signaling

The notion of this theory is that sharing could be used as means to send a signal to the wider audience, even those not receiving the gift. By generously sharing his resources, the individual is effectively demonstrating that he can afford to do so due to high productivity, and it could also indicate that he has a generous or cooperative character. This could be beneficial as the individual might gain status, but it would also be beneficial if such behaviour induces the audience not taking part in the transfer to cooperate at a later time. The notion of such sharing is called "strong reciprocity"(Gurven 2004a).

2.4 Accountability Principle

The accountability principle was introduced by Konow (1996) when studying fairness of outcomes. It states that a person's fair allocation of e.g. income varies in proportion to the relevant variables which he can influence. That is, since the individual can influence his work effort, this should be reflected in the allocation. If the person is suffering from a physical handicap, which he cannot influence, and this is affecting his work performance, it should not affect his proportion of income. The same goes for a positive event that he could not influence; say a more generous customer gave an unusually large tip. In this case the tip should be shared equally with other workers.

Konow later demonstrated in an experiment (2000) that there was a high accordance with this principle for what was to be seen as fair outcomes. This means that both sharing norms and property rights are of importance for an allocation of resources to be viewed as fair. Bergh (2008) concludes that a compensation scheme for circumstances beyond the individual's

[1] Examples of Wright's coefficient: r = 0.5 for offspring and parents, r = 0.25 for grandparents and grandchildren, and r = 0.125 for first cousins (Gurven 2004a).

control essentially is a social insurance. It is therefore reasonable to believe, he argues, that the scheme is motivated by the insurance motive for sharing.

2.5 Normative and Natural Altruism

One should be aware of that an individual following the strategies could be a consequence of her wish to follow social norms rather than the economic logic behind. The individual might be a reciprocal altruist or make sure her kin is doing well in order to be accepted by her peers. These issues have been extensively discussed by Kolm (2006). Regardless of whether the true motive is to follow the norms, the action taken will still be beneficial for the economic well-being of the individual.

Altruism can be described as normative when motivated by moral intuition or (as above) social norms. Kolm also describes the "natural" or "hedonistic" altruism, which is in effect when altruism is induced by affection, sympathy, empathy, compassion and pity among other things.

2.6 Earlier Studies

Gurven (2004a) performed a review of literature on food sharing. He concluded that only two studies had detailed multivariate analyses of factors associated with different levels of sharing. The two studies had investigated food sharing patterns among the peoples of Ache (Gurven, Allen-Arave et al. 2000) and Hiwi (Gurven, Hill et al. 2000).

Summarizing these studies, it was concluded that uncertain resources coming in big packages like hunted meat was shared among people to a higher degree than smaller and more predictable foods. This is consistent with the notion of reciprocal altruism; as the marginal utility of food is decreasing, this behaviour provides risk-insurance. It could also be seen that giving often was conditional upon receiving in pairwise interactions. Kinship was found to have a positive effect on giving but in one case it was suggested that this apparent effect might have been a product of residential distance. This could mean that the close kin who desired to share with each other chose to live within close proximity. Some of the behaviours witnessed were consistent with both costly signaling and reciprocal altruism, although it could not always be concluded which of the strategies determined those behaviours. Variables of gender and age of the donor were not found to have any effect on sharing behaviour in either the Ache or the Hiwi study (Gurven 2004a; 2004b).

In an experimental study, Osinski (2009) had participants making choices in-between receiving rewards for oneself, or sharing different amounts of rewards with friends of the

respondent. These friends had been ranked in advance by the respondent according to their degree of loyalty. By changing the amounts he could see when the participant chose to share a reward with the friend and when he would prefer to keep a smaller reward for himself. Other participants had the same task, but could instead share the rewards with relatives, who they had also ranked in terms of loyalty. The results showed that the degree of loyalty was positively related to the amount shared. The amounts of money shared with relatives were higher than that for friends, but the effect was not significant, suggesting that loyalty was a more important determinant than kin. The results of the study can therefore be said to support the view of reciprocal altruism.

3 Background

3.1 Socio-Economic Circumstances

According to population statistics from Kenya National Bureau of Statistics there are more than 40 million people living in Kenya today and its capital Nairobi is the largest city with its 3.4 million inhabitants (KNBS 2009). In 2005/2006, 46 percent of the Kenyans were living in poor households. A household was considered to be poor when the *"incomes/expenditures were insufficient to afford all of the basic necessities"*(KNBS 2008).

In total 10.4 million people were employed in Kenya in 2009. Two million of these were working in the private or public sector where the average yearly wage earning per employee was KES 391,000[2]. However, there are 8.3 million people working in the informal sector where the salaries are much lower. This sector is defined to "*cover all small-scale activities that are semi-organised, unregulated and use low and simple technologies*". Statutory minimum wage rates are nonetheless available. For an unskilled employee in the agricultural industry, the monthly minimum wage was KES 3,043. For a general labourer in the Nairobi area the minimum wage was KES 6,130, and for a salesman 11,487 (KNBS 2010).

To further understand the economic situation Kenyans are faced with we can look at the expenditures of the households. A poor household in Nairobi has on average 4.3 members and is spending KES 2800[3] per month in adult equivalent terms. This amounts to just a little bit more than USD 1 per head. About 58 percent of the budget is then used for food expenditures. A non-poor average household in Nairobi has 3.7 members with a corresponding KES 13,470[4] per month, and a food share of 44 percent (KNBS 2008).

36 percent of the poor households and 32 percent of non-poor households in Kenya experiences some kind of shock every year. Household shocks are *"economic or social events that impact on a household resulting from an event/occurrence that negatively affected the welfare of the household"*. It could be the illness or death of a member in the household, drought or accident (KNBS 2008). This should spur participation in social insurance schemes.

3.2 Household Transfers

The data presented here are based on official household transfers in "Well-Being in Kenya: A socio-economic Profile" from 2008, which is a report based on data collected in the Kenya

[2] The number is adjusted to the monetary value of May 2010.
[3] Numbers are adjusted to the monetary value of May 2010.
[4] Numbers are adjusted to the monetary value of May 2010.

Integrated Household Budget Survey 2005/2006. The survey had a sample size of 13,430 households (8,610 rural and 4,820 urban) and was carried out by Kenya National Bureau of Statistics (KNBS).

