CASH LITE: ARE WE THERE YET?

RETHINKING THE EVOLUTION OF ELECTRONIC PAYMENTS IN KENYA BASED ON EVIDENCE IN THE KENYAN AND SOUTH AFRICAN FINANCIAL DIARIES

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BFA
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Financial Sector Deepening

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Rethinking the evolution of electronic payments in Kenya based on evidence in the Kenyan and South African Financial Diaries

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About the Financial Diaries Research

We are grateful to Financial Sector Deepening (FSD) Kenya and the Bill & Melinda Gates Foundation for investing in the research that underlies this analysis. The Kenya Financial Diaries research was funded by both partners and data was collected from August 2012 through December 2013, with the core of the cash flows in this study running from October 2012 to September 2013. The Bill & Melinda Gates Foundation also invested in the South African study we describe here through the GAFIS project, managed by Rockefeller Philanthropy Advisors.

This report was commissioned by FSD Kenya. The findings, interpretations and conclusions are those of the authors and do not necessarily represent those of FSD Kenya, its Trustees and partner development agencies.

FSD Kenya
Financial Sector Deepening

The Kenya Financial Sector Deepening (FSD) programme was established in early 2005 to support the development of financial markets in Kenya as a means to stimulate wealth creation and reduce poverty. Working in partnership with the financial services industry, the programme's goal is to expand access to financial services among lower income households and smaller enterprises. It operates as an independent trust under the supervision of professional trustees, KPMG Kenya, with policy guidance from a Programme Investment Committee (PIC). Current funders include the UK's Department for International Development (DFID), the Swedish International Development Agency (SIDA), and the Bill and Melinda Gates Foundation.

Government of Kenya

UKaid
from the British people

BILL & MELINDA GATES foundation

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Abbreviations

BFA	Bankable Frontier Associates
BTCA	Better Than Cash Alliance
CGAP	Consultative Group to Assist the Poor
DDD	Digital Divide Data
FSD	Kenya Financial Sector Deepening, Kenya
GAFIS	Gateway Financial Innovations for Savings
KCB	Kenya Commercial Bank's
KRA	Kenya Revenue Authority
KSh	Kenya Shillings
P2P	Person-to-Person
POS	Point of Sale
RTGS	Real Time Gross Settlement
ROSCA	Rotating Savings and Credit Association
SASSA	South African Social Security Agency
USD	United States Dollars
ZAR	South African Rand

EXECUTIVE SUMMARY

Driving down the costs of financial services hinges in large part on the digitisation of commerce, which can help achieve many economic efficiencies and also has the potential to deliver a wider range of low-cost services to low-income people. Digitisation also offers opportunities to help people better track and manage their spending, develop a credit history, and benefit from a wide range of digital services that use the payments system as an entry point. But developing inclusive payments systems that help achieve this goal – and that people actively use – is no easy feat. What if the right kinds of coordinated pushes never come? What if they fail to change user behaviour or miss the mark in becoming relevant to a broad range of payers across a payments system?

Recent analytical work around the development of payments systems by the Better Than Cash Alliance (BTCA) hypothesises that electronic payments evolutions follow a simple progression: first, 'few-to-many' transactions shift with bulk payers (governments, formal employers) changing the way they pay their employees and social welfare beneficiaries. These actors have centralised payment processes and a lot of leverage over the payment recipients. For example, they can make recipients open bank accounts to receive their pay cheques. Second, there follows a shift in payments that are 'many-to-few': large billers (tax authorities, utility companies, formal lenders) allow payers to pay them electronically, which becomes more attractive once individuals have accounts that let them store money electronically. Bill payments are regular, and the amounts don't vary too much from month to month. Finally, comes the 'many-to-many' transactions. Once individuals are comfortable storing money and paying electronically, they start to do so for smaller, more irregular transactions — paying shops and each other.

Previous studies provide some aggregate figures that help benchmark countries' progress towards cash lite futures. Still, to ensure payments systems take root across the economy and help achieve the benefits of a cash lite society, we need disaggregated data to understand different segments' choices and how those choices might be influenced. Using the framework outlined above, we examined data from Financial Diaries research in 2012 and 2013 in Kenya and South Africa to better understand the extent to which low-income consumers are being affected by shifts in these two emerging markets which have both seen substantial increases in electronic payments: through card payments among an increasingly banked population in South Africa and via mobile money in Kenya.

While studies find South Africa's overall economy far ahead of Kenya's in its e-payments development, we find that these advances have not had a profound effect on the way low income people pay for things. More of their incomes are received electronically, but very few purchases are made that way. Even though many receive regular electronic payments from the government's social security system, they tend to withdraw that money as cash and make their purchases with cash. The South African experience highlights the importance of providers paying special attention to capturing small transactions at a wide variety of commercial outlets if they are to reach the poor. Even if the wider economy moves ahead with e-payments, it is not natural and automatic that the poor will ride the same wave and shift their payments behaviour as well.

In the Kenyan study, we find that the bulk payer shift, in which relatively few large payers make payments to many recipients (employees, social programme beneficiaries, etc.) is not yet complete. Income payments to Diaries recipients are still mostly made in cash, and even a substantial share of the regularly employed are still paid in cash. Remittances over distance are largely being captured by mobile money, but there is still a very large share of inter-household exchange being done in cash. For many of the poor, incomes are derived from a wide range of sources that pay frequently, erratically, and in small values; the bulk payer shift would not necessarily change the way they receive income or induce the kinds of payments ecosystem changes envisioned in the BTCA framework. Instead, we see much more initial movement in P2P, 'many to many' transactions, where the dynamics of Kenya's existing economy (with large-scale domestic remittances) has created an environment ripe for a system like M-PESA to take root.

Even when that remittance income is received electronically, it is mostly cashed out for usage. When it comes to consumer expenditures, fewer than 1% of Diaries households' transactions are being done electronically. The only exception is airtime purchases, which are a free electronic transaction in Kenya. Even though airtime accounts for 86% of electronic purchases, those e-payments for airtime account for a very small share, around 8%, of all airtime purchases.

This new data raises some important questions about the evolution of e-payments systems. How well does actual experience reflect the e-payments shifts outlined by BTCA? In Kenya, there seems to be more action in person-to-person payments—part of the third shift—than in the first shift around bulk payers. What does that tell us? In South Africa, though retail e-payments across the economy are increasing rapidly, our low-income urban population appears to not be participating. Should we be paying more attention to distribution in the use of e-payments? Ignoring distribution effects, we may still achieve economic efficiencies but may be unlikely to achieve financial inclusion goals. How might we better conceptualise distributional shifts at a subnational level and address those challenges more intentionally? How can e-payments be made more useful to this population, ensuring that the benefits of cash lite society are broadly shared?

Chapter 1

INTRODUCTION

While momentum has been growing behind digital payments in advanced economies for decades, movement in developing countries has lagged behind. Some have anticipated that there may be a leapfrog opportunity for accelerated movement towards this vision in Kenya, where the cutting edge M-PESA mobile payment service has grown to near ubiquity across social strata in just seven years. The growing use of electronic payments has given birth to the idea that, perhaps not far into the future, we may see the first 'cashless society'. And in such conversations, Kenya is often highlighted as a country whose innovative banking and mobile money sectors make it a prime candidate for rapid progress towards such a vision.

While a completely cashless economy may not be feasible or even desirable, reducing reliance on cash for many transactions is quite attractive for businesses and policy makers for a number of reasons:

1. **Cash is expensive.** While we are unaware of any cost analysis in a developing country, several studies in the US, Canada, and Europe have estimated that a shift from cash to electronic payments can save a country 1–2% of GDP. Cash is expensive because it is physical, requiring printing, security, and transportation, which entail financial and time costs exceeding those of electronic alternatives.
2. **Cash costs put up barriers to financial inclusion.** Cash handling introduces very high costs to businesses and financial institutions seeking to serve the poor. A Bankable Frontier Associates (BFA) study of account-level profitability in eight developing and emerging market banks found that, typically, only accounts in the top one or two deciles by balance were profitable for banks working to reach down market.[1] Financial service providers need to be able to dramatically slash their costs in order to offer the range of products their low-income clients need.
3. **Electronic payments may in themselves play a role in enabling better money management.** By making money electronic rather than cash—particularly inbound payments to consumers—could one decrease the perception of 'hot stimulus' that cash creates, leading to unplanned spending? A shift toward electronic transfers—with the right kinds of features—could potentially help the poor improve their budgeting and save more, and with less effort, by offering layered 'apps' and products that assist with planning, budgeting, and tracking expenditure, all of which could help consumers to more effectively exercise money discipline.[2,3]

So, a 'cash-lite' world promises extensive benefits to many different players. Yet it cannot become a reality without tools and systems that align incentives for a wide range of actors in ways that facilitate shifts away from cash, and, those incentives also need to work for the poor in order to achieve the second and third goals above. That's not easy. Incentives for using e-payments often only work well for the most expensive cash transactions: those of large value transmitted over distance. It is precisely in recognising how those incentives work across an economy—at a macro level—that led the Better Than Cash Alliance (BTCA) to develop its hypothesis of payments evolution shifts.

BTCA'S THREE SHIFTS

In the whitepaper The Journey Toward 'Cash Lite'[4], BTCA suggests that countries move through stages, from cash heavy to cash lite. It is easier for some payers and recipients of payments to shift from cash and cheques to electronic payments than it is for others, and the easy cases likely share common characteristics. This implies that the easy cases will change their behaviour first, followed by cases that are either inherently more difficult or depend on the success of the easy cases. And when payments in a country are measured, the easiest cases will indeed be the most thoroughly electronic.

What BTCA expected to be the easiest group — the first group — to shift[5] was 'bulk payers'. Bulk payers make payments to many individuals (from 'few to many') on a regular, predictable basis. These could be governments or businesses paying salaries, for example, or large cash transfer schemes. The payer is likely to have a good idea of the costs of making payments, and is likely to have a fair amount of coercive power over the recipients of their payments. And because of the volume and value of payments involved, financial institutions will see value in developing products for these bulk payers. This shift is characterised by the increasing prevalence of electronic stores of value among individuals: people get bank accounts in order to get paid.

The next group the whitepaper identifies is bill receivers. Tax authorities, pension plans, electricity and water companies, landlords — all of these issue bills to individuals on a regular basis (usually monthly or annually). They have some of the same market power over financial institutions and they are likely to value the kinds of financial recordkeeping that electronic payments allow. By first having electronic stores of value, individuals may be more likely to be willing to pay their bills electronically. These kinds of payments are also called 'many to few'.

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1 Bankable Frontier Associates (2012). InFocus Note # 2: How the Poor Use their Savings Accounts – A Supply Side View. http://www.bankablefrontier.com/assets/pdfs/In%20Focus%20Note%202%20-%20Segmentation%20Results.pdf

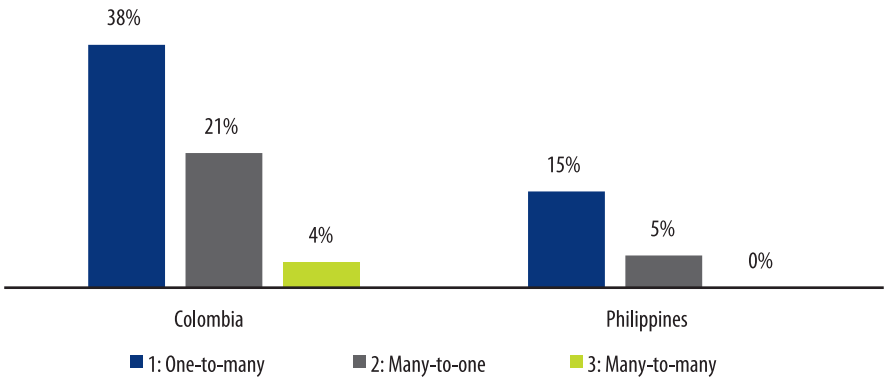
2 Experience with credit cards has shown that form of e-payment to increase spending by removing the sensation of loss, but the same does not happen with debit cards. It may be the idea of the instrument rather than the electronic nature itself that creates these sensations. But, with electronic money it is possible to alter those sensations in ways it is more difficult to do with cash. http://www.jcr-admin.org/files/pressPDFs/111411131134_chatterjee--article.pdf

3 Mint.com is one example of an app that help with budgeting and tracking expenditure.

4 Better Than Cash Alliance, The Journey Toward 'Cash Lite': Addressing Poverty, Saving Money and Increasing Transparency by Accelerating the Shift to Electronic Payments, 2012, available at <http://betterthancash.org/wp-content/uploads/2012/09/BetterThanCashAlliance-JourneyTowardCashLite.pdf>.

5 Importantly, this progression was meant descriptively, not prescriptively; the BTCA whitepaper did not give countries a "blueprint" for developing electronic payments.

