



DIGITAL CREDIT IN KENYA:

Evidence from demand-
side surveys

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Creating value
through financial inclusion

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1. Introduction

In the past five years digital loans have transformed the market for credit in Kenya. Mobile phones, identity-linked digital footprints, automated credit scoring, agent networks and credit information sharing¹ - the building blocks of digital credit - have enabled providers to deliver loans quickly and at scale. For millions of adults, the possibility of borrowing from their phones has opened the door to private, formal consumer credit for the first time. Yet the pricing, marketing and potential misuse of these products coupled with the extensive negative reporting (see [Box 3](#)) of borrowers who have failed to repay these relatively small loans has raised a growing chorus of concern about their design and the adverse impacts they have on borrowers and the financial system more broadly².

Box 1: What are digital loans?

In 2006, getting a consumer loan from a bank in Kenya would have required traveling about 9km to the nearest branch³, speaking to a loan officer, gathering together documents, submitting an application and hoping for the best. Putting interest rates and often unattainable collateral requirements aside, the process was costly for the average earner, it took days (the 2016 Kenya household budget survey found that on average - across all loan types - borrowers needed 11 days to secure a loan) and involved out-of-pocket costs such as paying for transportation. For a bank, extending these kind of loans was also costly. It required having staff who could screen an applicant and gather information or collateral in order to make a judgement about their creditworthiness. Digital loans have transformed the process for both borrowers and lenders.

As opposed to conventional credit, borrowers do not have to wait to receive a decision on whether the loan was granted after application. Digital loans are *instant* since loan-eligibility decisions are *automated* based on a set of rules applied to available data, and not on human judgement applied on a case by case basis. Another distinguishing factor of digital credit is that information, loan disbursements and repayments are managed *remotely*, without the need for customers to visit bank branches.

[Find out more about the attributes of digital credit from CGAP](#)

The sheer growth of the digital credit market is confirmed by supply-side figures. [M-Shwari](#) - Kenya's first digital banking product offered by the Commercial Bank of Africa (CBA) - supplied over 20 million loans to 2.6 million borrowers in its first two years. To put that into perspective, CBA only had 13,000 open loan accounts the year before M-Shwari was launched (Fig 1.3), between 2013 and 2015, CBA opened over twice as many loan accounts - 27,400 on average - per day, effectively transforming CBA from a niche bank serving corporate clients to a bank serving the mass market. Similarly, Kenya Commercial Bank (KCB) historically processed around 200,000 new loans per year, in 2015, the year it launched [KCB M-PESA](#) the number of new loans it disbursed increased 20 fold to around 4 million.

¹ The degree to which Kenya's credit bureau and information sharing system facilitated the spread of digital credit is an open question but the existence of institutions that can discourage default on unsecured lending does play an important role in the delivery of digital credit in Kenya.

² See for example Microsave's blog: [Key new year resolutions for the success of digital financial services](#).

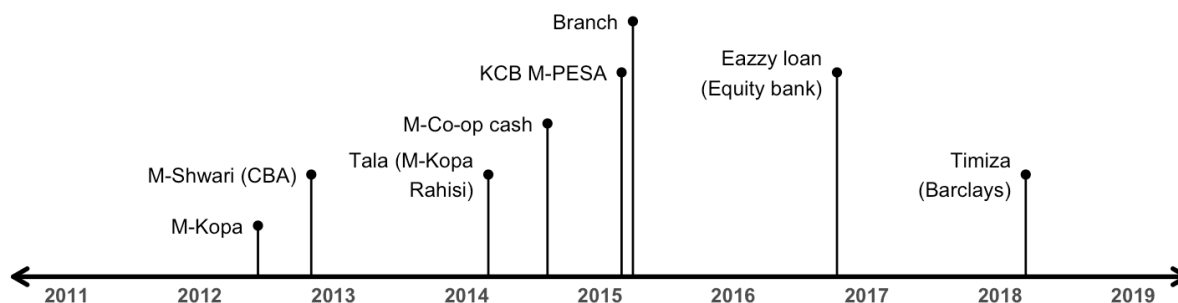
³ [Evidence from round 1 of the M-PESA panel survey conducted by MIT and FSD Kenya](#).