Household transfers were defined as "*transactions in which an individual, household or institution provides good, service or asset to another individual, household or institution without expectation of counter compensation*". The transfers were separated into transfers of cash, food, or other-in-kind. The cash transfers consisted of payments of currency and transferable deposit. Food transfers and other-in kind transfers were measured by their monetary value. The report concluded that over two thirds of poor households in Kenya (68%) and nearly three quarters (73%) of non-poor households received any sort of transfer. The corresponding numbers for Nairobi are similar; 66% of the poor and 75% of the non-poor received transfers. When it comes to giving, three quarters of the poor (75%) and 87 percent of the non-poor did so in Kenya. For Nairobi, 60% of poor households and 91% of non-poor households gave gifts. The number of poor households was estimated to be 2.6 million and non-poor 4.3 million in Kenya. In Nairobi about 120,000 households were considered poor and 580,000 non-poor.

Chosen parts of the household transfer data is presented in Tables 3.1 and 3.2. The numbers have been adjusted to the monetary value of May 2010[5] in order for them to be comparable to the new data on sharing presented in this thesis.

Table 3.1 Yearly average amount of transfers given out from households by kind and poverty status (KES)

Kenya	Poor	Non-Poor
Cash	2,300	11,000
Food	810	2,300
Other-in-kind	460	2,000
Nairobi		
Cash	9,300	33,000
Food	830	5,400
Other-in-kind	1,900	6,200

The higher prices and wages in urban areas like Nairobi are probably the most important reason behind its higher numbers. It can be seen that the average amount of cash gifts given

[5] Using CPI figures from the KNBS webpage, the numbers were multiplied with a factor of 1.428.

out for a poor household in Nairobi amounts to about 150 percent of a monthly salary of general labourer in Nairobi. The average amount of gifts from a non-poor Nairobian household equals about a month's worth of the average wage in the public and private sector. When comparing with their respective average household expenditures, a poor household gives away cash gifts corresponding to almost 30 percent of an adult equivalent expenditure. For a non-poor household the number is about 20 percent.

Table 3.2 Yearly average amounts of transfers received by kind, source and poverty status (KES)

Kenya	Type of Gift	Individual	Non Profit Institution	Government	Corporate Sector	Outside Kenya
Poor	Cash	3,500	180	46	27	120
	Food	1,100	650	550	1	0
	Other In-kind	710	78	260	0	3
Non-poor	Cash	12,000	330	51	140	5,800
	Food	2,200	320	160	62	180
	Other In-kind	1,400	100	32	7	320
Nairobi	**Type of Gift**	**Individual**	**Non Profit Institution**	**Government**	**Corporate Sector**	**Outside Kenya**
Poor	Cash	6,500	300	0	0	0
	Food	1,900	170	68	0	0
	Other In-kind	820	230	0	0	0
Non-poor	Cash	35,000	570	0	770	43,000
	Food	5,100	870	74	470	910
	Other In-kind	2,800	420	8	21	2,100

From table 3.2, it is clear that the largest transfers come from other individuals rather than non profit institutions or the government. It can be seen that non-poor people also can benefit from remittances from outside Kenya. Poor, but also non-poor are receiving help from nonprofit institutions. Governmental aid plays a larger part outside than inside Nairobi. Looking at received cash, the poor of Nairobi receive about KES 6,500 per year, and non-poor about KES 35,000, which corresponds to about a fifth of the consumption expenditures of an adult. It can therefore be concluded that household transfers are important for the household economies.

3.3 Mobile Phone Money Transfers

3.3.1 The Telecom Industry in Kenya

As in many other developing countries, inexpensive handsets have made it possible for more and more people in Kenya to get a phone connection. This is a trend that is still valid; the number of mobile phone connections has risen from 4.5 million in 2005 to more than 17 million in 2009 (KNBS 2010). That corresponds to a yearly growth rate of 30 percent. Meanwhile there were only about 700 000 landline connections in 2009. There are today four providers of mobile telephony; Safaricom, Zain, Orange and Yu and their corresponding mobile banking service are called M-pesa, Zap, and yuCash. Orange is the only operator without this kind of service, but there are also provider-independent mobile wallets. M-pesa is the predominant service for sending money and had more than 12.6 million registered users in august 2010. The service has experienced staggering growth numbers during 2010; on average half a million new users has been registered every month (sic!)(Safaricom). There are now also 20,000 agents countrywide. The success of m-pesa has led to the launches of similar services in other sub-Saharan countries as well as in Afghanistan and Pakistan.

3.3.2 Functionality of M-pesa

A key to the success of the service is that it is easy to use and can be used on the very simplest of handsets. With an application stored on the SIM-card, the user can send money to other users, pay bills and purchase mobile phone airtime. In the recently introduced banking service M-Kesho, which is accessed through M-pesa, Safaricom, in cooperation with Equity Bank, is offering an account with interest rates up to 3%. Functionality also includes a micro-credit service with an application fee of 10%, and personal insurance for accidents, covering up to KES 150.000 for an accidental death or a permanent disability with a premium of KES 530 if paid annually (Safaricom).

Cash is deposited and withdrawn from the account by visiting an agent, which could be a supermarket or a mobile phone store but is often a small shop working solely with m-pesa transfers. The agents can also register new users and provide customer support.

3.3.3 Background of M-pesa

M-pesa started in 2003 as a service to facilitate microloans using Safaricom's network of airtime resellers. The reduced cash management by the microfinance institutions was supposed to enable more competitive loans. The development of the service was therefore sponsored by DFID until 2007. As the service first was tested on a low-scale, it became clear that its customers were using it in other ways than originally planned. This resulted in a

commercial launch with a focus on sending remittances and making payments (Morawczynski and Miscione 2008).

3.3.4 The Possibilities of Banking the Unbanked

Mobile banking can be used for micropayments to merchants, bill payments to utilities, peer-to-peer transfers and long distance remittances. Some authors argue that in order for mobile phone money transfers to be a successful development policy, there must be a transformational component, thus increasing access to banking, rather than being a complementary service to those who are already bank clients. Mobile banking is additive if it is just another channel to an existing bank account, but transformational if the financial product in the phone is targeted at, and reaches, the unbanked (Porteous 2006).

A report from the World Bank (Sander and Maimbo 2005) stated that Sub-Saharan Africa is suffering from weak financial infrastructure which is impeding efficient transfers of remittances. Either people lack access to formal financial services, such as regulated money transfers through banks or money transfer operators like Western Union, or they do not trust them. As a result, the many intraregional migrants use informal channels to send remittances. Informal systems of remittances often involve individuals travelling with cash; if not, it might be a relative or a friend. Sometimes it could even be sent by taxi or bus drivers.

The same report also emphasized that in order to increase the fund transfer volumes, access to reliable financial services at the sending and receiving ends is needed. This would increase the developmental contributions of remittances. Both better service outreach and product options are called for. The policy environment surrounding the financial sector could also constrain the development of such services.