Figure 1: Percentage shifted to electronic by volume



Source: BTCA country diagnostics

The third and final group is merchants and consumers — 'many to many'. Once individuals have electronic stores of value, and once they are comfortable making regular payments to large, trusted institutions, they will, so the logic goes, begin to use electronic payments for small, irregular payments like groceries. The value of these transactions individually is unlikely to be meaningful to financial institutions, but their aggregate value — and the ability to cross-sell other financial services — will make offering electronic payment services worthwhile.

In sum, these three transitions could be categorised as 'few-to-many', 'many-to-few' and 'many-to-many'.

THE EVIDENCE

The evidence to date suggests that in at least some countries, the hypothesised shifts are reflected in the current state of electronic payments. For example, as the chart below shows, in Colombia and the Philippines, 'bulk payers' show the greatest usage of electronic payments by volume, with bill payments and consumer payments lagging behind.

We see some movement to electronic payments as well in Kenya. In September 2013, the Bill & Melinda Gates Foundation released a study showing that many business to business payments, accounting for the largest volume of payments in the country, have already shifted to electronic form via real time gross settlement (RTGS)[6], but that consumer payments were lagging behind, remaining in cash. Cash payments remain the dominant form of transaction by volume.

6 RTGS is system of immediate bank to bank transfer and settlement.

Figure 2: Transaction volume, Kenya

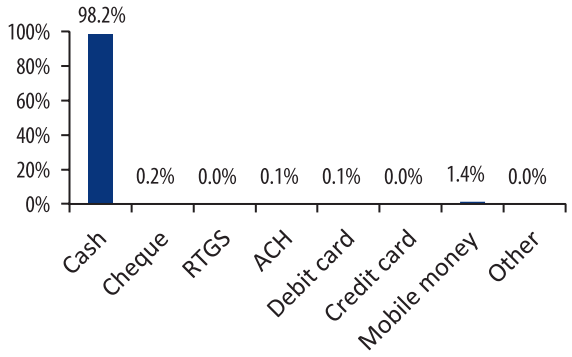
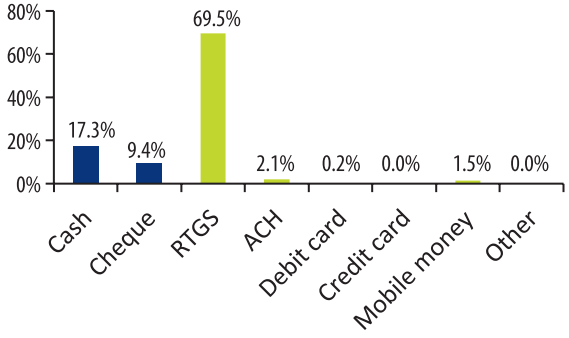


Figure 3: Transaction value, Kenya

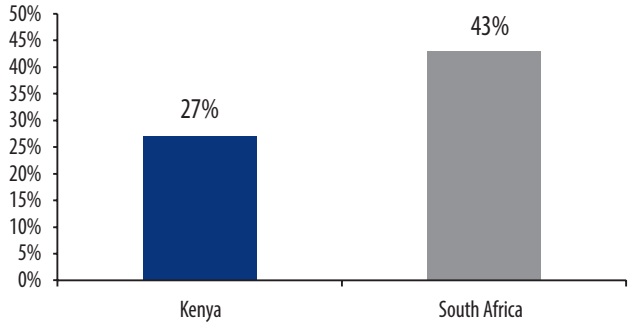


Note: Figures 2 & 3 adapted from Fighting Poverty Profitably, Special Report Annex, p. 7. RTGS dominates by value, but cash is the clear leader by volume."

As of 2013, about 61.6% of adults had a mobile money account, which shows deep penetration of this electronic payments mechanism.[7] However, it seems the use cases are limited. In the context of the wider payments usage, mobile money represented just 1.4% of transactions by volume and 1.5% by value in 2011. The overwhelming majority of these transactions are person-to-person payments.

Mobile money has not had a significant impact on the heavy transaction volumes in retail. Retail payments make up a huge share of payments by volume but only a small share by value, dwarfed by business-to-business payments. But, because of this, an estimated 98.2% of payments in Kenya by volume are done in cash, representing just 17.3% of transaction volume in the country. Transitioning through the 'many-to-few' shift will require some changes in consumer payments, where cash still rules. The Bill & Melinda Gates Foundation estimates that electronic retail payments in Kenya account for less than 1% of transaction volumes and only about 11% of value. MasterCard advisors arrive at a more optimistic estimate, suggesting that 27% of consumer payment volume is transacted electronically. The point is that this is still very low and also falls below averages for our comparator country, South Africa.

Figure 4: MasterCard advisors' estimated share of consumer payments that are electronic (% by value)



Source: MasterCard Advisors Cashless Journey[8].

As you can see from Figure 4 above, available data and measurement of advances in payments is getting better. The BTCA, The Bill & Melinda Gates Foundation, MasterCard Advisors and others have all developed innovative approaches to estimating the volume and value of cash and electronic payments made in an economy from high-level data like government accounts and financial sector reporting. This measurement helps us describe payments systems as we see them today, and it lets us infer how those payments systems have developed and how payments systems develop generally.

What has been missing is a connection between the macro and the micro: how does our understanding of household and individual behaviours contribute to our understanding of payments system development? Here it is useful to define a payments system as the collection of infrastructure, rules and costs that incentivise the use of a certain means of payment. If we think of a payments system as a collection of incentives, we want to know if the incentives we observe at the micro level justify our belief in the frameworks developed from macro-level measurement. To ensure payments systems take root across the economy and help achieve the benefits of a cash lite society, much more is needed than simple aggregate figures to understand users' payments choices and how those choices might be influenced.

This paper, drawing on data from Financial Diaries projects in Kenya and South Africa, allows us to do just that. And we find that the macro-level frameworks do not adequately capture the dynamics and differences across income groups. For financial institutions and other promoters of electronic payments, a more nuanced approach is necessary — one that takes into account low-income people's experiences receiving and making payments in their particular social, economic, and political contexts.

APPROACH

Financial Diaries can be a powerful tool, capturing how people are paid and make payments, and what their transactional profiles look like, to consider how service providers might introduce attractive electronics payments offerings to the mass market. Collecting data for each transaction, Diaries enable us to look more deeply into these aggregate figures to understand the lives of everyday people.

From January 2012 through December 2013, BFA and Digital Divide Data (DDD) Kenya implemented the Kenya Financial Diaries project with support from FSD Kenya and the Bill & Melinda Gates Foundation. This study included 300 low-income Kenyan households, from diverse geographies and with diverse livelihood strategies and living conditions. The project attempted to capture all cash flows in the household for a full 12 months at transaction level detail, telling a fine-grained story about respondents' financial lives. Alongside this large-scale and long-term project, BFA implemented a smaller Diaries project in South Africa as part of the Gateway Financial Innovations for Savings (GAFIS) project.[9] The sample there focused on 67 urban township households using Standard Bank's new Access accounts. Focusing on the Kenya experience, but using the South Africa sample as a comparison, this paper seeks to highlight the consumer payments dynamics that are unique to Kenya, but also ones that might be more universally applicable.

7 FinAccess National Survey 2013: Profiling Financial Access and Usage in Kenya. October 2013.

8 See http://www.mastercardadvisors.com/cashlessjourney/

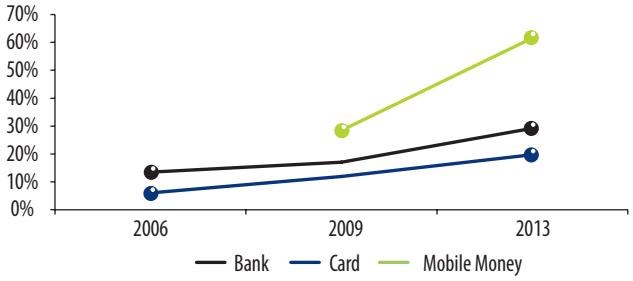
9 www.gafis.net

A SHIFTING LANDSCAPE

It's difficult to make huge strides in electronic payments without huge strides in the electronic stores of value that enable such payments. As of 2013, 29.2% of Kenyan adults had a bank account and 61.6% had a mobile money account, a 117% increase since 2009.[10] So the prevalence of mechanisms from which Kenyans might make electronic payments are expanding quickly.

That expansion is led by mobile money. When we started the Diaries fieldwork in June 2012, those services consisted of cash in, cash out, mobile wallet, person-to-person transfers, direct purchases of airtime, and remote bill pay to select providers. But over the course of the project, the service menu expanded to include a formal savings and credit product, M-SHWARI, closer bank linkages with services like Kenya Commercial Bank's (KCB) M-benki[11], and a new lower cost retail transactions service called Lipa na M-PESA.

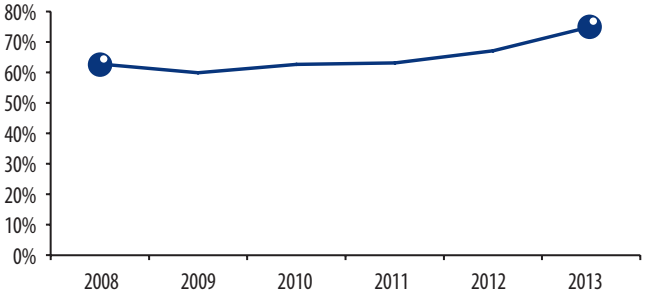
Figure 5: Share of Kenyan adults with different financial services (%) [12]



The rise of mobile money in Kenya has been enormous, but electronic stores of value have also been growing in South Africa where there has been greater penetration of banking services for some time. The share of 'banked' adults in South Africa has gotten a recent boost from the government's decision to distribute social payments via South African Social Security Agency (SASSA) card accounts to a large number of low-income people.

And not only are these accounts with electronic payment options available, surveys suggest that they are being used. As of 2013, South Africa's FinScope found that 65% of adults actually prefer their debit cards over cash for purchases and 35% of adults had gotten cash back at a shopping till. Even 27% of the recipients of social payments use their programme debit cards to pay for goods monthly. Mobile banking is also on the rise with 28% of adults using the service, primarily for airtime purchases (84%) and balance checks (54%), but also some bill pay (15%) and remittance sending (12%).[13]

Figure 6: Bank access in South Africa (%) of population[14]



DIARIES SAMPLE PROFILES

For this analysis, we draw on Financial Diaries data from two very different samples. The Kenyan sample is much larger and more diverse than the South African sample. Respondent households come from five very different areas of the country and were selected to reflect the range of low-income livelihoods scenarios of Kenya. Still, it is not statistically representative of the country. The South African sample is more specialised. Here we focused on urban households that had registered for new Standard Bank Access Accounts, and we oversampled for recipients of social grants, hoping that through the study we might learn how to make accounts more useful for that particular demographic. While these households are considered 'low-income' by national standards, in absolute terms, the South African sample is better off than the Kenyan sample.

Table 1: Sample profile

	Kenya	South Africa
Sample size	298 households	67 households
% Urban	31%	100%
% Below USD2/day line	72%	46%
Median per capita household income (monthly)	KSh2,167 (USD25.49)[15]	ZAR 469 (USD46.90)
Average household size	Median=5 Mean=5.2	Median=5 Mean=4.6

10 FinAccess National Survey 2013: Profiling Financial Access and Usage in Kenya. October 2013.

11 KCB's new M-Benki product allows account opening via M-PESA and the account can be accessed via USSD and the M-PESA system. http://ke.kcbbankgroup.com/ways-to-bank/detail/kcb-m-benki/

12 Ibid.

13 FInScope SA 2013 Consumer Survey. http://www.finmark.org.za/publication/results-of-finscope-south-africa-2013/

14 Ibid.

15 The average household received the equivalent of KSh266 (USD3.14) per month as gifts to thank them for their participation in the study. Gifts were disbursed at unannounced times in unannounced values ranging from KSh400–800. A larger gift was given at the end of the study after the conclusion of cash flow monitoring. Similarly, in SA, households received on average ZAR88 (USD8.8) per month as a thank you gift for participation.

Chapter 2

HOW KENYANS ARE PAID

Chapter highlights:

- Low-income Kenyan households in our study earn incomes from many different sources, many of which would be untouched by the bulk payer shift.
- The bulk payer shift is incomplete in Kenya, with a significant share of our low-income salaried respondents still paid in cash.
- Many income payments are high frequency and low value.
- Mobile money has driven a shift in person-to-person payments, accounting for 74% of the inter-household transfers between non-proximate parties in our study.

Kenyans earn money from many different sources. The Kenyan households in our study rarely earn an income from a single source. The average number of income sources among households in the Kenyan Diaries is 14, with a median of 10. Most of that diversity in income is due to the registration of the source of all inter-household transfers separately. We call these exchanges 'resources received,' and they include remittances and occasional gifts and other transfers from friends and family.