Bank supervision data from the Central Bank of Kenya (CBK) indicates that the number of deposit and loan accounts in the overall commercial banking system increased from 11.9 and 1.67 million in 2010 to 34.6 and 8.51 million in 2016 (Fig 1.2), amounts significantly greater than if trends had continued at their historic (pre mobile banking) rate (however, total loan accounts represents the 'stock' of loan accounts which remain open *at the time* banks submit their reports to the CBK, the total 'flow' or volume of lending *over time* is therefore much greater).

How has this unprecedented wave of lending influenced the quality of the banking sector's loan portfolio? Unfortunately banks disclose only aggregate figures and it is difficult to isolate the impact of digital credit products on the overall quality of bank loan portfolio. What is known is that between December of 2011 and December of 2016, the value of non-performing loans as a share of total gross loans more than doubled across all commercial banks, rising from 4.35 to 9.34 percent, reaching levels not seen since the end of 2007 (Fig 1.6). It is important to note that the growth in the overall value of non-performing loans (NPLs) in the banking sector is unlikely to be driven by digital credit alone, as the value of the digital credit portfolio is small relative to other segments of bank lending. In fact a look at changes in NPLs for each of Kenya's 10 largest banks between 2014 and 2016 (Fig 1.7) shows that NPLs increased for all banks, not just those that most aggressively expanded their lending via mobile banking (for example CBA, KCB and Equity). Nevertheless, digital credit contributes significantly to the number of individual defaulters reported to the credit bureau. According to Microsave, over 2.7 million Kenyans have been reported to a credit bureau with a negative listing for late repayment or default. However, more research is needed to better understand the role of digital loans in contributing to the recent rise in banking sector NPLs.

Digital lenders on the rise: a timeline

Fig 1.1: Digital loan products by launch date



While commercial banks in partnership with mobile network operators were first to offer digital loans, a number of start-ups offering loans through apps have emerged. [Tala](#) and [Branch](#), for example, use alternative data such as call logs, GPS, social network data and contact lists obtained with permission of the user, to assess credit risk and tailor loan offers (such as reductions in interest rates as users build a credit history). Tala and Branch both have more than one million installs from Kenya's Google play store. Data on the number and performance of app-based loan accounts are not reported publicly since financial service providers that offer credit but do not take deposits are unlicensed and not regulated by CBK. This also means that app-based lenders are not subject to the interest-rate cap law that took effect in September of 2016 with the promulgation of the [Banking Amendment Act](#), which limits loan interest rates to 4 percentage points above the central bank reference rate. Reports in the press indicate that to date Tala has disbursed over 5.6 million loans worth Ksh 28 billion to over 1 million customers since its launch in March of 2014 (known then as M-