The role of remittances is not only truly important in aggregate terms, but can on an individual basis be even more so. This is due to the fact that the transfer of funds between peers often compensates for the absence or shortage of social and welfare mechanisms in that society. The report therefore argues that *"remittances constitute a developmental contribution that is different than, but indirectly complementary to, public interventions"* (ibid.).

Donner & Tellez (Donner and Tellez 2008) made an effort by listing several possible impacts of mobile banking:

- Increase of family saving rates
- Increase of incomes

- Alter patterns of money-sharing within families by giving women greater autonomy and control over household savings
- Alter patterns of money sharing within families
- Create resilience to financial shocks (primarily at individual level)
- Increase remittances due to the fact that people now can stay away longer
- Decrease the amount of money lost in petty theft thereby increasing people's sense of security
- Bring more money into the formal banking system, improve taxation, and encourage reinvestment of money that is currently not in effective circulation

3.3.5 Possible shortfalls

Porteous (2006), in his analysis, highlights regulatory issues that can be a major barrier to the growth of transformational mobile banking. The regulatory issues stem from the fact that the mobile banking systems are overlapping several regulatory domains, namely banking, mobile communications, payment systems and anti-money laundering. This increases the risk of regulatory coordination failure. If that happens, it is likely that the mobile banking will stay additive, being just another channel to already existing bank accounts for those already having access to banking, and its true potential will not be achieved.

Another barrier to further implementation of a transformational mobile banking system is the uncertainty over the speed and nature of customer adoption. Therefore, gaining better knowledge of the main reasons why customers register with M-pesa, especially the poor and the unbanked would help to remove that barrier, letting banking institutions and telecom companies know in what way to provide bank services so that the unbanked would adopt them (Porteous 2006).

3.3.6 Earlier studies on M-pesa

The only major study on how M-pesa is used is a 14-month ethnographic study that took place in the informal settlement of Kibera in Nairobi, and in the farming village of Bukura. The people participating in Kibera were described as mostly being persons that have migrated from rural villages to the urban area looking for work. Money flows were observed mainly from Kibera to Bukura (Morawczynski 2009).

The typical usage of the service involved the urban husband sending money back to his rural wife. The remittances were often of a regular nature, functioning as income support. But there were also transfers to address lump sum needs, such as school fees or the purchase of farm inputs. As the users grew more accustomed to the service their transfer pattern changed into making smaller and more frequent transfers. The service was to a large extent also used as a

money storage mechanism by the urban users. The account was used for daily consumption and accumulating small amounts of money that could be held in case of unforeseen larger expenditures. By avoiding large amounts of cash, they could also avoid theft. The service worked in this way as a good complement to the bank, which was still used for long-term savings due to the absence of interest rate in the M-pesa system at this time.

The study also concluded that the income of the participating rural recipients usually increased by 20-40 percent since they started to use M-pesa. To an extent, the increase in income was due to the fact that the cost of m-pesa transfers is lower than for other systems. The author did not discuss if there could be other factors, not related to the use of m-pesa, increasing the remittances. It was also concluded that the M-pesa system empowered rural women since it became easier to request funds from their husbands in the city. This also had the effect that the urban migrants visited their villages more seldom since they were not required to travel home with money. As a consequence of this, many of the rural wives became worried that their spouses would feel lonely and possibly find a new partner in the city. Another conclusion was that the savings patterns were changing as the users integrated m-pesa into their savings portfolio, exposing a latent demand for savings products. This conclusion leads the author to recommend the incorporation of a savings account to the service, which also recently was done, as noted above.

4 Material

The material consists of data received from 165 respondents, collected between May 15th and 29th of 2010 in the areas of Embakasi (several places), Gachie, Kawangware, Mukuru and Kibera in Nairobi. People were asked in the street or inside or in close proximity to a shopping centre to fill in a questionnaire. In Kibera, the assistance of a Kikuyu-speaking interpreter facilitated participation of non-English speakers, as well as a Kiswahili version of the questionnaire. Both versions are available in the appendix. Respondents were asked to fill in the questionnaire, either on their own or with the assistance of the researcher or the interpreter. Upon their responding the participants were offered more information about the study, and to take part of the finished report.

A pilot study with 17 respondents was conducted with the purpose of refining the questionnaire in order for it to become easier to understand and respond to. The pilot study resulted in clarifying the headings so that it was obvious from the start that the questionnaire was dealing solely with money transfers made by mobile phone. A question about whether the respondent kept money in the mobile phone account for more than two days was excluded in the final version as the purpose of it was only to increase the understanding of how people used the service. Data obtained in the pilot study was not used in the main study.

4.1 Data Available

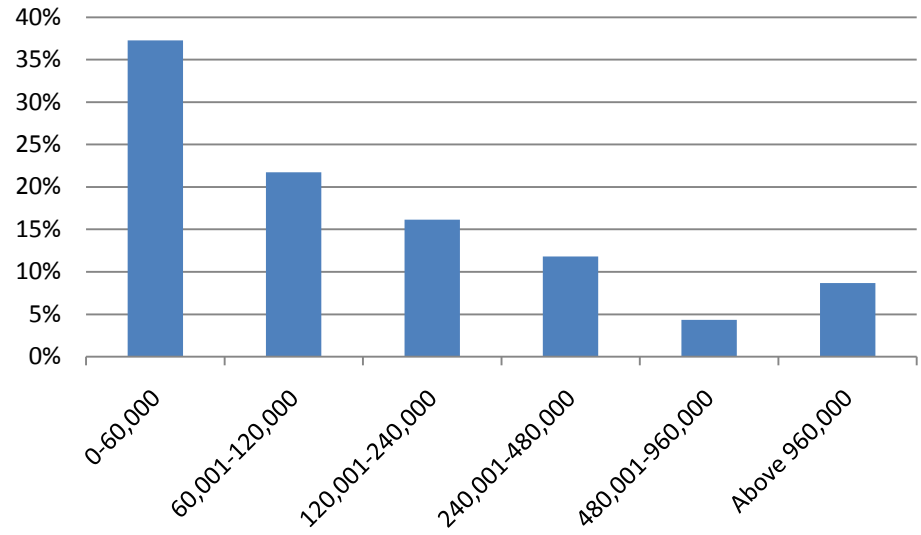
The material holds data on the respondents' age, gender, whether they were born in Nairobi, occupation, current month's income, expected yearly income, amount of money shared current and last month, frequency of sending money, personal coping strategy, estate of residence, schooling, TV and internet habits.

Regarding their last transfer, it holds data on the purpose of it, the personal relation to the recipient, amount sent, perceived loyalty of the recipient, and whether other people know about the transfer.