But, the diversity of income sources remains after excluding these exchanges. Without resources received, the average number of income sources falls to 5.8 (median of 5), which is still quite high.[16] Only 25% of households have fewer than four income sources, excluding resources received. Most Kenyans are patching their incomes together from different sources with different payment inflow patterns throughout the month and throughout the year. While much of our previous research shows that there is a widespread preference among consumers to be paid electronically, converting all types of income with different sources, values, and frequencies to electronic modes is actually an enormous challenge.[17]

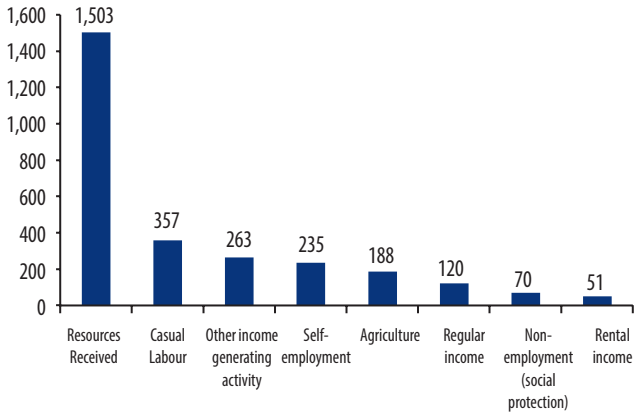
16 The household with the largest number of income sources has 27 separate sources, due mostly to a large number of business and residential rental units from which they derive much of their income.

17 http://www.fsdkenya.org/pdf_documents/12-07-06_Time_for_Cash_to_Cash_Out_presentation.pdf

So, what do Kenyans do to earn money? When we look at the dominant[18] source of income for the households in our study, we find that the most common are resources received (dominant for 27% of households) and self-employment[19] (dominant for 26% of households). We also see that our rural households are more likely to be dependent on resources received, and urban households are more often reliant on self-employment. Our urban sample is also less poor (at 49% below the USD2/day line) than our rural sample (83% below USD2/day).[20] It's important to keep in mind that these are the dynamics of our sample, not necessarily Kenya at large. Households in both urban and rural locations were selected for diversity in their livelihoods and financial product usage, not as a representative pool of Kenyans.

Looking more closely at all the income sources these households have, not just the 'dominant' source, we see that, by far, the most common unique income source is resources received, with multiple sources of such payments for each household.

Figure 8: Total unique income sources, Kenya (N)

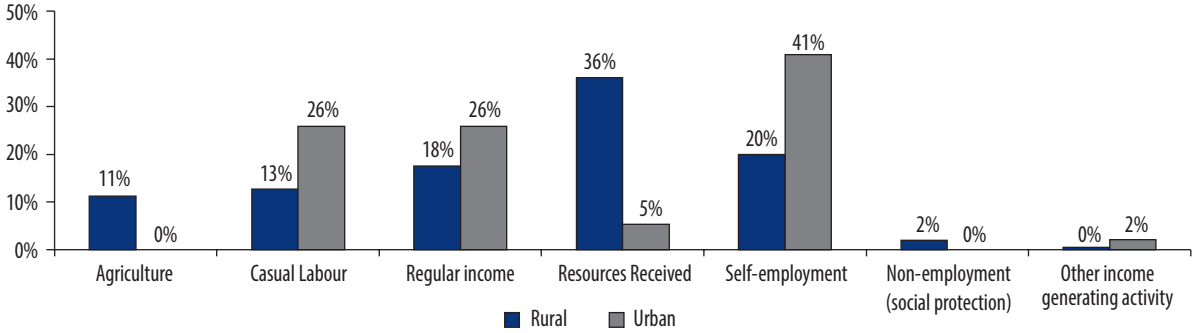


18 ominant is defined as the source with the largest total contribution to annual income for a household over the course of the entire study duration

19 We define self-employment as operating one's own businesses. This is distinguished from casual work, because individuals must cover the costs of the operation themselves and are not merely selling labour.

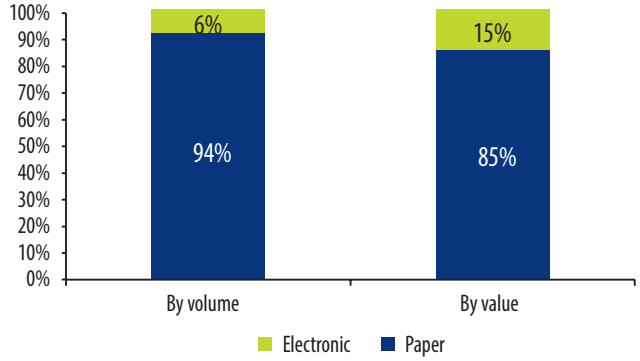
20 This does not factor in rural consumption from own production, which is not yet ready for incorporation here.

Figure 7: Dominant income source by household, Kenya (%)



When we look at how payments are received, we see that the bulk payer shift is far from complete. Looking across all income sources, only 6% by volume and 15% by value of all income payments in our sample were made electronically.

Figure 9: Share of income transactions that are electronic vs. cash (%), Kenya



Even when it comes to regular employment, only 14% of transactions are done electronically! And by value, electronic payroll consists of only 64% of all of these salary payments. The greatest shift towards electronic payments in the volume of payments made seems to be on non-employment income.[21] This consists mostly of government and NGO transfers. About 36% of these by volume and 58% by value are being paid electronically. What is perhaps most stunning is the extent to which resources received remain in cash, even with high rates of M-PESA usage. Electronic remittance payments account for only 26% of monetary resources-received payments and only 42% of their value.[22] (We will discuss these particular payments in much greater depth below.)

There is space to take the bulk payer shift farther and begin to make electronic payments to casual workers and farmers. Both types of income are very common and, unlike self-employment, have payment dynamics that are more like 'few to many' than the tougher 'many to many' that characterises self-employment revenue. However, shifts in these areas require some innovation in products around micro-payroll and micro-supplier payment mechanisms. Progress here could also be stifled by fears of Kenya Revenue Authority (KRA) and other regulatory tracking, given that many of these payments happen in the informal sector.

The gaps between transaction volume and value by mode, as noted above, result from the fact that electronic payments tend to be larger value payments than those done in cash. The median transaction size for paper income payments is KSh390 (USD4.59) versus KSh800 (USD9.41) for electronic payments. The gap in transaction size between paper and electronic transactions is highest for regular employment, where it appears that electronic salary payments are made in bulk and infrequently compared to cash payments that might happen daily or weekly.

21 'Other income' includes gifts sent by the research firm to recipients via M-PESA, which accounts for the large share of electronic payments there.

22 This calculation excludes in-kind contributions, though we will look at those later.

Figure 10: Share of income transactions paid electronically (%), Kenya

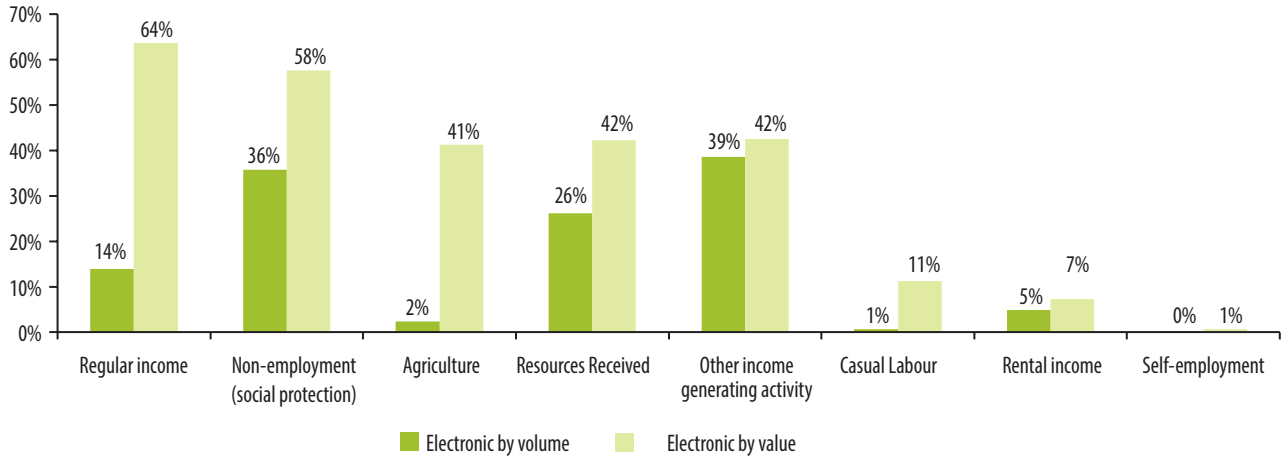
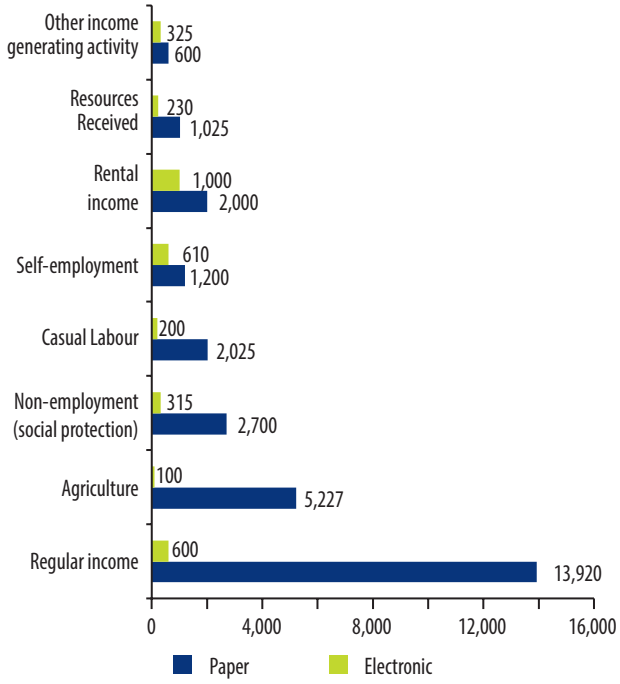


Figure 11: Median income transaction size (KSh), Kenya



The fragmentation of income sources within the Kenyan households we studied makes it difficult to imagine being able to digitise all income payments. But wholesale shifting may not be necessary as a starting point. There is, for example, significant shifting of non-proximate resources-received payments that serve as a foundation to interact with and use e-money, particularly now that a low-cost payments solution, Lipa na M-PESA, has emerged on the M-PESA platform. However, Lipa na M-PESA was a very new product for the duration of our study and we did not pick up any usage on it during the course of Diaries.

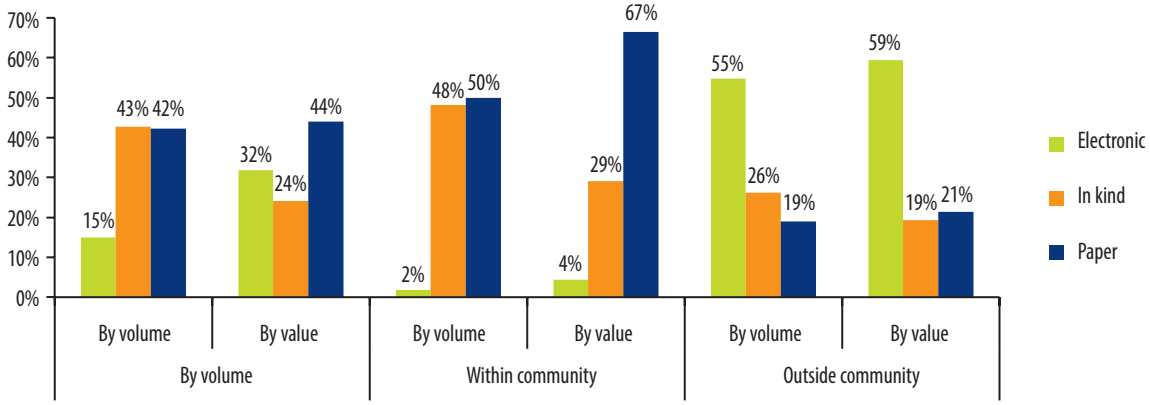
Not only are most income payments small and frequent, the sources are also generally quite volatile. To measure income volatility across the sample, we calculated the standard deviation of household income and expenditure. This showed us a few things:

1. Income is more volatile than expenditure. The median standard deviation of income from month to month as a share of average income was about 55% versus 43% for consumption. Both types of fluctuation are large.
2. Income seems to be upwardly flexible to meet certain needs. This upward flexibility includes fundraising from family and friends, but these resources received are NOT the most volatile income source.
3. The most unstable income source was self-employment, with individual business incomes fluctuating 70% from month to month at the median. Even regular employment is associated with fairly large fluctuations in value, at about 42% for the median regular employment source.

Recognising that incomes come from many sources and that those sources stop and start somewhat erratically, the challenge of digitisation of income becomes starker. Stores of value that make sense for receipt of payments of all these varying types might make the device more attractive to users even when the job ends or changes. Right now, a major cause of dormancy is from former payroll account holders who lose their jobs. Might banks and mobile money providers find ways to make it easier to aggregate more sources of income in the same store of value through features enabling rent payments, micro payroll of casual work, bulk agriculture payments, and resources received all in one receptacle?