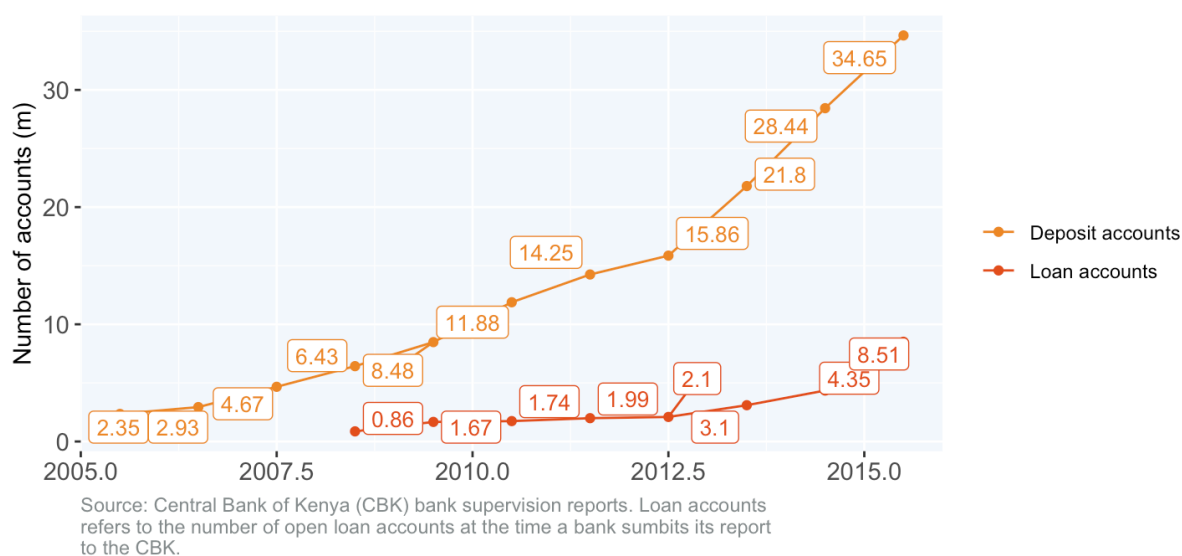
Kopo Rahisi) and by mid-2017 Branch had disbursed 1.5 million loans worth Ksh 3.63 billion to 350,000 customers since its launch in April of 2015⁴.

On the demand-side, the introduction of digital loans met a need for a type of credit that had not been satisfied by other formal lenders. In 2009, only one in ten adults with a mobile phone had ever used a formal loan from a bank or non-bank financial institution (NBFI), five times as many (one in two adults) had used a loan from informal sources, such as friends and family, an employer, shopkeeper or savings group (Fig 1.8). By 2017, almost three in four adults with a mobile phone had ever used a formal loan (including mobile loans). Over this time period, the prevalence of formal borrowing among the poorest 40% of the adult population increased more than twofold. The growth in exposure to formal loans accelerated significantly after 2013, strongly suggesting these trends represent digital credit's influence in expanding the credit 'frontier'.

Deposit & loan accounts, 2005-2016

Fig 1.2: All Commercial Banks

Deposit & loan accounts, all commercial banks



⁴ See for example: [Mobile lending app Tala closes Sh6.5b investment, to expand to India and Mexico](#), [Virtual lender Branch Kenya loans hit Sh3.6 billion](#)

Fig 1.3: CBA

Deposit & loan accounts, Commercial Bank of Africa (CBA)