4.2 Descriptive Statistics

Of the respondents 24% were women and 76% men. 26% were born in Nairobi; subsequently the majority of 74% were not. Average age was 32 years. All respondents had attended school and completed primary school at least. 37% stated a yearly income not higher than KES 60 000 (responding to USD 2 per day). 74% watched television every day. 30% used internet every day, but 41% never used internet. The income distribution is illustrated in figure 4.1.

Figure 4.1 Income Distribution



The numbers on employment in table 4.1 should be interpreted cautiously. Many people relying on temporary jobs would answer private sector, as well as self-employed or unemployed.

As can be seen in table 4.2, the most common purpose of the money transfers was sharing (72%). Lending money was the purpose for 7% of the respondents. 82% stated that they had or would share money with their family or friends in the current month. 15 cases of stated lending were considered to be sharing, as the respondent also stated in a control question (1e) either that it was not a loan or that it was not expected to be paid back.

Table 4.1 Employment/Occupation

N=165	Frequency	Percent
Private sector	66	40
Self-employed	60	36
Unemployed	18	11
Student	15	10
Government employed	8	5
Housewife	1	1
Retired	1	1

Table 4.2 Purpose of transfer

N=163	Frequency	Percent
Sharing	117	72
Bill payment	15	9
Lending	12	7
Loan payment	5	3
Other	13	8

The average amount of a transfer with the purpose of sharing or lending was KES 3,200, the median 2,000. The smallest amount was KES 200 and the largest KES 30,000.

More than half of the sample had been asking friends, neighbours and relatives for help during the last 12 months. Formal borrowing was used by 24 percent. Ten percent of the respondents had used more than one coping strategy. This can be found in table 4.3.

Table 4.3 Coping strategies the last 12 months

N=165	Frequency	Percent
Asking friends, neighbours and relatives	89	54
Formal borrowing (bank, SACCO[6])	39	24
Getting supplies/money on credit from local kiosks	19	12
Church/NGO/Relief supplies	12	7
Other	4	2
None stated	20	12
Stated more than one of the above	17	10

Additional tables on descriptive statistics are available in the appendix.

4.3 Transformation of Data

In order to perform regression analysis, some variables needed to be coded into scale format. The variable helpfulness was measured by asking if the recipient could be considered as a helpful person. If the respondent regarded the recipient as somewhat helpful, this corresponded to a value of 1, or if the recipient was considered to be very helpful then the value assigned was 2. A non-helpful recipient was assigned the value of 0. Thus, the variable helpfulness was measured on a nominal scale ranging from 0 to 2. In a similar way, the translation was done for the variables kinship, knowledge, education, TV habit and internet habit. These are described in the matrix called Table 4.4 together with the values assigned to the corresponding answers and the frequency and proportion of those answers in brackets.

[6] SACCO: savings and credit cooperative organization

Table 4.4 Transformation matrix

		Values assigned(freq., percent)			
Variable	Question	0	1	2	3
Helpfulness	Would you consider the recipient to be a helpful person?	No, not helpful (3, 2)	Somewhat helpful (14, 11)	Yes, very helpful (112, 87)	-
Kinship	To whom did you send the money?	A non-relative (21, 16)	Relative other than [2] (13, 10)	Spouse, child, parent or sibling (95, 74)	-
Knowledge	Does anyone else other than you and the recipient know about this transfer?	No (52, 40.3)	Maybe (4, 3)	Yes (73, 57)	-
Education	What is the highest grade you have attained?	No education (0, 0)	Primary (20, 12.1)	Secondary (68, 41.2)	Tertiary college, University or other higher education (77, 47)
TV	How often do you watch TV?	Never (2, 1.2)	A couple of times per month (16, 9.7)	A couple of times per week (25, 15.2)	Every day (122, 74)
Internet	How often do you use internet?	Never (67, 40.6)	A couple of times per month (26, 15.8)	A couple of times per week (22, 13.3)	Every day (50, 30)

Variables such as income or the amount shared per month were answered in brackets. This was done in order to make the questionnaire easier to fill in, but also in order to make the respondent more comfortable answering questions that often are considered to be of a private nature. The variables were transformed into scale format by approximating the values to the mean of the two values given in each range. For example; when stating income to be 0-60,000 for a year, the value assigned is 30,000. For 60,001-120,000 it is 90,000 etc. When the answer given on such a question was the highest possible, only stating it to be above a given number, the value assigned was the sum of that given number and half the range of the previous bracket. Example: The yearly income has been stated to be “Above 960,000”. The bracket given before that is 480,001-960,000. Since the range of that is 480,000, and half of that is 240,000, “Above 960,000” will be assigned the value of 1,200,000. The approximation of the highest wages is a possible source of distortion to the results, whereby the individuals with the highest wages will be excluded in a sensitivity analysis.

5 Method

The different hypotheses presented in this material have overlapping predictions, and therefore require the incorporation of multiple influences. This will be achieved by using a multivariate OLS regression. The software used for this is PASW Statistics (previously known as SPSS) ver. 18.0.2 (32 bit).

In order to get fair estimates of the different coefficients, one must, however, control for the effect of income on the amount of money shared since wealthier people could easily afford to send more money. This should be done for all the variables in the set, and is easily accomplished by dividing the amount shared by the yearly income. Thus, the dependent variable is the proportion of the yearly income that was transferred.

The issue of whether one should or should not consider lending and sharing money as separate from each other is difficult to answer. Would we expect the determinants to be different in between the two? Many respondents who claimed to lend money to someone also reported that they were not sure that the money would be returned. To differentiate between the two is therefore difficult. In the material the transfers with the purpose of sharing are also greater in numbers. In order to tackle this issue, a practical approach was adopted; regressions were run both including and excluding the 12 cases of lending, to see whatever difference this would make to the results.

When running regressions both including and excluding the 12 cases of lending, no apparent differences in results could be concluded. The only noticeable difference was that regressions including the cases of lending gave more robust results. This is the same result as one would have expected when increasing a sample size of a given population. The conclusion hereby is that sharing and lending have determining factors in common.

5.1 Variables in the regression

The variables put into the regression are listed in tables 5.1 and 5.2.

Table 5.1 Independent variables

Variable	Expected sign of coefficient	Explanation
Helpfulness	+	If reciprocity is present, we would expect higher amounts of sharing to be correlated to recipients perceived as generous and loyal.
Kinship	+	A positive value would support the notion of nepotism based on kin selection.
Knowledge	+	According to costly signaling, knowledge of the transfer in a wider audience would serve as an incentive to share.