M-PESA has not captured all inter household transfers. Interestingly, only about 15% of "resources received" transactions are done electronically, accounting for 32% of this gift income value. Most of these inter household gifts are actually done locally, via small cash or in kind, in-person gifts. These

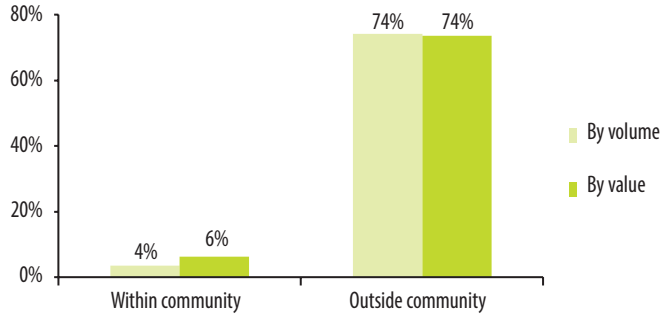
Figure 12: Resources received transactions, including in-kind receipts (%)



gift transactions that happen with both parties inside respondents' home communities account for 74% of all resources received transactions. If the gift comes from outside the community, it is much more likely to be electronic. Fifty-five per cent of non-local gift income transactions are done electronically.

If we focus on just monetary transactions, excluding in-kind gifts, we see that the share of electronic payments for resources received does increase. When the giver is giving money and is located outside the receiver's community, 74% of transactions by both volume and value are made electronically. Interpersonal monetary gifts made within the community are only very rarely done electronically.

Figure 13: Monetary electronic resources received transactions by value and volume based on location (%), Kenya



Chapter 3

HOW KENYANS PAY

Chapter highlights:

- Fewer than 1% of purchases are made using electronic payments.
- Typical expenditure transactions are very small in size.
- Electronic purchases of mobile phone airtime account for 86% of all electronic purchases, but this accounts for only 8% of all airtime purchases, with most still done in cash.
- Because of the dominance of airtime purchases among electronic purchases, electronic transactions are actually smaller than cash transactions.

We don't necessarily need Diaries to know that very few consumer payments are made electronically. Multiple preceding studies have revealed the same. A 2011 study of merchant payments in Kenya, funded by the Bill & Melinda Gates Foundation, showed that cash accounted for 99 per cent of retail payments. FSD Kenya's cash lite scoping study, also in 2011, looked at consumer payments profiles and saw that e-payments were making inroads only in person-to-person (P2P) transactions, and really nowhere else.[23] At the time, there was little understanding of how debit cards work, little penetration of POS devices accepting card payments, and retail payments on M-PESA had to be made using the costly transfer service that added a customer surcharge of a minimum of KSh55 (USD0.65) for sending money and paying the merchant for withdrawal fees. This kind of a charge was enormous relative to the average transaction size of less than KSh100 (USD1.18).

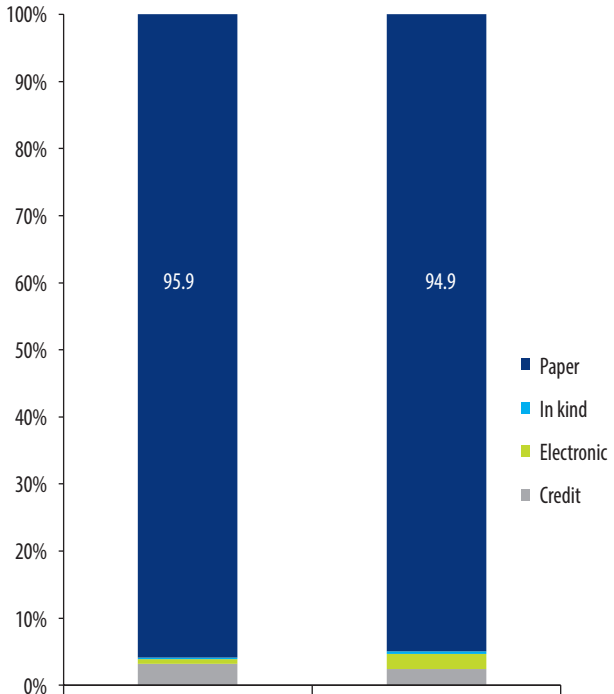
There were minimal changes to these supply side dynamics during the Diaries study year, though some of that is beginning to shift. Safaricom lowered the tariffs for small value transactions and expanded and introduced above-the-line marketing of Lipa na M-PESA. Lipa na M-PESA is free for consumers and charges merchants a commission of only 1% of transaction value. And, Nakumatt, one of the country's largest retailers, has introduced a pre-pay MasterCard to replace its points-only 'smart card', expanding understanding and perhaps usage, of debit cards. Other changes are sure to follow.

So it should be no surprise that expenditures are overwhelmingly done in cash. About 96% of all expenditure transactions in our study were in cash, with the remaining 4% almost entirely purchases on credit. Less than 1% of transactions, a total of around 2,225 transactions, were done electronically. Mobile money is the most common electronic payment tool, followed by airtime borrowing and then airtime exchange. Only four transactions in the entire study—which included more than 319,000 expenditures—were made using a debit card. The table below indicates the number of e-payments made throughout the study using different electronic payments methods.

Table 2: Number of e-payments by payment device, Kenya

	N	%
Mobile money	1,072	48%
Okoa Jahazi[2] (Airtime borrowing)	824	37%
Airtime exchange/sambaza	197	9%
Bank transfer	88	4%
Loyalty points	37	2%
Debit card	4	0%

Figure 14: Expenditure transactions by mode (%), Kenya



	By volume	By value
Paper	95.9%	94.9%
In kind	0.3%	0.4%
Electronic	0.7%	2.2%
Credit	3.2%	2.5%

In many contexts, volumes of e-payments can be low while value is much more substantial, since e-payments tend to be larger in size. This is not the case in the Kenya Diaries. While the mean transaction size is much higher for electronic versus paper payments (KSh768, USD9.04 vs. KSh243, USD2.86 respectively), the median is actually lower for electronic payments, because they are dominated by airtime purchases (KSh20 or USD0.24 for electronic

[23] http://www.fsdkenya.org/pdf_documents/12-07-06_Time_for_Cash_to_Cash_Out_presentation.pdf

vs. KSh40 or USD0.47 in cash). There are just too few big e-payments to compensate for in value what they lack in volume. Consider this: while airtime purchases account for 86% of all electronic payments, that represents only 7.8% of all the airtime purchases we recorded in the study.

Airtime purchases make sense as a first type of payment to be shifting to electronic form. This is a free transaction for the consumer and can be done anywhere. Since increments tend to be small, it doesn't rely on having a large balance stored in electronic form. Even KSh20 (USD0.24) will do. Many respondents talk about how helpful it is to be able to buy airtime over M-PESA late at night or whenever there is an emergency.

Figure 15: Median transaction size by mode (KSh), Kenya

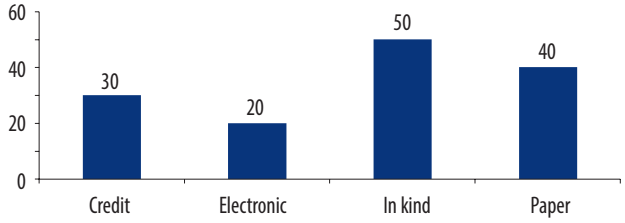


Table 3: Top uses of electronic payments in expenditures, Kenya

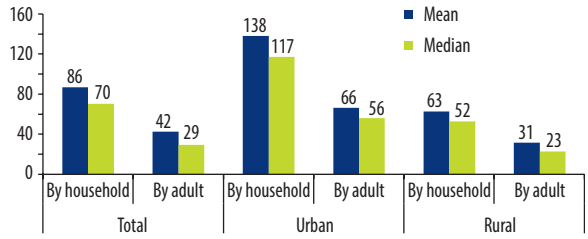
	Number of transactions	% of all electronic transactions
Pre-paid phone credit and data bundles	1917	86%
Electricity, phone charging	52	2%
School fees (tuition), PTA teachers	52	2%
Self-employment (stock purchases)	50	2%
Rent payments	40	2%
Regular employment payments/deductions	28	1%
Other education-related expenses (room, board)	16	1%
Purchases of agricultural inputs	10	0%
Donations to church, another house of worship	9	0%
Cable, DSTV, Zuku	6	0%
Kitu kidogo	6	0%
House girls and cleaning help	5	0%

Under the supply side conditions of the Diaries study, there were few incentives for consumers to want to pay electronically. With very few electronic payments in the retail space in Kenya, it's hard to determine what motivates this behaviour. In fact, out of more than 300,000 expenditure cash flows in our database, only four transactions were done using a debit or credit card, and all of those transactions were made by just three individuals in Nairobi. Why are they using this device?

All three of the debit card users were male security guards in their late 20s to early 30s who swiped their cards for relatively large 'multi-item' shopping trips at supermarkets. The transaction size for these purchases ranged from KSh260 to KSh1378 (USD3.06–USD16.21), averaging KSh863 (USD10.15). One respondent told us that leaving money in his account is part of a savings strategy. He withdraws only what is needed for cash expenses, so when he needs to make a larger planned purchase, in his case an umbrella and gum boots, he prefers to swipe his card so that he doesn't misuse cash on hand.

Overall, retail payments tend to be high frequency and low value. The median number of expenditure transactions per household per month is 70, which is about 29 per adult. This is somewhat smaller than some developed countries, like the US, where in 2013 the Federal Reserve estimated 73 transactions per adult per month.[24] However, urban households transact much more frequently than rural households, reaching levels very similar to those in the US.

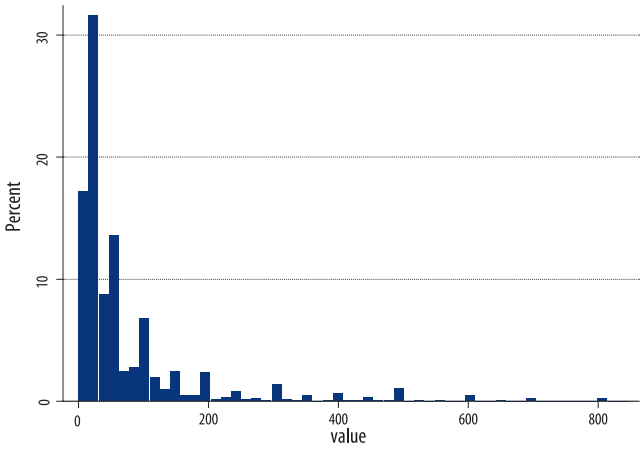
Figure 16: Average consumption expense transaction count per month, Kenya



The majority of those transactions are very small, with a median value of just KSh40 (USD0.47) and mean of KSh247 (USD2.91). When it comes to transaction size, there is almost no difference between urban and rural households. A total of 73% of all expenditure transactions recorded in the study were below KSh100 (USD1.18).

[24] Kevin Foster, Scott Schuh, and Hanbing Zhang. Federal Researve Bank of Boston. The 2010 Survey of Consumer Payment Choice. Research Data Reports No 13-2. http://www.bostonfed.org/economic/rdr/2013/rdr1302.pdf

Figure 17: Distribution of expenditures by value (%) for those expenses below KSh850, Kenya.



However, there are some exceptions where we see larger transactions. The largest transactions tend to be purchases of assets. One respondent in the study bought a car for KSh200,000 (USD2,353). Others bought homes, land, motorbikes, cows, and other items with high ticket values. But excluding assets, which tend to be low frequency purchases, we see that there are some areas where larger transactions are relatively common, such as legal fees, taxes, and expenses related to rental housing.

Only a few are both large in value and relatively common. Those are highlighted in red below with an inscription above showing the number of these transactions appearing in our data. Stock purchases for businesses are by far the most common 'large expense' at a median value of KSh300 (USD3.53) and more than 33,000 transactions among our households in a year. School fees, rent, clothing, agricultural inputs, and home maintenance costs are other relatively large transactions, for which more than 600 transactions were completed by respondents in the study throughout the year.

Households with different income sources have different transactional patterns. We expected that households that earn in different ways would also spend in different ways. We see that those who rely on self-employment make the most transactions and the transactions of the highest average value. This is likely due to stock purchases. As we might expect, those who depend on agricultural income experience the greatest income volatility. However, it is interesting to note that agricultural income, as most respondents experience it, is not particularly volatile. For most, agriculture provides a relatively stable source of income from things like milk, vegetables and tea. It is just the small share of respondents who truly depend on seasonal agriculture that experience dramatic fluctuations, as they sell produce like oranges and mangoes in large volumes in just one season. Variation in income is common for all livelihoods strategies: even regular income-dependent households have significant income variation.