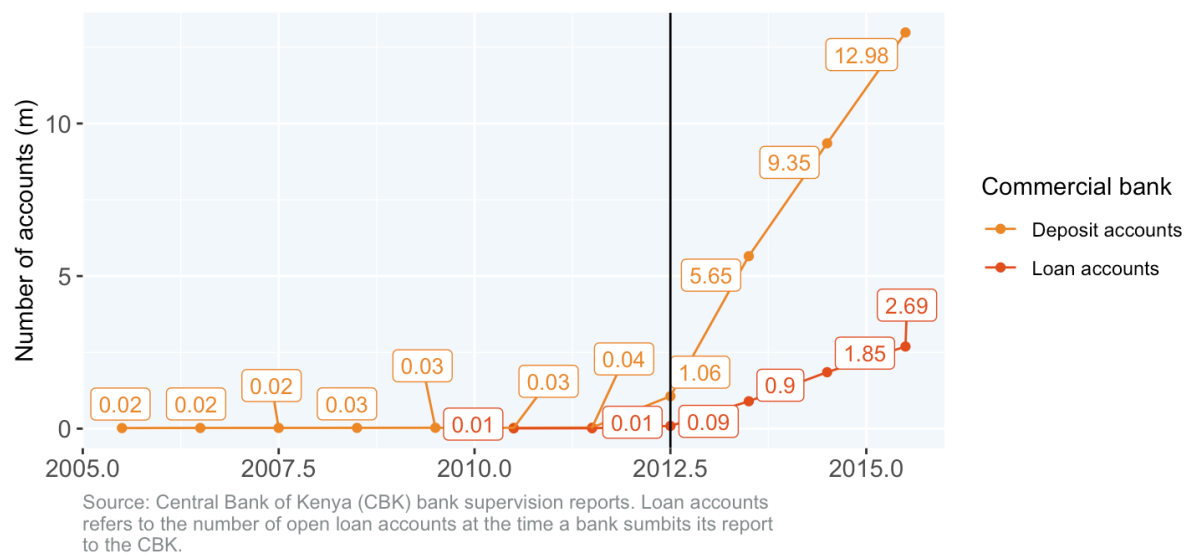


Fig 1.4: Equity Bank

Deposit & loan accounts, Equity Bank

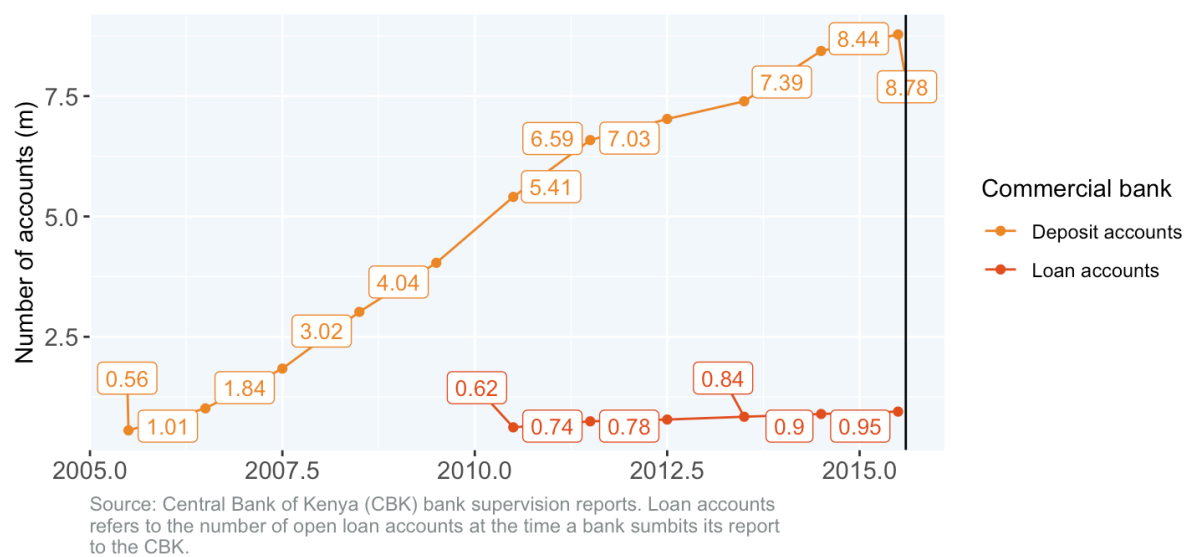
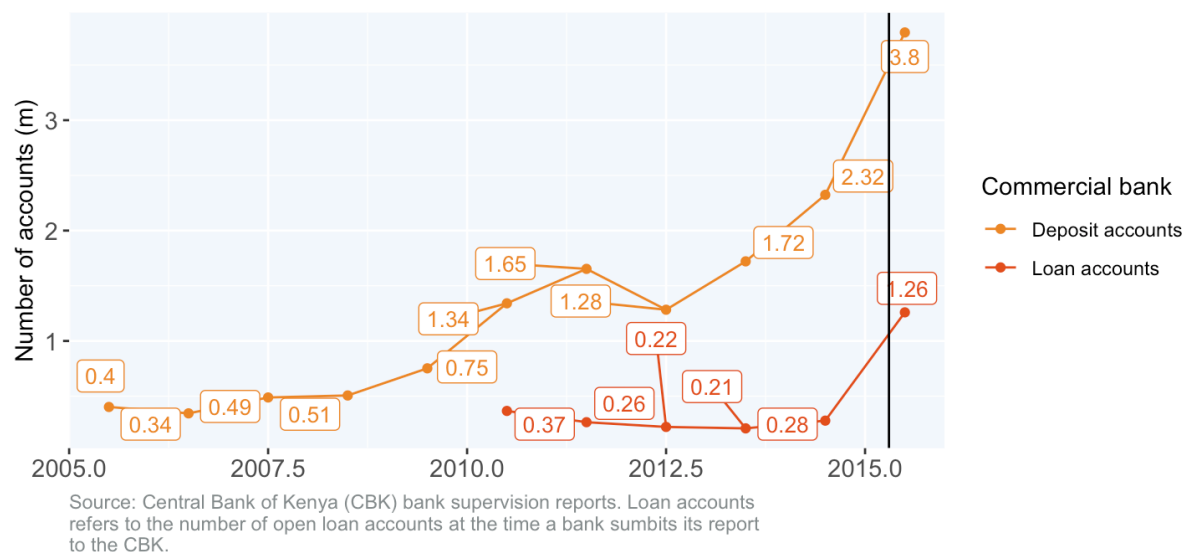