Table 5.2 Control variables

Control Variable	Explanation
lnAge	The logarithmic values of age of the sender (inspection of a scatterplot revealed that the variable age seemingly had a logarithmic relationship with the dependent variable)
Gender	Gender of the sender
Born in Nairobi	Whether the sender was born in Nairobi or not
Education	The level of education of the sender
TV	TV habit
Internet	Habit of using the internet (measuring technological awareness)
Asking_coping	Whether the sender had received help from friends or relatives. This could influence the level of sharing positively since there would be incentives to return the favour or to help someone else in need. It could however also indicate that the individual is struggling and would therefore have problems doing so. The expected sign of the coefficient is therefore ambiguous.
Sending frequency	Measured in the amount of times per month the participant is sending money
Relative	The recipient is somehow related to the sender
Close Relative	The recipient is a spouse, parent, sibling or child of the sender

6 Results

6.1 Multivariate Regression Analysis

The results of multivariate regression analyses are found in table 6.1. Of the main variables, only helpfulness turned out to be significant, and it had a negative sign as seen in regressions 1 and 2. This was contrary to what was expected from the reciprocity hypothesis. Could it be that people perceived as helpful receive less help because they are better equipped to handle the problems that arise, or are presumed to be that as they are being more helpful? The significance however disappears when jointly controlling for relatives and close relatives as can be seen in regression number three.

The variable kinship, which tests the hypothesis of nepotism based on kin selection, does not render any significance. This can be explained when looking at regressions including the variables relative and close relative. Jointly present in a regression, they become significant at a 1%-level but with different signs. Interpreting these, there seems to be a positive effect on generosity when sending to a relative. The effect is however decreased and almost vanishes if the relative is a close one. The interpretation that non-close relatives are preferred over close ones is not plausible, and a better explanation can be found when reasoning about the nature of money transfers. Since using the service imposes a cost on the user, this service would not be used if the money could easily be handed over in cash. The reason for this ambiguity is most probably that close relatives meet each other with a higher frequency and therefore prefer cash transfers. When a mobile phone money transfer does appear between close relatives, this could be a husband sending a big amount of money back to his wife in the village, but it could also be a small amount of money sent due to some temporary shortage of cash. Looking back at Table 4.4 we can see that 74% of the transfers were to close relatives. This is evidence that nepotism is present, although we cannot prove it to be motivated by kin selection.

The knowledge variable did not yield any significant result to support the notion of costly signaling. With the three main variables joined together in regressions 11-13 none of them came out significant, including helpfulness which was significant on its own.

The effect of age had the strongest significance, between 0.1-1% significance levels. The negative coefficient tells us that an old sender is expected to be less generous than a young one, all other things equal. This would be consistent with the popular notion of people getting

"cheaper" as they get older, but that does not have to be the correct or only explanation for this result. The relationship could also stem from the possibilities of a recipient returning a favour to the sender decreasing as the sender gets older and approaches death. The inclusion of this reasoning in the sender's sharing decision would explain the result. One could also imagine that younger people are returning the help they received growing up (receiving food, school fees etc.) to the older people, which would also explain this. The true reason behind the negative correlation between age and generosity could however lie in the variable of income. Age is positively related to income. Income is in turn negatively related to the generosity measured in the dependent variable (this test is not found in the table). The fact that income is negatively correlated to the proportion of income shared could be explained by a diminishing utility of money shared.

The significant and negative coefficient of gender suggests that female sharers are less generous than male ones. This is not in line with what Gurven (2004b) found in the studies of Ache and Hiwi people, namely that donor gender had no effect on sharing patterns. Perhaps the effect of gender is cultural-specific.

Table 6.1 Multivariate regression analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13
Intercept	0.070***	0.233***	0.236***	0.219***	0.042***	0.213***	0.207***	0.032***	0.218***	0.202***	0.067***	0.235***	0.229***
	[0.017]	0.053	[0.051]	[0.058]	[0.009]	[0.052]	[0.059]	[0.006]	[0.050]	[0.057]	[0.018]	[0.053]	[0.060]
Helpfulness	-0.018*	-0.019*	-0.012	-0.012							-0.018	-0.017	-0.018
	[0.009]	[0.009]	[0.009]	[0.010]							[0.010]	[0.009]	[0.010]
Kinship					-0.004	-0.004	-0.003				-0.001	-0.001	0.000
					[0.005]	[0.005]	[0.005]				[0.005]	[0.005]	[0.006]
Knowledge								0.003	0.000	0.000	0.003	0.003	0.003
								[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
lnAge		-0.049**	-0.053***	-0.051**		-0.049**	-0.049**		-0.054***	-0.052***		-0.049**	-0.048**
		[0.015]	[0.014]	[0.015]		[0.015]	[0.016]		[0.014]	[0.015]		[0.015]	[0.016]
Gender		-0.021*	-0.020*	-0.023*		-0.021*	-0.023*		-0.021*	-0.023*		-0.020*	-0.023*
		[0.009]	[0.009]	[0.009]		[0.009]	[0.010]		[0.009]	[0.009]		[0.009]	[0.010]
Born in Nairobi				0.008			0.005			0.006			0.007
				[0.010]			[0.010]			[0.010]			[0.010]
Education				0.006			0.006			0.007			0.005
				[0.007]			[0.007]			[0.007]			[0.007]
TV				-0.001			-0.001			0.000			-0.002
				[0.006]			[0.006]			[0.006]			[0.006]
Internet				-0.005			-0.004			-0.005			-0.004
				0.004			[0.004]			[0.004]			[0.004]
Asking_coping				0.000			-0.004			0.000			-0.004
				[0.008]			[0.008]			[0.008]			[0.009]
Sending freq.				0.000			0.000			0.000			0.000
				[0.001]			[0.001]			[0.001]			[0.001]
Relative		0.010	0.042**	0.044					0.043**	0.046**			
		[0.011]	[0.015]	[0.016]					[0.015]	[0.016]			
Close relative			-0.038**	-0.039					-0.043**	-0.044**			
			[0.013]	[0.014]					[0.013]	[0.014]			
Observations	127	124	124	124	127	124	124	127	124	124	127	124	124
R-squared	0,031	0.133	0.190	0.207	0.004	0.103	0.116	0.004	0.180	0.196	0.036	0.131	0.147

*, **, and *** denotes statistical significance at the 5%, 1%, and 0.1% levels respectively.

7 Discussion

7.1 Sensitivity Analysis

7.1.1 Controlling for Highest Incomes

As reported earlier, there was a different approach when approximating the yearly income for the individuals with the highest wages than for the other cases. These individuals were excluded in a sensitivity analysis in order to control for any distortion this might have caused.