Figure 18: Median transaction size for large expenses (KSh)

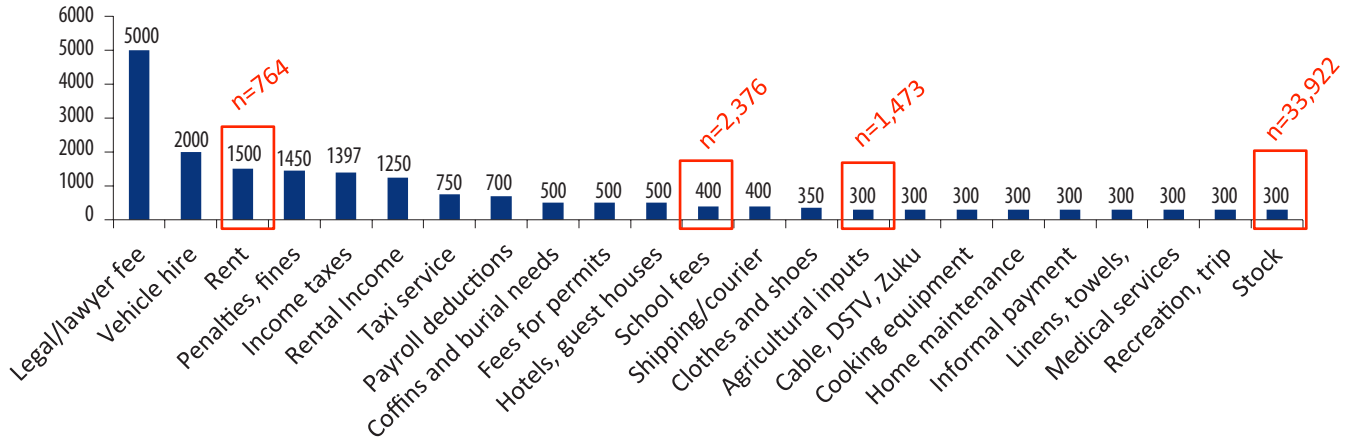


Table 4: Main income source

	Regular	Casual	Self-Employed	Agriculture	Non-employment	Resources Received
% of Sample	20%	17%	27%	8%	1%	26%
% Urban	55%	63%	61%	0%	0%	10%
% Poor (USD2/day)	60%	84%	58%	78%	25%	90%
SD of income (median), KSh	2,271	1,049	2,041	1,520	2,673	919
SD as share of income (median)	48%	50%	55%	90%	61%	57%
SD of consumption (median), KSh	1,065	904	1,379	1,631	1,308	844
SD as share of consumption (median)	38%	38%	34%	54%	38%	44%
Avg. num tx/mo household	69	81	117	54	75	46
Avg. num tx/ mo per adult	31	41	48	19	25	19
Mean expenditure value, KSh	151	106	399	216	174	126
Median expenditure value, KKh	30	30	50	50	50	30

What changes more than these aggregate figures across households with different earning patterns is the pattern of spending itself.[25]

Regular employment dominant. These households get paid in lumpy values and tend immediately to make lumpy expenditures on things like loan payments, remittances, rent, other bills, and a 'big' shopping trip. The rest of the flows throughout the month tend to be small unless there's an unexpected, large expense. Because of this, it's important to get these clients transacting just after payday on electronic systems. Only a fraction of those big early expenses are on retail payments, so providing a platform for easy bill pay is also important, and this could include landlords, schools, other credit providers, etc. Right now, the technology is there for this to work easily with M-PESA. Bank platforms are not as well developed. But in both cases, there has not been much work done on getting a critical share of payees on board to make this work. The bottom line is not to neglect bill pay or ways that payments could be 'billified' and end up being easier for consumers to manage as well.

25 Note that this income dominance analysis has been done at the household level. Individuals' income dominance can be different, and patterns across men and women in that regard can be significant.

Figure 19: Regular employment – stylised cash flows (KSh)

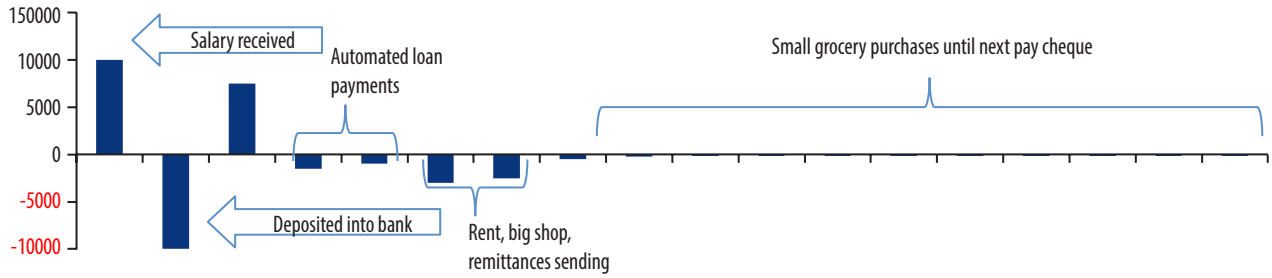
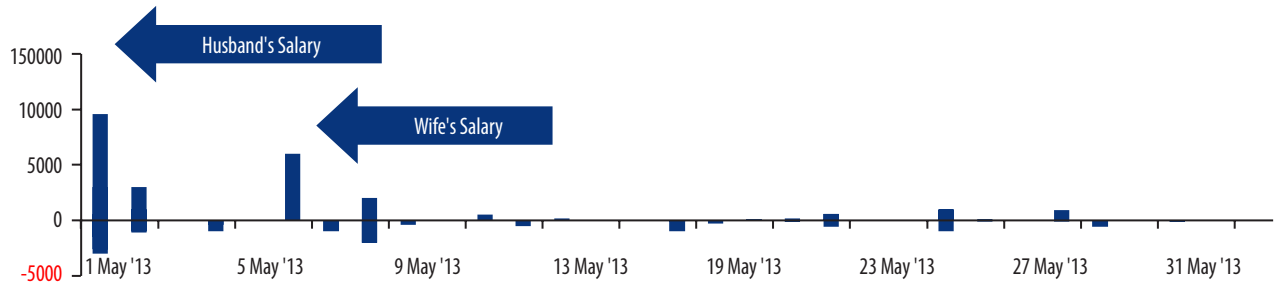


Figure 20: Urban cash employment example (KSh)



In reality, of course, the picture is a little more complicated, but the general trend remains. In Figure 20, showing a real household with salaried employment paid in cash, you see the same pattern of lumpy inflows closely matched to lumpy outflows. The complication is that they have other alternative sources of inflows that they draw on throughout the month, mostly for small purchases to sustain them through to the next payday.

Self-Employment Dominant. As you might expect, the cash flows of households dependent on self-employment are more erratic. They earn daily and often spend as frequently, though some may accumulate over a few days before buying stock and things for their households. But they are rarely building up on their own for large expenses at particular times of the month. Magnitudes of spending and earning within a given month are relatively stable.

This respondent from Western Kenya (Figure 22) sells various cereals. She sells for a few days before restocking in the nearest large market town, making relatively lumpy payments. She sells in cash and pays in cash. It's harder to think about making e-payments work for her, as she does not currently feel any great need to convert her money to electronic form.

Figure 21: Self-employment – stylised cash flows (KSh)

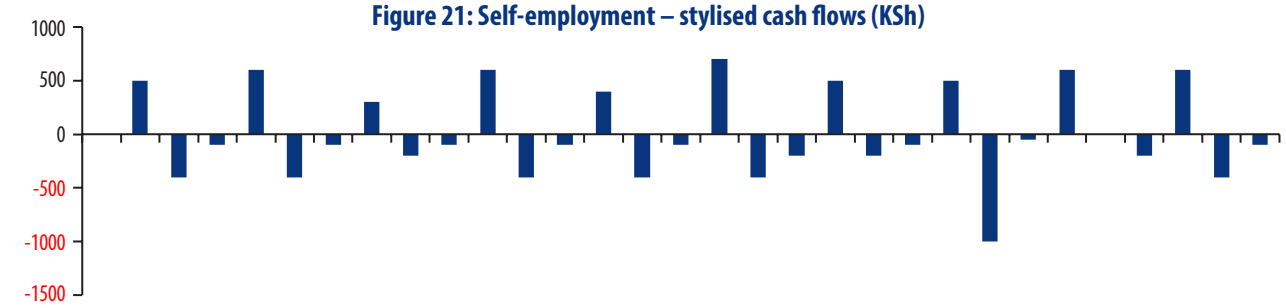


Figure 22: Rural self-employed example (KSh)

Figure 23: Urban self-employed example (KSh)

But the urban household of entrepreneurs in Figure 23 shows us where there may be demand for electronic payments. The husband and wife in this household operate four small businesses and tend to use money the same day it is earned. But we do see a dip of several days where there is no revenue, but there are expenses. Here, they have to draw on money on hand, saved, or borrowed. They still have day-to-day expenses, like groceries and personal care items, but also bigger, less frequent needs like filling a gas container and paying into the Rotating Savings and Credit Association (ROSCA). Encouraging the storage of a bit of spending money in electronic form for these kinds of unexpected purchases could encourage electronic utilisation when the need arises. It's a little harder to think about shifting a larger share of the self-employed person's payments to electronic unless more customers begin paying electronically. The turnaround time between earning and spending is just very, very short for this group.

Casual labour dominant. Casual workers get paid low values relatively frequently, but they do not get paid every day and it's sometimes hard to predict exactly when they might find work. Casual workers tend to spend a big part of their daily cash payment right away, and then hold onto a bit to buy essentials through the next time they get paid. But within this group very few payments ever exceed KSh100 (USD1.18), when median payment sizes are just KSh200 (USD2.36).

Figure 24: Casual workers – stylised cash flows (KSh)

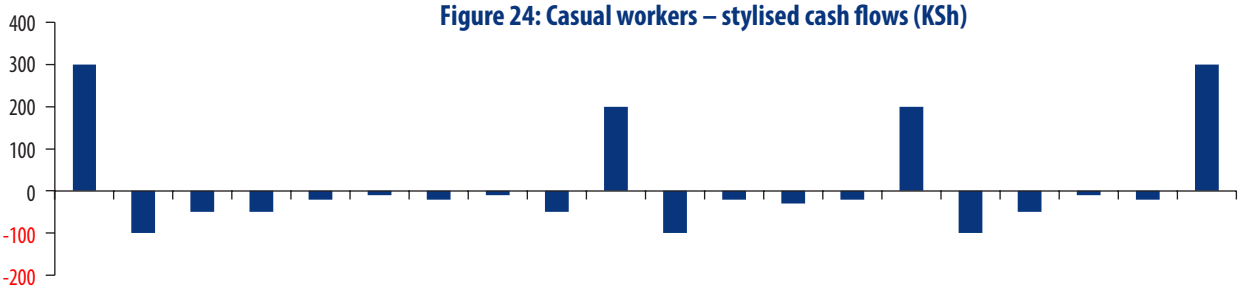
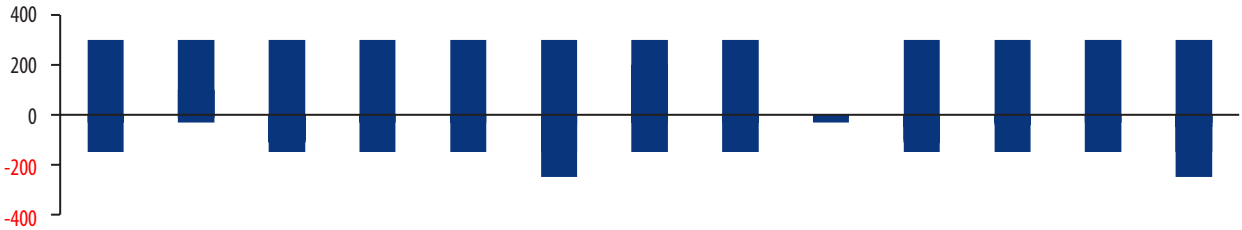


Figure 25: Rural casual worker example (KSh)



In contrast, this casual worker (Figure 25) picks tea and is paid daily. This person usually makes about three to four expenditure transactions daily for basic household needs like food and airtime. Occasionally, he gets contract jobs that compensate workers in larger values after several months, around KSh2,000 (USD23.53), instead of paying daily. When he receives payments like that, he pays for lumpy needs like school fees.

One thing that the figures above highlight is that, in general, the Kenyans in our study don't tend to hold onto money in liquid form. It's not that people don't save; but, when they do, they don't save in liquid pools of stagnant money, like savings accounts. It seems they prefer to keep their money busy working for themselves or for their friends and family. Take, for example, Collins. He lives alone in Nairobi where he runs a business selling firewood and sausages. The business supports him and his family upcountry. When we look at the asset side of his balance sheet (Table 5) through the filter of how he uses and views his money, we see that nearly all of his financial assets are 'working', rather than just sitting waiting for an expense to arise.

It would be very difficult to get Collins transacting electronically when this is his view of the financial world. What might entice him to keep money electronically in order to pay electronically?