Fig 1.5: KCB

Deposit & loan accounts, Kenya Commercial Bank (KCB)



Gross non-performing loans, banking sector

Fig 1.6: All commercial banks

Gross non-performing loans as share of total gross loans, all commercial banks

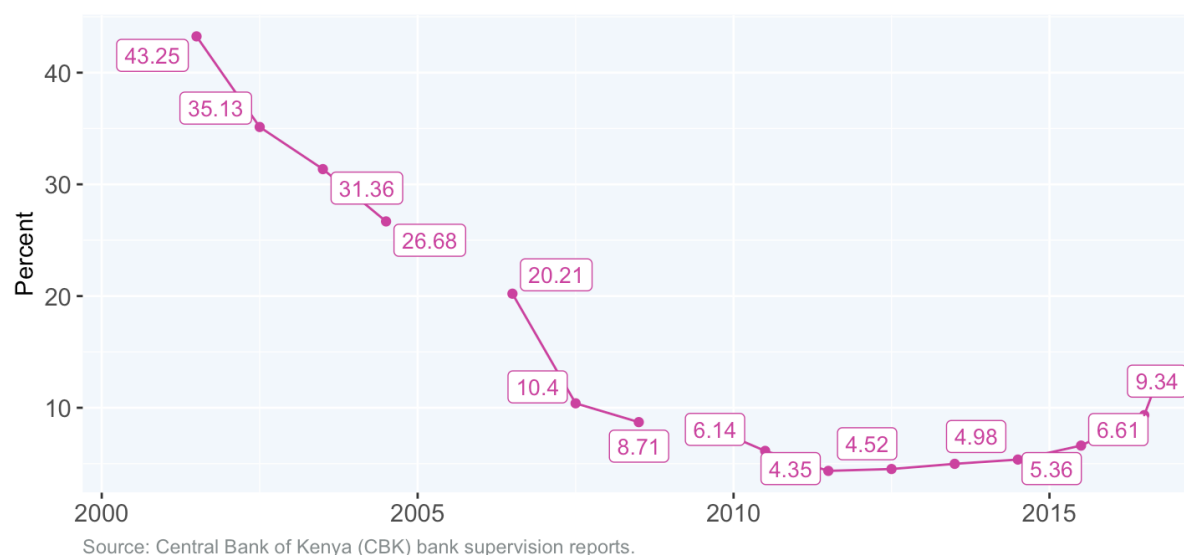
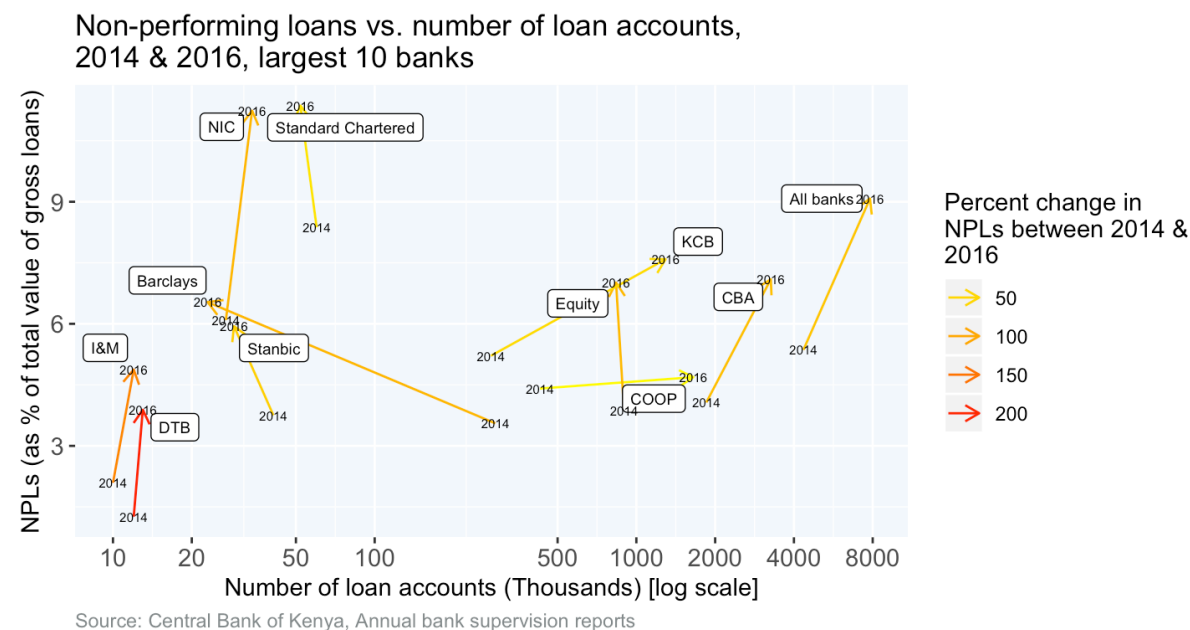
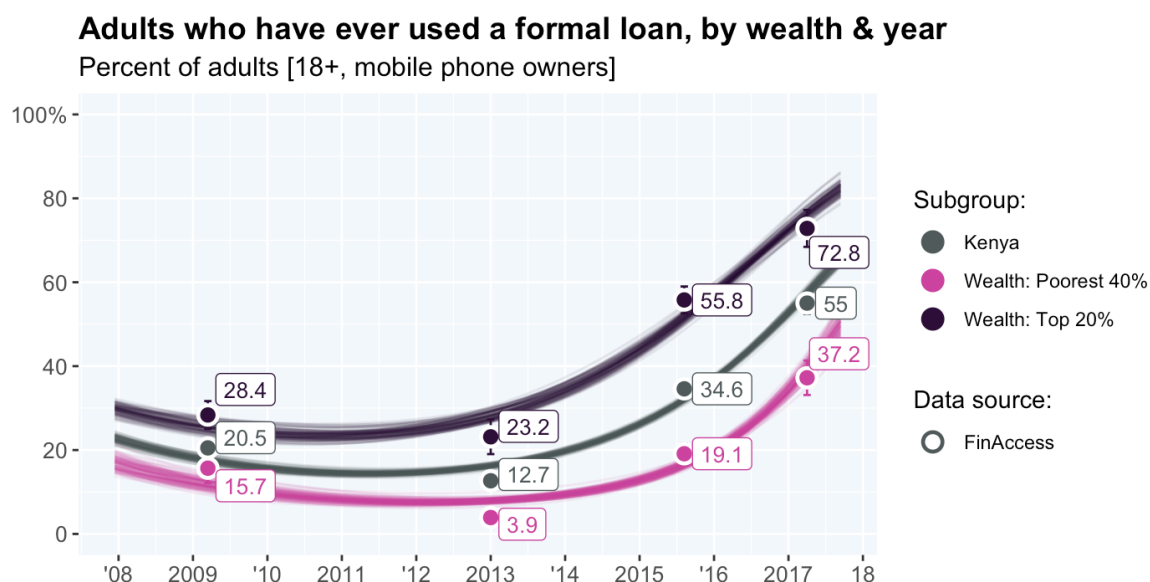