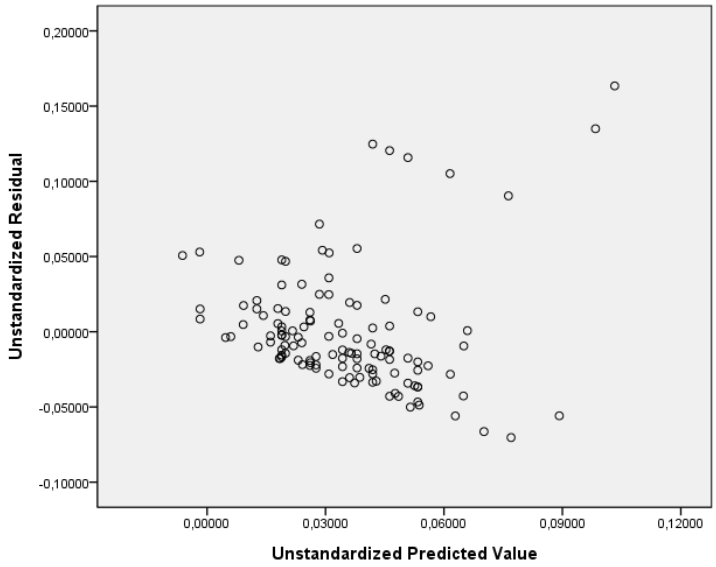
The result of the rerun regression analyses was very similar to the main scenario. The negative coefficient of helpfulness was however now also significant in regressions corresponding to 11, 12 and 13. When controlling for relatives and close relatives, like in regressions 3 and 4 this effect was not present.

7.1.2 Variance of the Error Term

Constant variance of the error terms is an important assumption of the linear regression model. A non-constant variance is referred to as heteroscedasticity, and if present, the OLS estimators are no longer efficient. As a consequence of this, the variances of OLS estimators are generally biased, which means that the usual confidence intervals and hypothesis tests based on the t and F distributions are unreliable (Gujarati 2006).

The residuals were plotted against the predicted values of the quota for regression 3 in figure 7.1. The pattern does seem to have some kind of systematic component to it, and we cannot reject the possibility of heteroskedasticity in the material.

Figure 7.1 Residuals



As the true variance term is unknown we compute robust standard errors for the regression analysis. This was done using Stata/IC ver 10.1. The result can be found in table 7.1. Comparing with previous regression analysis, the use of robust standard errors does not render a significant coefficient to the variable helpfulness in regressions 1 and 2. The same goes for variables of relative and close relative in regressions 3, 9 and 10. Age remains significant on high levels, and the result for gender is enforced as the result is now significant on a 1%-level for many of the regressions.

Table 7.1 Multivariate Regression using robust standard errors

	1	2	3	4	5	6	7	8	9	10	11	12	13
Intercept	0.070*	0.233***	0.236***	0.219**	0.042***	0.213**	0.207**	0.032***	0.218***	0.202**	0.067*	0.235**	0.229**
	[0.027]	[0.071]	[0.068]	[0.069]	[0.011]	[0.066]	[0.069]	[0.006]	[0.066]	[0.065]	[0.027]	[0.073]	[0.076]
Helpfulness	-0.018	-0.019	-0.012	-0.012							-0.018	-0.017	-0.018
	[0.013]	[0.012]	[0.009]	[0.010]							[0.013]	[0.011]	[0.013]
Kinship					-0.004	-0.004	-0.003				-0.001	-0.001	0.000
					[0.005]	[0.005]	[0.005]				[0.004]	[0.004]	[0.005]
Knowledge									0.003	0.000	0.000	0.003	0.003
								[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
lnAge		-0.049**	-0.053**	-0.051**		-0.049**	-0.049**		-0.054**	-0.052**		-0.049**	-0.048**
		[0.016]	[0.018]	[0.019]		[0.017]	[0.019]		[0.018]	[0.019]		[0.016]	[0.018]
Gender		-0.021**	-0.020*	-0.023*		-0.02**	-0.023**		-0.021**	-0.023*		-0.020*	-0.023**
		[0.008]	[0.007]	[0.009]		[0.008]	[0.008]		[0.008]	[0.009]		[0.007]	[0.008]
Born in Nairobi				0.008			0.005			0.006			0.007
				[0.010]			[0.010]			[0.010]			[0.010]
Education				0.006			0.006			0.007			0.005
				[0.007]			[0.007]			[0.007]			[0.007]
TV				-0.001			-0.001			0.000			-0.002
				[0.005]			[0.004]			[0.005]			[0.005]
Internet				-0.005			-0.004			-0.005			-0.004
				0.004			[0.004]			[0.004]			[0.004]
Asking coping				0.000			-0.004			0.000			-0.004
				[0.008]			[0.009]			[0.009]			[0.009]
Sending freq.				0.000			0.000			0.000			0.000
				[0.001]			[0.001]			[0.001]			[0.001]
Relative		0.010	0.042	0.044					0.043	0.046			
		[0.009]	[0.025]	[0.026]					[0.027]	[0.028]			
Close relative			-0.038	-0.039					-0.043	-0.044			
			[0.024]	[0.024]					[0.026]	[0.027]			
Observations	127	124	124	124	127	124	124	127	124	124	127	124	124
R-squared	0,031	0.133	0.190	0.207	0.004	0.103	0.116	0.004	0.180	0.196	0.036	0.131	0.147

*, **, and *** denotes statistical significance at the 5%, 1%, and 0.1% levels respectively

7.2 Comparison of the Sample with the Official Kenyan Statistics

The relative sizes of the age cohorts in the regression sample is compared to those expected in urban areas of Kenya presented in official Kenyan statistics (KNBS 2008) in table 7.2 and figure 11.2. We see that the regression sample has a somewhat younger population but that the distributions nonetheless are quite similar, so we do not expect any sampling bias related to age.

Table 7.2 Age distribution

Age cohort	Urban areas	Regression Sample
20-24	24%	27%
25-29	22%	28%
30-34	15%	14%
35-39	12%	14%
40-44	8%	10%
45-49	7%	5%
50-54	4%	2%
55-59	3%	1%
60-64	2%	1%
65-69	1%	0%
70-74	1%	0%
75-79	0%	0%
80+	1%	0%