1. **Push change in income mode.** If his customers paid him directly electronically he may make more payments electronically, though these are still likely to follow a daily in-out pattern in line with the stylised self-employment cash flows depicted above.
2. **Offer a credit incentive for electronic payments.** As you can see in Table 5, he holds onto a large amount of savings in different institutions for the purpose of being able to access loan facilities large and small (like M-SHWARI). For a business owner like Collins, knowing he's building his credit score by transacting electronically would be a powerful incentive.
3. **Consider how electronic payments can solve his real problems.** We've yet to hear any low-income person say, "Gosh, my life would be so much easier if I could make my payments electronically." That is not

Table 5: Collins' assets

Assets	Value at Close (KSh)	Working?
Restricted savings account	1,200	No
Mobile money	1,230	No
Savings account – Equity	12,670	Enables loan
Savings account –Unaitus	12,000	Enables loan
M-SHWARI	1,450	Enables loan
ASCA #1: Dandora Firewood	65,600	Enables loan, provides capital to members
ASCA #2: Dandora Glory	31,000	Enables loan, provides capital to members
ASCA #3: Twendane Hai	36,000	Enables loan, provides capital to members
ASCA #4: Karimu	6,750	Enables loan, provides capital to members
ASCA #5: Wamama	3,000	Enables loan, provides capital to members
Shares in Muramati	5,200	Enables loans
Shares in Kengen	200	Seen as investment, earning returns
Shares in Safaricom	1,700	Seen as investment, earning returns
Wage & rental arrears owed to respondents	1,250	Owed back to him, while helping others
Lending to family and friends	15,000	Owed back to him, while helping others
Credit given to clients	2,870	Owed back to him, while helping others
Static money	**2,430**	
Active money	**194,690**	

because e-payments don't matter – they matter for the possibilities they enable, but rarely as an end in themselves. For Collins, one of those possibilities is in making it easier to make large payments in instalments. He, like many, earns money daily and tends to spend much of it immediately. At the beginning of the study he told us he was looking forward to learning why it is that if he gets KSh500 (USD5.88) he spends KSh300 (USD3.52) in the day and if he gets KSh200 (USD2.36) he manages to live on just KSh100 (US$1.18) for the day. With such a system, he has trouble paying for larger things, like rent, at one time and breaks up the total cost of KSh2100 (USD24.71) into five separate payments per month, an arrangement that works for both him and his landlord. E-payments could keep track of his running balance on payments like this, remind him when to pay again, and send the money directly to the landlord, saving both of them time.

This is not the only possibility. For example, many others tell us about their challenges tracking payments, and e-payments can do much to assist with those issues. The point is that, particularly for people not paid electronically and who do not feel cash is itself inconvenient, e-payments cannot rely solely on the 'convenience' argument to drive usage.

Chapter 4

WHAT INSIGHTS CAN WE GARNER FROM COMPARISONS WITH SOUTH AFRICA?

Chapter highlights:

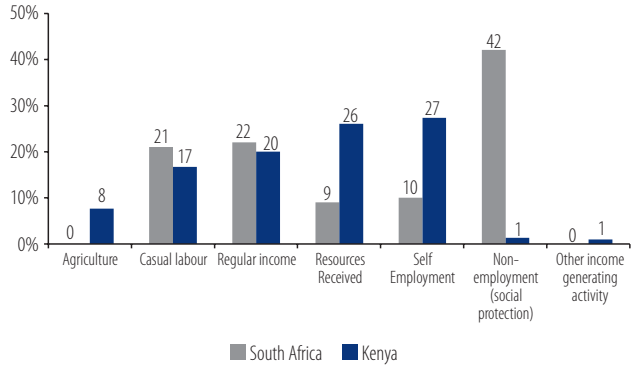
- While South Africa in aggregate has higher volumes of electronic transactions than Kenya, there is little usage of electronic payments among our low income South African respondents.
- The bulk payer shift in South Africa, which means that more of our respondents in South Africa are paid electronically, does not appear to be triggering electronic purchases in our sample.
- Unlike Kenya, most electronic purchases in the South African sample are for groceries rather than airtime, and those grocery purchases tend to be lower frequency and higher value than is typical in the Kenyan sample

MasterCard's Cashless Journey research considers South Africa 'ahead' on the cashless journey with an estimated 43% of consumer payments by volume being made electronically versus Kenya's estimated 27%. South Africa's economy is more formal, and the country has greater penetration of POS devices, bank accounts, and store cards, and has a population with a greater share of adults in formal employment or receiving grants electronically. What then can we learn from the way that South Africans pay that provides insight into how e-payments might be advanced earlier in Kenya and other economies along their e-payments journeys?

We examine the households in the recent Financial Diaries implemented by BFA for the GAFIS project in Soweto from late 2012 through mid-2013. These were low-income households registering for new branchless 'Access' accounts through Standard Bank. There was a particular bias towards families receiving grants from the South Africa Social Security Agency (SASSA), in an effort to better understand how to make financial products more relevant to that market. In many ways, though, these families were typical for Soweto and other densely populated urban pockets of South Africa.

Compared to the Kenyan sample, the South African households have fewer, more stable income sources, many of which already are paid electronically. The households in our South African study had an average of 4.4 different income sources (median 4), in contrast to an average of 14 (10 median) in the Kenya Diaries sample. When we remove the consideration of inter-household exchange in resources received, that comparison shifts substantially to 3 at the median for South Africa and 5 for Kenya, which remains a sizeable difference.[26]

Figure 26: Main income source by household, Kenya and South Africa (%)



While our Kenyan households are patching together comprehensive income from a wide range of sources, the South African households had more stable, consistent incomes derived primarily from social grants. More than 40% of the households in the South Africa study relied on social grants and non-employment income as their main source of income. (Again, due in part to our purposive sampling to include them.) And, many households received more than one grant. Looking at the distribution of all unique income sources, we see that there are 128 unique grants for just 67 households. This means, for example, that a household might receive both a child grant and an old-age pension at the same time.

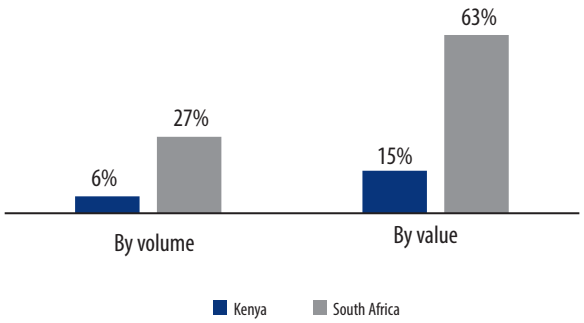
Figure 27: Total unique income sources, South Africa

The prevalence of non-employment income and regular employment income sources with 'few to many' dynamics, suggest that more of South African income payments should be electronic than in Kenya. Indeed, that is the case. About 27% of income payments by value and 63% by volume are being made electronically in our South African sample, which is far ahead of the Kenyan sample. This suggests that even among the low-income market, South Africa is farther ahead than Kenya in the bulk payer shift.[27]

26 The income source of gifts from the research firm are excluded from these counts.

27 This chart excludes in-kind payments.

Figure 28: Share of income transactions that are electronic (%), Kenya and South Africa[28]



In this urban, low-income sample, 59% of those electronic income transactions are represented by non-employment grant payments. In South Africa, since the recent introduction of the SASSA card, virtually all grants are paid electronically. Cash still dominates among those with self-employment, in rent payments, and even in person-to-person transfers, typically resources received. There, Kenya is ahead, thanks to pervasive use of mobile money.

In both the South Africa and Kenya studies, electronic payments tend to be larger than paper payments. However, those differences are smaller in South Africa for regular income and non-employment income, where values are likely fixed and the payment mechanisms are simpler substitutes. In Kenya, we see that the frequency of paying regular employees changes with the payment mechanism, switching to a monthly pattern instead of daily or weekly, which results in large differences in paper and electronic payments mechanisms.

Figure 30 also highlights some differences in the nature of these income sources in the two different samples. In Kenya, casual work tends to be high-frequency, low-value kinds of jobs, like working in other peoples' farms or doing washing for others, with no guarantee of future work. In South Africa the values of casual payments are much larger, suggesting larger, possibly longer term, but still informal, arrangements. While many Kenyans receive support from a large network of family and friends, that trend is more concentrated in South Africa, where there are fewer income sources from resources received and, when those transactions are made, they are much larger in size.

We have discussed above that the Kenyan market has diverse, volatile incomes and a tendency not to store money in a static liquid form, perhaps since income is flexible upwards from short-term, small-scale income sources that can be patched together and from access to extra support from the social network. The South African context for this population seems very different. Incomes are larger, more concentrated, and stable. Fewer can rely on the social network for support, but if that support comes, it tends to be for 'big' things. For small things, our South African sample appear to be on their own and perhaps may be relying more on their personal savings or borrowing in situations where Kenyans turn to family and friends.

[28] This chart excludes in-kind payments.

Figure 29: Share of income paid electronically by value (%), Kenya and South Africa

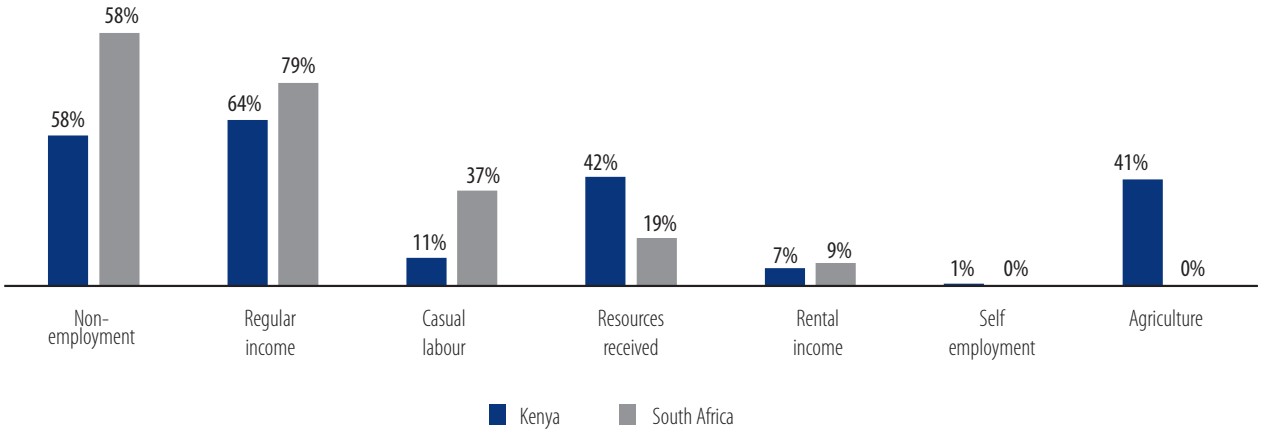
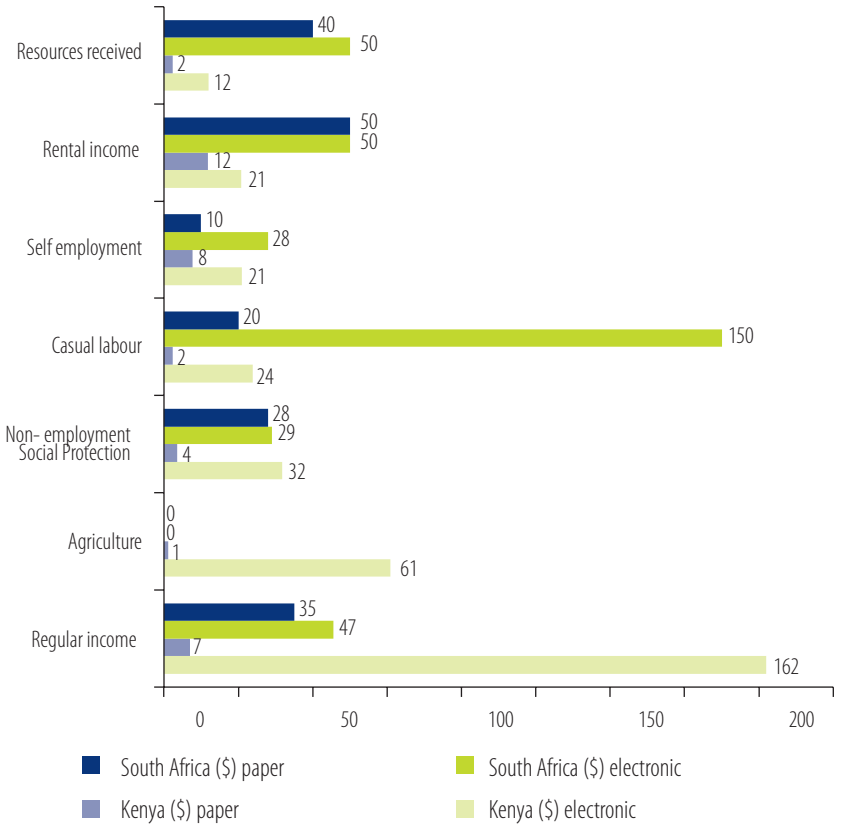
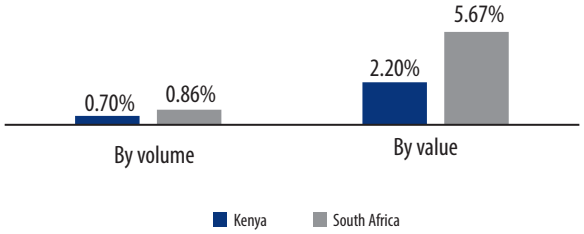


Figure 30: Median transaction size paper vs. electronic (USD), Kenya and South Africa



Despite receiving more of their incomes electronically and the general trend in South Africa for a larger share of consumer payments to be made electronically, our low-income urban sample made fewer than 1% of their expenditures using an electronic payment device. The prevalence of e-payments for expenditures in the South African sample is comparable to the Kenyan sample. In terms of volume, e-payments account for 5% of expenditure value, which is still quite low.