Fig 1.7: By commercial bank



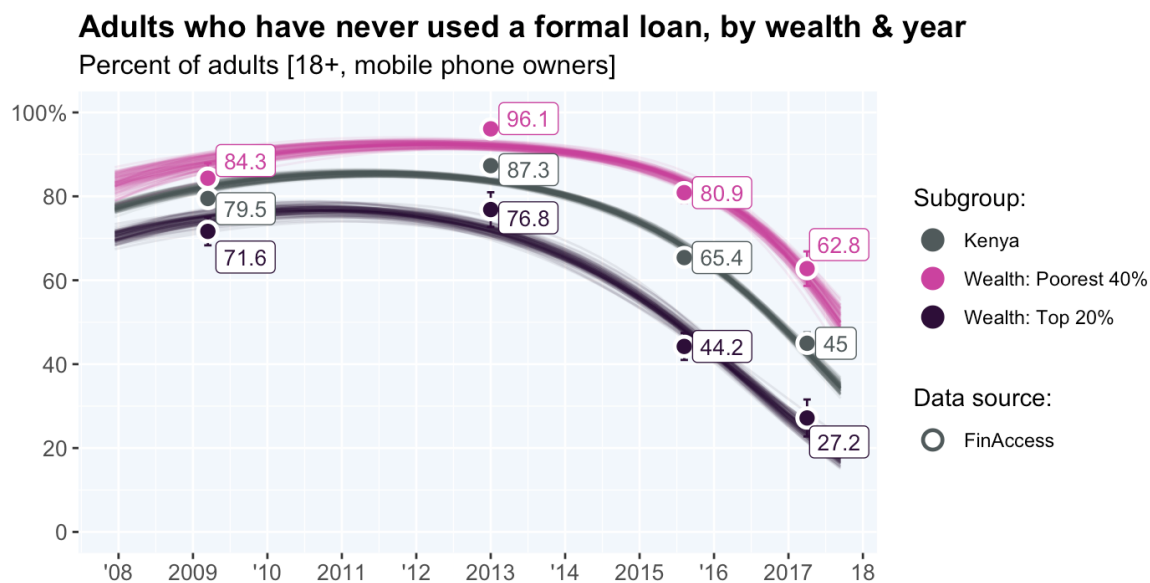
Trends in exposure to formal loans, by population subgroups, 2006-2017

Fig 1.8: Ever used a formal loan



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Fig 1.9: Never used a formal loan



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World Bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Perhaps due to just how rapidly digital credit has spread in Kenya, the patterns and impacts of its use have not been researched extensively. The benefits of instant and accessible credit to low income borrowers without a formal credit history are potentially very important, especially in helping them manage volatile incomes and cope with adverse shocks that require an immediate response. In addition, given the potential harm to consumers and risks to the economy of widespread borrowing, the need for research in this domain is particularly acute. In an effort to help fill this knowledge gap, FSD Kenya partnered with [CGAP](#), the [Central Bank of Kenya](#) and the [Kenya Bureau of Statistics \(KNBS\)](#) to conduct a nationally representative survey to better identify who is using digital credit, for what reasons and what their experience using these loans has been like. High level findings from this survey were shared in “Kenya’s digital credit revolution five years on” [CGAP blog](#), and [slide deck](#) and a [comparison between the Kenyan and Tanzanian markets](#). The objective of this report is to present a wider range of analyses from the survey as well as incorporate data and findings from other survey programs and studies.

After a discussion of the data sources used throughout this report, the results of the analysis herein are organized into 1 sections, each guided by an overarching question, followed by a conclusion which highlights some key takeaways, areas for further research and ideas and recommendations for providers and policymakers.

