

SAME ENDS, DIFFERENT MEANS: THE ROLE OF SOCIAL NETWORKS IN SHAPING M-PESA USE

- **Cash remains king**: less than 6 percent of transactions involved e-money vs more than 94 percent for cash.
- **A business-related** e-money remittance is more likely to stay in the e-money system and be sent on to someone else, than be immediately converted to cash.
- **If a person receives an e-money remittance** for a business purpose he is more likely to leave that e-money in the system and on-send it—as e-money—to someone else, rather than immediately converting it into cash.

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KENYANS' USE OF M-PESA, that country's groundbreaking mobile money innovation, follows patterns that are largely determined by users' networks of social relationships, according to a new study by Microfinance Opportunities (MFO). In addition, the MFO study also finds that, despite e-money's potential to alter the way people pursue their economic lives in more fundamental ways, M-PESA subscribers currently use M-PESA in ways that mimic their use of physical cash. They also convert e-money into physical cash quickly, often the same day they receive M-PESA remittances. In other words, four years since M-PESA's 2007 launch, the evidence suggests that its users' uptake of the service remains deeply embedded within their familiar economic behaviors and preexisting interpersonal networks.

These findings have implications both for its subscribers and for M-PESA itself. Despite M-PESA's meteoric growth, cash remains king. In the MFO study, more than 94 percent of transactions by value involved cash compared to less than 6 percent for M-PESA. M-PESA is unlikely to capture a greater share of overall transactions simply by adding customers—more than 70 percent of adult Kenyans are already subscribers. If M-PESA is to challenge the overwhelming dominance of cash in the everyday economic lives of low-income Kenyans, it will have to expand into other markets segments, especially business ones.

EMBEDDEDNESS IN THEORY . . .

The term "embeddedness" (Granovetter, 1985) describes the notion that people do not make financial decisions in a vacuum based solely on the economically optimal course of action. Instead, economic behaviors are "embedded" within existing social relations and are governed by social norms. The idea has much in common with the approach that behavioral economics takes towards how people make economic decisions. But the embeddedness approach pays more attention to the role that social structures (networks and the norms within those networks) play in shaping actions, not just the internal mental processes of individuals.

Because the unit of analysis is the transaction, the Financial Diaries are well suited to examine how both e-money and physical cash usage patterns are embedded in familiar behaviors and social networks.

The "financial diaries" methodology the MFO study employed is well suited to examine M-PESA in this context of embeddedness because the Diaries' unit of analysis is the *transaction*. The Diaries data—more than 18,000 transactions records collected from almost 100 participants over the course of eight months—show *with whom* people exchanged e-money versus *with whom* they exchanged cash. This gives insights into *network embeddedness* that is, whether e-money is entirely embedded within preexisting social relations or whether it fosters the creation of new ones.

The Diaries also look at *how* people use e-money and whether it mimics *how* they use cash. If it does, that suggests *behavioral embeddedness*—that people are conforming to existing norms of behavior in their management of e-money, established through their long experience in working with cash.

. . . AND IN PRACTICE

As noted above, the Diaries' analyze transactions. MFO categorized all these transactions by whether respondents conducted them with another individual or with some sort of organization. When it was with an individual, respondents further identified whether the person was a family member (often specifying the exact nature of the relationship), a friend, or someone else. Respondents also specified the gender of the other person in most cases.

The data confirm the socially embedded nature of finance in Kenya. Most financial transactions, whether in e-money or physical cash, take place with family and friends or with community-based organizations (such as ROSCAs [rotating savings and credit associations, known in Kenya as merry-go-rounds]) which themselves rely heavily on pre-existing social networks for their effective operations (Rutherford, 2000; Johnson, 2004). Fully 80 percent of e-money transfers in the MFO sample were within families or between friends; the remaining 20 percent were almost all business transactions, a point to which we will return.

TABLE 1 - SOURCES OF CASH FINANCE

TYPE	NUMBER	AMOUNT (PPP$)	AVERAGE (PPP$)	MEDIAN (PPP$)
Individual				
Associate	135	4.394	33	21
Family (excl. spouse)	188	7,444	40	15
Friend	263	8,427	32	16
Missing	10	160	16	11
Individual Total	596	20,424	34	21
Organization				
Bank	146	26,236	180	70
CBO	708	20,184	29	15
M-PESA	487	18,127	37	22
Other	36	3,838	107	40
Organization Total	1,377	68,385	50	21
Total	1,973	88,809	45	21

In other words, the key finding is that M-PESA is enabling the flow of e-money between individuals who already know each other.

That this is true is perhaps not surprising (although the degree to which it is true, the abovementioned 80 percent figure, may be surprising). Kenya has a relatively high incidence of geographically scattered families, the classic scenario being the adult child working in the city with parents and younger siblings remaining on the farm. Both Kenya's urban and its rural populations are growing, creating ample opportunity for businesses like M-PESA that connect the two. And Kenya also has a general culture of informal cash gifts and loans flowing within families and between friends. M-PESA has facilitated that flow by enabling it to take place faster and more securely across long distances.