Figure 31: Share of expenditures that are electronic (%), Kenya and South Africa



Even though many of our South African repondents receive their incomes electronically, they choose to transact, by and large, in cash. Most of the time we see respondents receiving their social grants and withdrawing them immediately, in full, to pay for their household expenses with cash. However, when we break down the types of electronic payments that we do see in the sample, we find that 66% of the payments that were made electronically were done using the SASSA card, gift card, or voucher[29] as a debit device. Nearly all of these payments were made using the Shoprite voucher cards distributed by the project as a means of gift distribution rather than adopted and used by respondents purely of their own volition. These pre-paid cards do not have a cash back option. We see almost no debiting being done with SASSA cards in our sample: 98% of withdrawals are in cash and only 0.27% are using the card's debit function.

[29] This may include vouchers the researchers distributed as respondent gifts during the study.

Table 6: Number of e-payments by payment device, South Africa

	N	%
SASSA card, gift card or voucher	134[31]	65.69
Credit card, store card, account card	32	15.69
Debit card	14	6.86
Wire transfer over Western Union, Money Gram	9	4.41
Debit order or one-time transfer from account	8	3.92
Direct deposit or transfer into account or SASSA card	4	1.96
Loyalty card or points	2	0.98
Online transfer into or out of account	1	0.49

Unlike in the Kenya study where e-payments were primarily being used for airtime, in the South African Diaries, we found they were used most often for groceries. About 70% of the electronic payments captured were for groceries. The next most common purchase type was for clothing and shoes, perhaps using the store cards that have become increasingly prevalent in South Africa. Most of the other purchase types that we observed happened only infrequently using electronic means. E-payments appear to be capturing some lumpy expenses at particular types of retail outlets but are still far from ubiquitous.

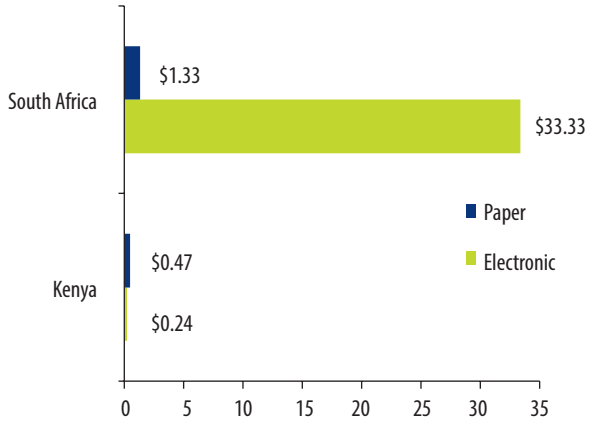
Table 7: Top 5 uses of electronic payments in expenditures, South Africa

	Number of transactions	% of all electronic transactions
Groceries/food to be eaten at home	139	69%
Clothing and shoes	25	12%
Pocket money for kids within household	9	4%
Telephone	8	4%
Purchase of gifts	6	3%

30 Nearly all of these were done using the Shoprite prepaid gift cards distributed as gifts for participating in the study.

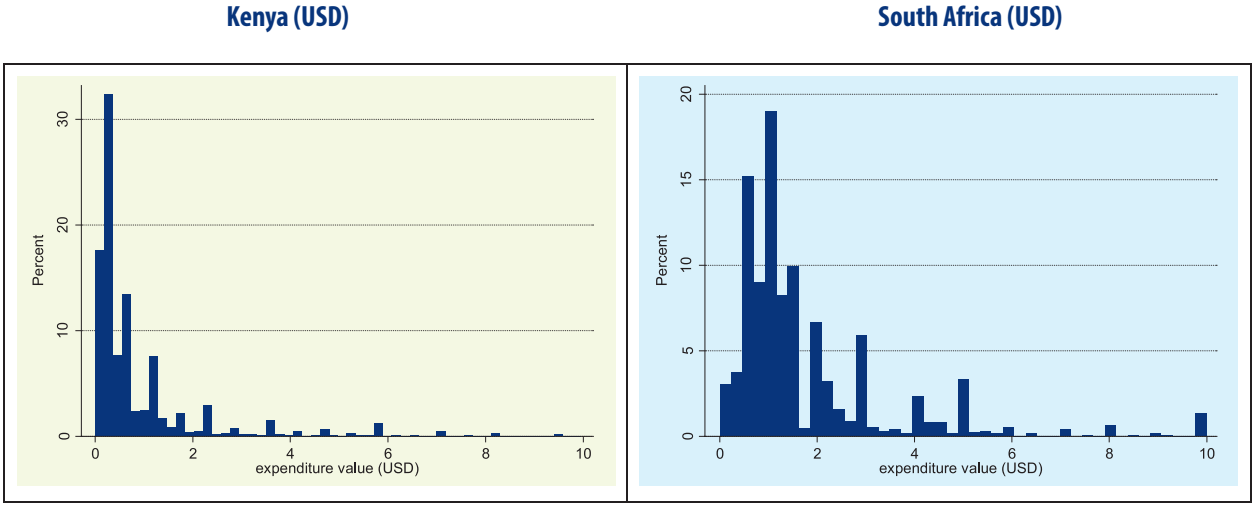
Because of this difference in the ways that Kenyans and South Africans are using e-payments, we see stark differences in the average value of e-payments in both markets. In Kenya, the median value of e-payments, primarily used for airtime, is very small: a fraction of that of the median cash payment. However, the opposite is true in South Africa were electronic forms of payment are being used for very large payments, about 25 times as large as the average cash payment. In both markets, however, the average size of purchases is extremely small. Even in relatively affluent South Africa, our low-income respondents make 99% of their purchases in cash, and the median purchase value is around just USD1. Such small retail transactions can be difficult to capture given the business case of servicing them at a very low cost. With all of their differences, this challenge is shared in both markets. What differs is that Kenya has not made this business case work even among the middle and upper classes, which South Africa has, but seemingly without bringing the poor along.

Figure 32: Median value of paper vs. electronic payments (USD), Kenya and South Africa



In both countries, the majority of transactions are very small, so much so that it can be challenging for electronic payments providers to build a business case around them. In South Africa, 85% of consumer expenditures are below USD5, rising to 92% in Kenya. When thinking of how to influence shifts in behaviour in such a context, it's helpful to start by looking at where abnormally large transactions are taking place. It also challenges providers to innovate around models that make sense for small transactions. Merely applying the same payments business models from more advanced economies just will not work for capturing these kinds of payments.

Figure 33: Distribution of expenditure transactions below USD10



Like the Kenyans we studied, when South African respondents make large payments they tend to be for assets like televisions, small appliances, and furniture. Other large expenditures are on things like rent, traditional healers, and even child care, which in Kenya is typically provided free by relatives and friends.

However, if we focus on the kinds of transactions that are made relatively frequently at a median value greater than ZAR100 (USD10), we see where there are more opportunities to viably convert transactions to electronic form. For example, there are a large number of groceries transactions, 812 in our sample, and the median value is around ZAR300 (USD30). And yet, only a

Figure 34: Median transaction size for large expenses (>USD50), South Africa

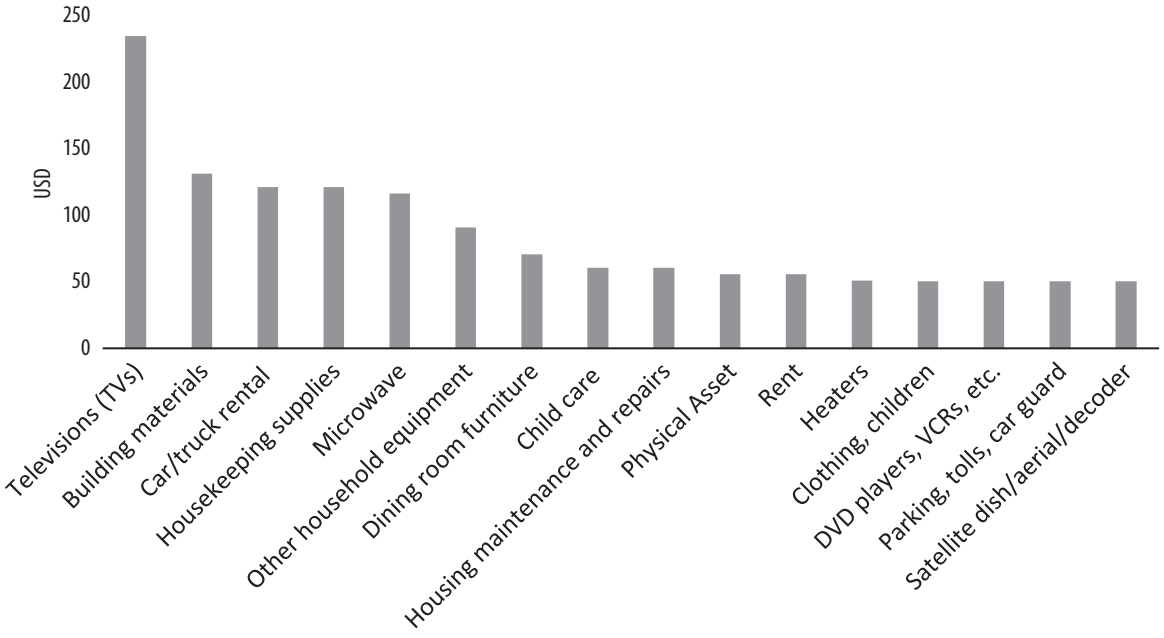
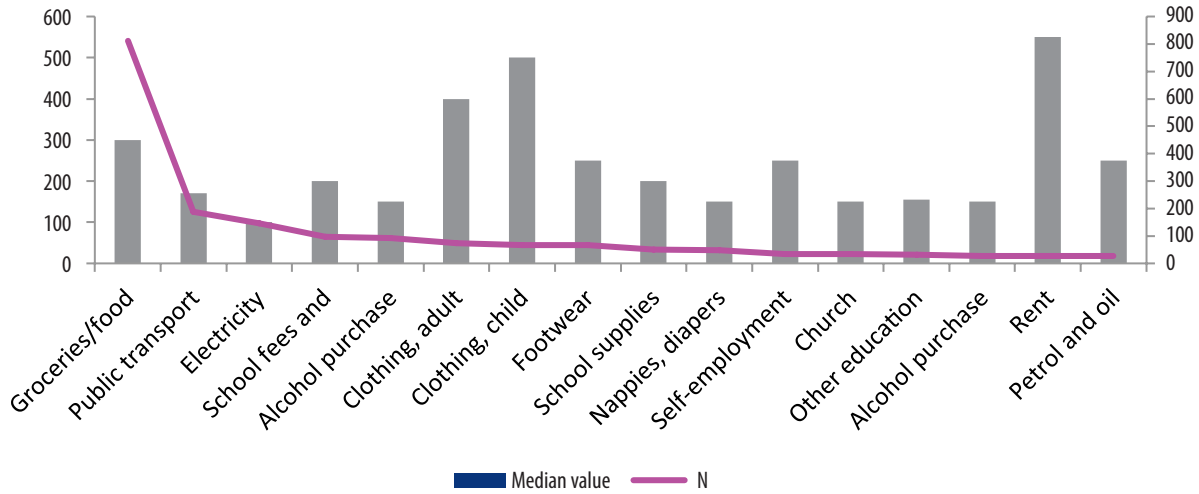


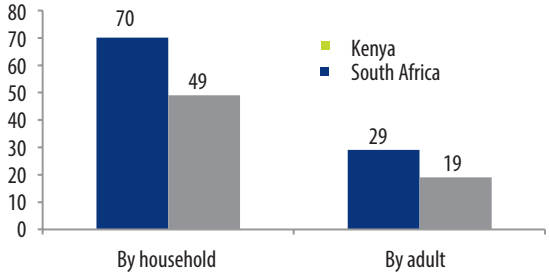
Figure 35: Median value of highest frequency transactions >ZAR100



small number of these transactions are currently electronic. Similarly, there are frequent and sizeable transactions for public transportation, electricity, school fees, clothing, and footwear, but these transactions seem to continue to be made predominantly in cash. These are ripe opportunities for improved capture by payments providers.

Compared to the Kenyans in our study, the South Africans tended to transact less frequently. Overall, payment dynamics are different in South Africa, where payment values are larger, and payments are made relatively less frequently. Typical South African adults in the Diaries sample make about 10 fewer transactions per month than their Kenyan counterparts. However, if we were to compare them to the comparable urban sample in Kenya, the difference is much greater. At the median, an urban adult in the Kenya sample makes 56 expenditures per month compared to just 19 in South Africa.