Figure 7.2 Age distribution

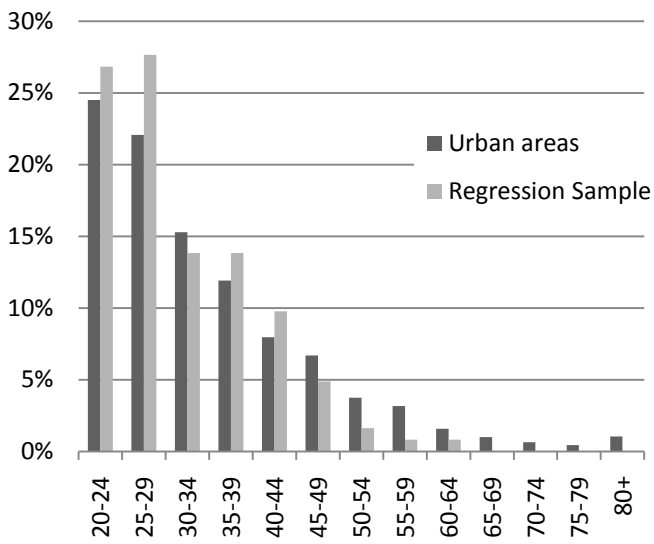


Table 7.3 Level of education

Population	None	Primary	Secondary	Higher	Not stated
Poor, Nairobi	3	62	31	<1	3
Non-poor, Nairobi	3	39	46	8	3
Regression sample	0	12	41	47	0

We can see that the sample has a more educated population than what is to be expected when looking at official Kenyan statistics for Nairobi (KNBS 2008). There might be several explanations for this. One is that the Kenyan statistics look at the whole population, which means that they include people not using a mobile phone, or a money transfer service. As education spurs higher income, one would expect people with higher education to be overrepresented among people using mobile phones. Another explanation for why the

education levels are higher in this sample could be found when hypothesising about what people were willing to participate in the study. It is very possible that less educated people, to a higher degree than more educated, rejected the request to participate in the study when no interpreter was present. They might have felt that they would experience difficulties when communicating in English. One must also consider the possibility that the areas where the data collection was performed might not be able to mirror the population of Nairobi. The method of asking people randomly in the street or in malls could exclude certain groups of the population.

The fact that only 26% of the respondents were women is obviously not in line with the gender distribution in Nairobi (50% (KNBS 2008)). The low number is especially worrying considering that the variable gender had a significant coefficient in the analysis. The question is whether the result arises due to a sampling bias, where those women prepared to answer the questions behaved differently from other women when it came to sharing of resources.

8 Conclusion

This study investigated the viability of the theories of reciprocal altruism, nepotism due to kin selection and costly signaling. A new approach to doing this was taken by looking at money transfers made by mobile phone. Earlier studies with money sharing have been conducted in experimental design, creating transfers of an artificial art, whereas this study was able to look at 165 money transfers that had actually taken place in the real world.

The multivariate analysis did not clearly support any of the theories focused on. There was however some indication of nepotism due to kin selection in the material, and it was believed that the material in this aspect could be distorted by the fact that cash transfers could not be assessed. The unexpected effect of helpfulness was difficult to explain but was not significant when controlled with variables for relatedness. The age of the sender, and if the sender was a woman, negatively influenced the level of sharing. The effect of gender was unexpected and not in line with earlier research on food sharing.

8.1 Recommendations for Future Research

The unexpected findings of gender and age should be further studied. This could be done by controlling for sharing of resources by the variables recipient age and recipient gender. New research could also look into different approaches to assess variables indicating the different theories studied here. Means to control for the unseen cash transfers would also be of value.

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10 Appendix

Table 10.1 Amount transfered with the purpose of sharing or lending

N=129	Mean	Minimum	Maximum	1st quartile	2nd quartile	3rd quartile
Amount	3,167	200	30,000	750	2,000	4,550

Table 10.2 Yearly income

N=161	0-60,000	60,001-120,000	120,001-240,000	240,001-480,000	480,001-960,000	Above 960,000
Frequency	60	35	26	19	7	14
Percent	37	22	16	12	4	9

Table 10.3 How much of this month's income will you send to family or friends or as help or gift to someone?

N=163	0	1-1,000	1,001-2,500	2,501-3,500	3,501-5,000	5,001-10,000	10,001-20,000	Above 20,000
Frequency	29	30	29	12	29	23	3	8
Percent	18	18	18	7	18	14	2	5

Table 10.4 How often do you send money? (times per month)

N=165	0-5	6-10	11-15	16-20	21-25	30 or more
Frequency	128	21	5	4	1	6
Percent	78	13	3	2	1	4

Table 10.5 How much did you send last month within the family or as help or gift to someone?

N=162	0	1-1,000	1,001-2,500	2,501-3,500	3,501-5,000	5,001-10,000	10,001-20,000	Above 20,000
Frequency	19	34	30	12	17	30	12	8
Percent	12	21	19	7	10	18	7	5

Table 10.6 What is your income for this month?

N=163	0-5,000	5,001-10,000	10,001-20,000	20,001-40,000	40,001-80,000	Above 80,000
Frequency	56	32	31	20	9	15
Percent	34.4	19.6	19.0	12.3	5.5	9.2

QUESTIONNAIRE ON MOBILE PHONE MONEY TRANSFERS

I am a ❑ Woman ❑ Man

Age _____ years old

Were you born in Nairobi? ❑ Yes ❑ No

1. YOUR LAST MOBILE PHONE MONEY TRANSFER

a. What was the purpose of your last mobile phone money transfer where <u>you sent money</u> to someone (using M-pesa, Zap, yuCash or similar service)?

❑ Bill payment ❑ Loan payment ❑ Lending money to someone

❑ Help or gift to someone (including sharing money with family or friends)

❑ Other: _____

b. Whom did you send the money to?

❑ Spouse ❑ Child ❑ Parent ❑ Sister ❑ Brother ❑ Cousin ❑ Uncle

❑ Aunt ❑ In-law ❑ Other relative ❑ Friend

❑ Business partner ❑ Financial institution ❑ Other

c. What amount did you send? Ksh _____

d. Would you consider the recipient to be a helpful person?

❑ Yes, very helpful person ❑ Somewhat helpful ❑ No, not helpful ❑ Not a

e. If the transfer was a loan to someone, do you expect the money to be paid back?

❑ Yes ❑ No ❑ Maybe ❑ It has already been paid back ❑ It was not a loan

f. Does anyone else other than you and the recipient know about this transfer?

❑ Yes ❑ No ❑ Maybe

The questionnaire continues on the next page

2. YOUR FINANCIAL STATUS

a. What is the status of your income?