BEHAVIORAL EMBEDDEDNESS

Along with examining the social networks themselves, MFO explored the behavioral norms within those networks to see whether people's behaviors with the newer e-money followed long-established patterns of behavior with physical cash.

E-money transactions are embedded in the same gendered norms of behavior as cash transactions, especially, but not only, in the case of flows between spouses.

Gender relations

A logical place to begin was to look at financial flows between genders; one strong norm known to be at work in Kenya is that of gender dependency. Women tend to be economically dependent on men, whether they are their spouse or another family member or a friend.

The Diaries data on cash gifts are consistent with this norm. The Diaries asked respondents to report on cash transfers from spouses; the resulting data show that almost invariably, husbands send and wives receive, 97 percent of the time. The same is true for M-PESA flows between husband and wife. In other words, e-money behavior does indeed mimic cash behavior. This is true even though e-money transactions take place across long distances between spouses who are at a geographical remove from each other, a factor that might be expected to alter the marital relationship in any number of ways, including economically.

Outside of marriage, the evidence regarding the role of gender in determining cash gifts is less strong (although the flow from women to men is the least likely of the four possible flows, the other three are roughly equal in instance). But the point for the purpose at hand is that the e-money flows mimic the longer-established physical cash flows. As a result, there is good evidence that e-money transactions are embedded in the same gendered norms of behavior as cash transactions, especially, but not only, in the case of flows between spouses.

Self-discipline

In an earlier study, MFO (Cohen et al, 2008) examined the potential for branchless banking to reach low-income individuals in developing countries. The authors found that such individuals tend to use financial services that impose payment discipline as a way of forcing themselves to manage their money well. The experience of the Kenya respondents in the M-PESA Diaries supports this finding.

TABLE 2 - COMPARISON OF CASH GIFT AND HOUSEHOLD REMITTANCES BETWEEN FRIENDS AND WITHIN FAMILIES

CASH GIFT FLOWS BETWEEN FRIENDS AND WITHIN FAMLIES (CASH GIFTS BY NUMBER OF TRANSACTIONS)						
a		Receiver				Total Number
	Giver	Men #	Men %	Women #	Women %	
	Men	118	29%	139	34%	257
	Women	45	11%	106	26%	151
	Grand Total	163	40%	245	60%	408
	Missing	43				
HOUSEHOLD REMITTANCE FLOWS BETWEEN FRIENDS AND WITHIN FAMLIES (REMITTANCES BY NUMBER OF TRANSACTIONS)						
b	All Areas	Other Gender				
	Giver	Man	%	Woman	%	Total
	Man	101	32%	96	30%	197
	Woman	47	15%	75	24%	122
	Grand Total	148	46%	171	54%	319
	Missing	86				

As noted above, ROSCAs were very popular with the Diaries population in Kenya, with many of the respondents making regular payments into their "accounts" as a way to save. ROSCAs are clearly a means by which people impose financial discipline upon themselves because most ROSCAs require their members to contribute a set amount on a regular schedule in order to be eligible to borrow (Rutherford, 2000).

The Diaries data provide evidence of another form of self-imposed discipline. MFO looked at respondents' airtime purchases to see how they managed their airtime "accounts." The data show that respondents made a large number of small purchases—1,386 in total (just over one purchase every two weeks per person, or just under one every week for the median respondent). Eighty-five percent of the purchases were less than $5 in value (the equivalent of about 50 minutes). One plausible interpretation of these data is that low-income Kenyans purchase airtime in small quantities, just sufficient for the immediate need at hand, lest they burn through any surplus too quickly. This is much the same manner that Cohen et al. (2008) describe them as purchasing everything from teaspoons of tomato paste to sachets of shampoo

Cash as King

The data on airtime purchases revealed another remarkable finding. All but nine of the 1,386 airtime purchases were paid for with cash. There were only nine instances when someone purchased airtime through M-PESA even though such purchases were free of service charge. This finding provides more evidence of the power of embedded habit in financial behaviors, including the prioritization of convenience. Diaries respondents, like people everywhere, tend to combine errands. Their clear preference was to buy airtime scratch cards at shops that also sold groceries and other items for which they were paying cash anyway. In contrast, respondents did not always have a balance on their M-PESA account when they needed to buy airtime. As discussed above, the norm was to clear out M-PESA balances immediately.

Cash remains king: less than 6 percent of transactions involved e-money vs more than 94 percent for cash.

The Curious Case of Local Cash Gifts

Most M-PESA flows, as noted, travel across long distance (defined in the MFO study as equal to or greater than 20 kilometers) between people who already know each other, usually family members but also friends. When people give each other cash gifts, they do it across short distances, indeed often face to face, which is what one would expect. But one surprising finding is that when the Diaries population did make short-distance ("local" in the study's terminology) e-money remittances to each other, the gift amounts were *smaller*, not larger, than local cash gifts.