Figure 36: Median number of expenditure transactions per month (N), Kenya and South Africa



The difference in transaction frequency seems to relate to the frequency and relative regularity of income in South Africa. While more of our South African sample does a monthly 'big shopping' trip, most of our Kenyan respondents buy groceries daily in small amounts, spending their incomes as they flow in

Table 8: Profile by main income source, SA

	Non-employment	Regular income	Casual labour	Self-employment	Resources received
% of sample	37%	22%	21%	10%	9%
% poor (<USD2 per day, per capita consumption)	88%	40%	64%	71%	67%
SD of monthly income (median)	ZAR449 (USD45)	ZAR2590 (USD259)	ZAR920 (USD92)	ZAR2582 (USD258)	ZAR367 (USD37)
SD of income as share of income (median)	35%	47%	54%	64%	64%
SD of monthly expenditure	ZAR707 (USD71)	ZAR1705 (USD171)	ZAR695 (USD70)	ZAR1292 (USD129)	ZAR532 (USD53)
SD of income as share of income (median)	53%	51%	44%	71%	70%
Avg./median number of transactions/month per adult	21/17	25/23	26/21	23/20	20/15
Median expenditure value	ZAR10 (USD1)	ZAR15 (USD1.5)	ZAR10 (USD1)	ZAR15 (USD1.5)	ZAR15 (USD1.5)
Mean expenditure value	ZAR43 (USD4.3)	ZAR54 (USD5.4)	ZAR36 (USD3.6)	ZAR73 (USD7.3)	ZAR47 (USD4.7)

daily. We see that, compared to Kenya, our South African sample has relatively few and more stable incomes. Across the samples, the median standard deviation of income in Kenya is 55% compared to 44% in South Africa. Grant-dependent households in our sample have the most stable household incomes. But, even among the self-employed, with relatively high instability (64% vs. 55% in Kenya), the number of transactions per month is still small. Perhaps a culture of monthly payments has emerged with only small payments made throughout the rest of the month. This would account for both the relatively low number of transactions and the still small median transaction size across the sample. As in Kenya, the self-employed have some relatively frequent larger payments, which you can see in the high mean expenditure value. This is likely due to business stock purchases, a seeming gap in the e-payments use case in both countries for the kinds of small businesses run by low-income households.

Chapter 5

CAN E-MONEY HELP PEOPLE MANAGE THEIR MONEY BETTER?

Chapter highlights:

- In a small experiment with our Kenyan sample, we find no evidence that electronic payment of a gift significantly reduces 'hot stimulus,' discouraging those who receive electronic money to spend it quickly.

We have already seen that low-income people in both South Africa and Kenya are not making extensive use of e-payments for their purchases. And, while we know there are economic benefits to economies for reducing reliance on cash, what are the benefits to a poor individual? One hope is that e-money might reduce 'hot stimulus' and perhaps enable people to make more thoughtful decisions about how to use their money. In previous studies we had mixed responses to our exploration of this question. In Kenya, about half of customers in exit interviews for a large study of merchant payments said that keeping money on M-PESA imposed discipline on their spending, while another half told us that it was too tempting to use, particularly on airtime, which could then be purchased directly from the phone.

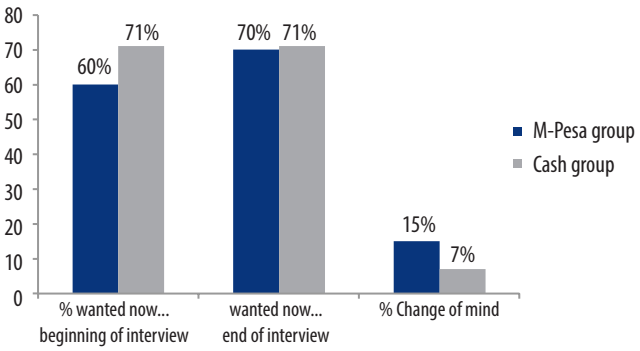
So, in the context of the Diaries, we decided to conduct a simple experiment to measure differences in savings choices based on whether money was received in cash or on M-PESA. As one of our project gifts to respondents, we took our list of respondents who normally receive their gifts on M-PESA (meaning they have a phone and do not have family disputes about the division and use of the gift) and randomised that list into an M-PESA group and a cash group. On the day of their gift distribution, interviewers informed them that it was a gift day at the beginning of the interview. Prior to the interview, they were told how they would be receiving their gift (cash immediately or M-PESA immediately following the interview) and asked whether they would like to have the gift (KSh600) now or if they would prefer to save and receive their gift with an additional KSh100 added (total of KSh700) as interest in 30 days.

In both cases, an additional withdrawal fee was added to M-PESA transfers to equalize the values completely, though this was not discussed during most interviews. At the end of the interview, we asked them the same question and provided the gift on the terms dictated by the respondent at the end of the interview.

As Figure 37 shows, M-PESA recipients were slightly more willing to save at the beginning, but if they have time to think about it (about an hour), the difference evaporates. Initial savers change their mind and take the money immediately in the same proportion as cash recipients. If the electronic payment reduced the 'hot stimulus' it was a small and very brief effect.

This was quite a small experiment, but it suggests that electronic money is not in its nature less of a 'hot stimulus' than cash. If e-money is to help people manage their money better, it will likely be in the form of applications that layer on the electronic system and impose rules, discipline, or mental restrictions on the use of funds, not in the mere electrification of value.

Figure 37: Share of respondents who chose not to save at the beginning, end, and those who changed their minds (%)



Chapter 6

WHAT IT ALL MEANS

By comparing electronic payments patterns in the low-income segments in both Kenyan and South African Financial Diaries we see just how difficult it is going to be to convert most payments into electronic form.

When it comes to bulk payments—viewed mostly as income payments in this analysis—electronic forms of payment seem quite attractive to consumers. Time and again when we ask consumers how they would like to be paid they tell us they prefer to be paid through a bank or mobile money account. Consumers appreciate that electronic payments are fast and traceable, and they recognise that electronic transfers put the choice of when and how much to withdraw at the discretion of the earner. They encourage planning in advance how they will use money, so that they have a budget and know how much to withdraw after each pay day. Even if there were no impact on these payments in terms of how consumers pay, the bulk payer shift delivers important cash lite benefits on its own.

In both countries, this shift is incomplete. There is still scope to 'electronify' more regular employment and casual worker payments. In Kenya the same is true, though agricultural payments are also not fully electronified and more progress could be made by enabling smaller traders to purchase produce electronically from farmers. Self-employment incomes remain nearly entirely cash based in both economies. Only progress on electronic retail payments for very small transactions is likely to change that. In these kinds of markets, the bulk payer shift will not necessarily mean that nearly every household will be receiving income in electronic form, and this is likely to have significant implications on how quickly the country moves to the second and third shifts and which population groups are included in those shifts.

On those two later shifts involving consumer payments, we have a very long way to go. Most payments done by low-income households are very small. And in Kenya, they are also very frequent. Some progress has been made in Kenya on getting small payments electronified, but only when it comes to airtime, and even there, e-payments account for just a small share of airtime purchases. Driven by the SASSA card, some groceries purchases in South Africa are shifting to electronic payments, but they still represent a very small share of all transaction volumes and values. While MasterCard Advisors has estimated that 43% of consumer payment volume in the country is being done electronically, we find it's just 5% in this low-income segment. This suggest that the poor are not participating in the digitised economy nearly as much as others, even when their incomes are already primarily arriving in electronic form.

What might explain this? There are a few hypotheses that come to mind based on qualitative data from the project:

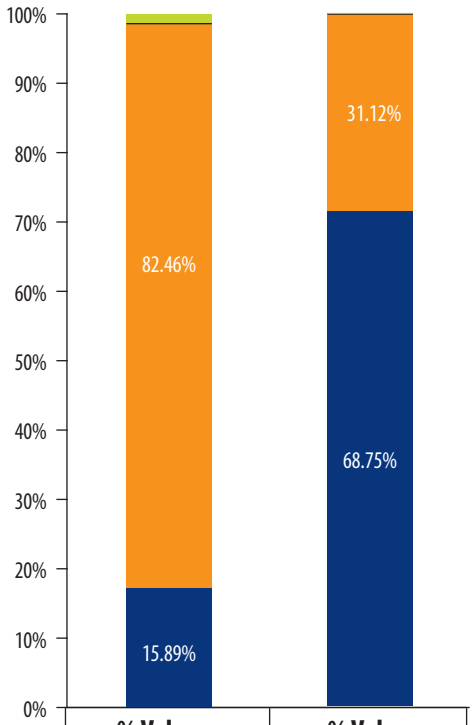
1. **Acceptance of e-payments is limited to middle- and upper-class shopping centres.** Many of the large supermarkets accept e-payments. That means that they might be visited for a big monthly shop, but most people have to spend money on transport—even in this urban setting—to reach a supermarket. Smaller mid-month purchases are done at smaller retailers, without POS devices.
2. **Reliability.** Quite a number of respondents during the survey period experienced problems trying to use their debit cards. In many cases, a trip to the bank did not resolve the problem, and so they stopped using the card completely for a time. In order to substitute for cash, the electronic alternative must be just as reliable, but even in South Africa, and perhaps especially for the payments products used by the poor, that is not the case.
3. **Fear of leaving funds in government-managed accounts or having expenditures tracked by SASSA.** In previous research conducted by BFA in partnership with the Consultative Group to Assist the Poor (CGAP), we found that many grant recipients were fearful of losing eligibility for grant programmes should the government discover they were leaving funds in the account, thus assuming the recipient did not need the money. Similar fears may inhibit them from transacting on the card for fear that the government may mine the data and determine their use of funds to be inappropriate.
4. **Appeal.** Right now, there seems to be no meaningful incentive for low-income consumers to use e-payments, even when they are free — like swiping the SASSA card or buying airtime directly from one's M-PESA account. We need to better understand where e-payments can offer value—economically and socially—to low-income users. Is the barrier the absence of a more advanced bulk payer shift or might e-payments only offer value with layered services, like help tracking spending, rewards programmes, or additional finance offerings based on cash flows? It is clear from the South African example that incentives are clearly operating differently in the high-income and low-income segments, and we need to get that low-income proposition right.

There may be many other issues at play here, but it does serve as a lesson for Kenya—a country that seems early on its cash lite journey—that advancing e-payments in an inclusive way is by no means automatic. The e-payments use cases and needs of the poor need to be considered early on to make sure that as e-payments grow, they grow for all and don't leave some outside the scope of the growing digital economy. The business case for e-payments will need to work for the types of payments that the poor make and where they make them. Systems must be reliable enough on low-end payments products that the poor will feel comfortable using them. And, finally, it needs to make sense for low-income people to use e-payments. The argument for greater security doesn't seem to be particularly motivating in either of these high crime contexts. Convenience, so far, also appears to be insufficient: most of our South African sample received income electronically but still spent in cash. It seems that to make this work for the poor, there needs to be something more on offer, and that's where we need to spend more time researching, thinking and experimenting or risk leaving the poor behind.

Annex

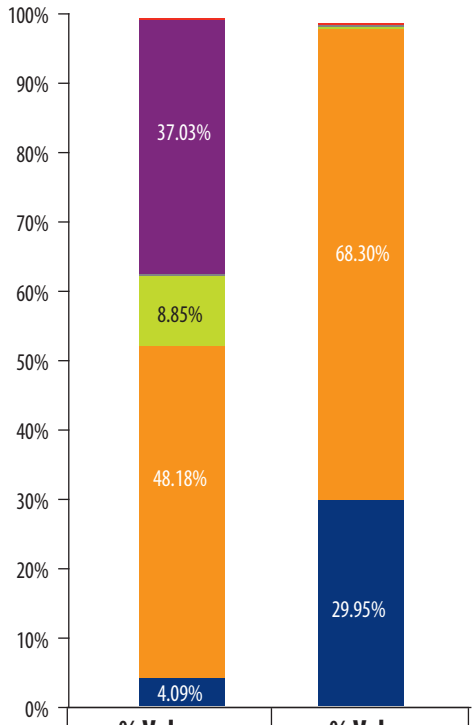
DECOMPOSING ELECTRONIC FLOWS IN KENYA

1. Composition of electronic income flows, Kenya (%)



	% Volume	% Value
Airtime / Sambaza	1.57 %	0.01 %
Wire transfers	0.08 %	0.12 %
Mobile Money	82.46 %	31.12 %
Bank transfers / Deposits	15.89 %	68.75 %

2. Composition of electronic expenditure flows, Kenya (%)



	% Volume	% Value
Debit card	0.18%	0.20%
Okoa Jahazi	37.03%	1.12%
Loyalty points	1.66%	0.03%
Airtime / Sambaza	8.85%	0.39%
Wire transfers	0.00%	0.00%
Mobile Money	48.18%	68.30%
Bank transfers / Deposits	4.09%	29.95%

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