❑ Self-employed ❑ Government employed ❑ Private sector employed

❑ Housewife ❑ Student ❑ Retired ❑ Unemployed

b. What is your income for this month? (Ksh)

❑ 0-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ 20,001-40,000 ❑ 40,001-80,000 ❑ Above 80,000

c. How much of this month's income will you send to family or friends or as help or gift to someone? (Ksh)

❑ 0 ❑1-1,000 ❑ 1,001-2,500 ❑ 2,501-3,500

❑ 3,501-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ Above 20,000

d. What is your average income for a year? (Ksh)

❑ 0-60,000 ❑ 60,001-120,000 ❑ 120,001-240,000

❑ 240,001-480,000 ❑ 480,001-960,000 ❑ Above 960,00

e. How much did you send last month within the family or as help or gift to someone? (Ksh)

❑ 0 ❑1-1,000 ❑ 1,001-2,500 ❑ 2,501-3,500

❑ 3,501-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ Above 20,000

f. How often do you send money? (times per month)

❑ 0-5 ❑ 6-10 ❑ 11-15 ❑ 16-20 ❑ 21-25 ❑ 30 or more

h. There are a number of ways people can cope in times of hardship. Did you rely on any of the following during the last 12 months?

❑ Formal borrowing (bank, SACCO) ❑ Asking friends, neighbours and relatives

❑ Church/NGO/Relief supplies ❑ Getting supplies/money on credit from local kiosks

❑ Other (specify): _____

The questionnaire continues on the next page

3. MORE ABOUT YOU

a. Where do you live? Estate:_____ Constituency: _____

b. Education status

(i) Have you ever attended school? ❑ Yes ❑ No

(ii) What is the highest grade you have attained?

❑ Primary ❑ Secondary ❑ Tertiary College ❑ University

c. How often do you watch TV?

❑ Never ❑ A couple of times per month ❑ A couple of times per week ❑ Every day

d. How often do you use internet?

❑ Never ❑ A couple of times per month ❑ A couple of times per week ❑ Every day

Thank you for participating

QUESTIONNAIRE ON MOBILE PHONE MONEY TRANSFERS

Mimi ni ❑ Mwanamke ❑ Mwanamme

Umri/ miaka _____

Je, wewe nimzaliwa wa Nairobi? ❑ Ndiyo ❑ La

1. MARA YA MWISHO KUTUMIA SIMU YA MKONO KUTUMA PESA

a. Je, pesa ulizotuma mara ya mwisho kutumia simu ya mkono ilikuwa ya sababu gani? (Kutumia Mpesa, Zap, Yucash au njia kama hii)

❑ Bill payment ❑ Kulipa deni ❑ Kukopesha mtu mwingine
❑ Kusaidia au zawadi kwa jamii na rafiki ❑ Sababu nyingine: _____

b. Je, ulizituma pesa hizo kwa nani?

❑ Spouse ❑ Mtoto ❑ Mzazi ❑ Dada ❑ Kaka ❑ Cousin ❑ Mjomba
❑ Shangazi ❑ Shemeji ❑ Mtu wa jamii ❑ Rafiki
❑ Mfanya biashara mwenzangu ❑ Benki ❑ Sababu nyingine

C. Je, ulituma pesa kiasi gani? Ksh _____

d. Je, ulitumia mtu ambaye ni msaidifu?

❑ Ndiyo, ni msaidifu sana ❑ msaidifu lakini sio sana ❑ La, si msaidifu ❑ Hakuwa mtu

e. Ikiwa pesa ulizotuma zilikuwa kukopesha, je, watarajia kurudishiwa pesa hizi?

❑ Ndiyo ❑ La ❑ Yawezekana ❑ Imeshalipwa ❑ Haikuwa deni

f. Isipokuwa wewe na yule uliyepokea pesa hizo, kunaye mtu yeyote mwingine anaye jua ulituma pesa?

❑ Ndiyo ❑ La ❑ Yawezekana

The questionnaire continues on the next page

2. MAELEZO KUHUSU MAPATO YAKO

a. Je, wafanya kazi na shirika gani?

❑ Nimejiajiri mwenyewe ❑ Nimeajiriwa na serikali ❑ Nimeajiriwa na kampuni ya mtu binafsi
❑ Mimi ni mwanafunzi ❑ Nimestaa ❑ House wife ❑ Sina kazi/sifanyi kazi

b. Je, watarajia kupata mapato au mshahara kiasi gani mwezi huu? (Ksh)

❑ 0-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ 20,001-40,000 ❑ 40,001-80,000 ❑ Juu ya 80,000

c. Je, nikiasi kipi cha mapato ya mwezi huu utakayo tuma kwa jamii au rafiki kama usaidizi au zawadi? (Kshs.)

❑ 0 ❑1-1,000 ❑ 1,001-2,500 ❑ 2,501-3,500
❑ 3,501-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ Above 20,000

d. Je, kadiri (avaregi) ya mapato yako kwa mwaka ni ngapi? (Ksh)

❑ 0-60,000 ❑ 60,001-120,000 ❑ 120,001-240,000

❑ 240,001-480,000 ❑ 480,001-960,000 ❑ Above 960,000

e. Je, mwezi uliopita, ulituma kiasi gani, kwa jamii kama usaidizi au zawadi? (Ksh)

❑ 0 ❑1-1,000 ❑ 1,001-2,500 ❑ 2,501-3,500

❑ 3,501-5,000 ❑ 5,001-10,000 ❑ 10,001-20,000 ❑ Above 20,000

f. Je, unatuma pesa kwa simu ya mkono mara ngapi kwa mwezi?

❑ 0-5 ❑ 6-10 ❑ 11-15 ❑ 16-20 ❑ 21-25 ❑ 30 or more

h. Je, ni mbinu gani nyingine ambayo watu wanaweza kujizatiti (kujisaidia) wakati wa shida. Uliwahi tumia mbinu yeyote kati ya hizi miezi kumi na mbili iliyo pita 12 months ago?

❑ Kukopa rasmi kwa benki au shirika ❑ Kukopa kwa marafiki, majirani au jamii
❑ Kanisa/mashirika yasiyo ya serikali/shirika la usaidizi ❑ Kukopa bidhaa au pesa kwa duka/kiosi
❑ Sababu nyingine: _____

The questionnaire continues on the next page

3. MENGI KUHUSU WEWE

a. Unaishi wapi? Mtaa:_____ Eneo Bunge: _____

b. Maelezo kuhusu elimu

(i) Je umesha wahi kujiunga na shule? ❑ Ndiyo ❑ La

(ii) Ikiwa jibu lako ni ndiyo, ulifika kiwango gani?

❑ Primary/Shule ya msingi ❑ Secondari/Shule ya Upili ❑ Tertiary College ❑ Chuo Kikuu/University

c. Je, huwa unatazama runinga au televisheni mara ngapi?

❑ Sijawahi kuitumia ❑ Mara kathaa kwa mwezi ❑ Mara kathaa kwa wiki ❑ Kila siku

d. Je, watumia mtandao au internate marangapi?

❑ Sijawahi kuitumia ❑ Mara kathaa kwa mwezi ❑ Mara kathaa kwa wiki ❑ Kila siku

Asante sana kwa kushiriki