If you were giving someone face to face a gift of money, why would you hand him more physical cash than you would remit to him electronically? One factor may be whether or not you were put on the spot.

MFO's data show that local e-money transactions are far more likely to be between friends than are long-distance e-money transactions (which are more likely to be between family members). But if one excludes spousal cash transfers, it is also true that cash gifts are more

FIGURE 1 - DISTANCE PURPOSE FRAMEWORK

DISTANCE

PURPOSE

LOCAL BUSINESS

	NUMBER	AMOUNT
Cash	2,248	$320,411
E-money	68	$5,179

LONG-DISTANCE BUSINESS

	NUMBER	AMOUNT
Cash	44	$30,904
E-money	47	$7,048

LOCAL HOUSEHOLD

	NUMBER	AMOUNT
Cash	13,065	$179,318
E-money	159	$3,474

LONG-DISTANCE HOUSEHOLD

	NUMBER	AMOUNT
Cash	186	$11,720
E-money	362	$12,059

likely to be between friends than are long-distance e-money remittances. It could be that e-money, when used locally, is enabling friends who live near each other to help each other out conveniently by sending each other small amounts of cash over the phone.

So why the counterintuitive disparity in amounts, between e-money versus local cash gifts? One possible explanation: If a friend needs a sizable gift (or a soft loan, which amounts to the same thing), he is likely to ask for it in advance and receive it in cash (given that, as we have seen, cash is the overwhelmingly dominant currency), at some mutually arranged time.

On the other hand, if someone knows a friend has an M-Pesa account, it is easy for them to ask them or text them a request to "M-PESA me a few shillings." The MFO study stresses that the reasons are not clear for the relatively low amounts of local e-money gifts compared to those made in physical cash. But if the hypothesis of social pressure is correct, it provides another datapoint about M-PESA's embeddedness within social networks and behavioral norms— and perhaps also suggests an additional motivation people may have for clearing out M-PESA balances quickly.

At any rate, the evidence from the Diaries shows that e-money flows through the same existing social networks that physical cash does, and in much the same behavioral patterns of habit. This is not to suggest, however, that such a state of affairs is predestined or that e-money could not evolve in new directions. On the contrary, MFO's Distance/Purpose Framework (see below) contains some important clues about areas for potential growth.

BEYOND EMBEDDEDNESS?

As noted above, only about 20 percent of current e-money transactions are related to business activities. By definition, then, this is a market segment where there is ample room for growth. Here the Diaries data suggest two important and related points, the first, an optimistic one, the latter, more challenging.

First, if a person receives an e-money remittance for a business purpose he is more likely to leave that e-money in the system and on-send it—as e-money—to someone else, rather than immediately converting it into cash. Second, the two parties on either end of a business transaction are unlikely to have a strong bond, such as being family or friends.

The first point, the on-sending of e-money as e-money, is good news for e-money providers because the most expensive part of running an e-money system is the infrastructure required to convert physical cash into e-money and vice versa. Once physical cash is cashed in—once that first conversion has happened — the longer it stays within the system as e-money, the lower the cost to run the system. To the extent it is true that e-money remains "e" for longer periods when it is used for business purposes, companies will find it wise to target that market.

The second point, the fact that business associates tend not to be friends or relatives, suggests that targeting that market may not be an easy job—at least among low-income populations who, like the Diaries respondents, do not have great trust in financial services providers. The less they can trust the system, the more they have to trust each other—again, one powerful reason why M-PESA probably took off among the "family and friends" segment rather than the business segment in the first place.

The MFO report points to examples from other contexts to suggest ways that e-money providers can promote trust. Just as a bank will provide—for a fee—a copy of a cancelled check, so could an e-money provider make documentation available proving that e-money not only

left the sender's account but arrived in the recipient's. Just as credit card companies eventually decided to absorb losses arising from stolen cards, so e-money providers could decide that it is in their best long-term interests to absorb the costs of fraud.

These or other specific ideas may or may not be practical or advisable. But the reader should remember e-money's current share of total transactions—6 percent—compared to 94 percent for cash. If e-money is to make more serious inroads, providers will have to find strategies to overcome the trust issues that at the moment largely confine e-money to the "send money to family and friends" niche.

For now, M-PESA, so far from being a "disruptive" technology, remains one that reinforces established practices by making them easier and cheaper to perform through existing social networks. But every user has a limited number of family members and friends, and a finite amount of cash he can send home.

This brief is based on Cash In, Cash Out Kenya: The Role of M-PESA in the Lives of Low-Income People *(September 2011) by Guy Stuart and Monique Cohen. The original report can be downloaded in PDF form from www.microfinanceopportunities.org. The report is part of the Financial Services Assessment project, information about which can be found on the web at http://www.fsassessment.umd.edu/*

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