- [Data sources](#)
- [Setting the stage: How rapidly is mobile banking being adopted in Kenya?](#)
- [Who are the main providers of digital credit?](#)
- [Which population segments are more likely to have adopted and used digital loans?](#)
- [Why do people take or avoid digital loans?](#)
- [How common are delinquent payments and defaults on digital loans?](#)

- How do people repay their digital loans and why do they pay late?
- What are some of the more common experiences borrowers face as they use digital credit products?
- How do digital loans fit in the broader credit landscape?
- What are the key drivers of digital credit uptake, usage and repayment?
- Discussion
- Ideas and recommendations

2. Data sources

This report draws on data from available nationally representative demand-side surveys that touch on digital credit, including the 2013 and 2016 [FinAccess household survey](#) conducted by FSD Kenya, the 2013 to 2016 [financial inclusion insights surveys](#) conducted by Intermedia and the [2015/16 Kenya integrated household survey \(KIHBS-II\)](#) conducted by the Kenya Bureau of Statistics (KNBS). However, the report most heavily draws on data from the 2017 FinAccess “tracker” survey, an experimental mobile phone survey designed by FSD Kenya and CGAP to obtain more frequent estimates of access to and usage of financial services among adults in Kenya.

The 2017 FinAccess tracker was conducted between January and March of 2017. A random sample of 4,500 individuals above the age of 18 was drawn from a sampling frame of 6,710 adults who had been interviewed in person during the 2016 FinAccess household survey and who had provided their mobile phone number in agreement to be contacted in the future. A total of 3,129 phone interviews were successfully completed, yielding an overall attrition rate of 31 percent. A large share of the unreachable sample was located in some of the more remote counties of Kenya: Wajir, Marsabit, Samburu, Mandera, Garissa, Elgeyo Marakwet, Lamu and Bomet. In these counties almost half of the sample could not be reached.

While the original intent of the survey was to create a sample that could be representative of all adults, the constraint in this case was that the sampling frame was comprised primarily of adults that owned a mobile phone - which, on average, looks different from the population of non-mobile phone owners. Overall, 77 percent of the 2015 FinAccess sample owned a mobile phone, 88 percent of the FinAccess tracker sample frame (adults in the 2015 FinAccess sample who consented to be contacted in the future AND who provided contact details) owned a mobile phone, and 89.6 percent of the final sample owned a mobile phone. **For this reason, the reference population used throughout this report are not all Kenyan adults above the age of 18, but the 77 percent of Kenyan adults above the age of 18 who own a mobile phone.** All survey estimates presented in this report are weighted to account for the sample methodology and non-random attrition and generalize to the mobile-owning population above the age of 18.

To explore variations in the patterns of the adoption, usage and repayment of digital loans, results are presented for various population sub-groups defined by demographic and livelihood variables. Three population subgroups frequently used throughout this report - the bottom 40%, middle 40% and top 20% of the population in terms of asset holdings or wealth - are based on an index constructed using the number and types of assets a respondent’s household owns, the quality of their housing materials, and availability of utilities (e.g. sewage, electricity and piped water). This asset index is designed to summarize in a single variable the relative *material well-being* position of a household. But unlike levels of income or spending which are measured in currency, the units of the wealth index are not easily interpreted, so Fig 2.1 and Fig 2.2 provide a profile to help readers develop a more concrete picture of these population subgroups. Fig 2.3 displays the sizes of other mobile owning population sub-groups that are frequently referenced throughout the report.

Another population segment frequently used in this report is in reference to the survey respondent's vulnerability, measured using five of the questionnaire items: (1) I often have trouble making money last between the times I get money, (2) Over the last year you had to sell some assets or borrow to repay a loan, (3) In the last 12 months your family has gone without enough *often or sometimes*, (4) In the last 12 months your family has gone without medicine *often or sometimes*, and (5) I cannot obtain approximately one month of income within three days in the case of an emergency. If 3 or more of these statements are true, a respondent is classified as having "severe" vulnerability, if 1 or 2 of these statements are true, a respondent is classified as having "moderate" vulnerability, if none of these statements is true, a respondent is classified as having "low" vulnerability.

Characterizing groups defined by wealth

Fig 2.1: By asset ownership

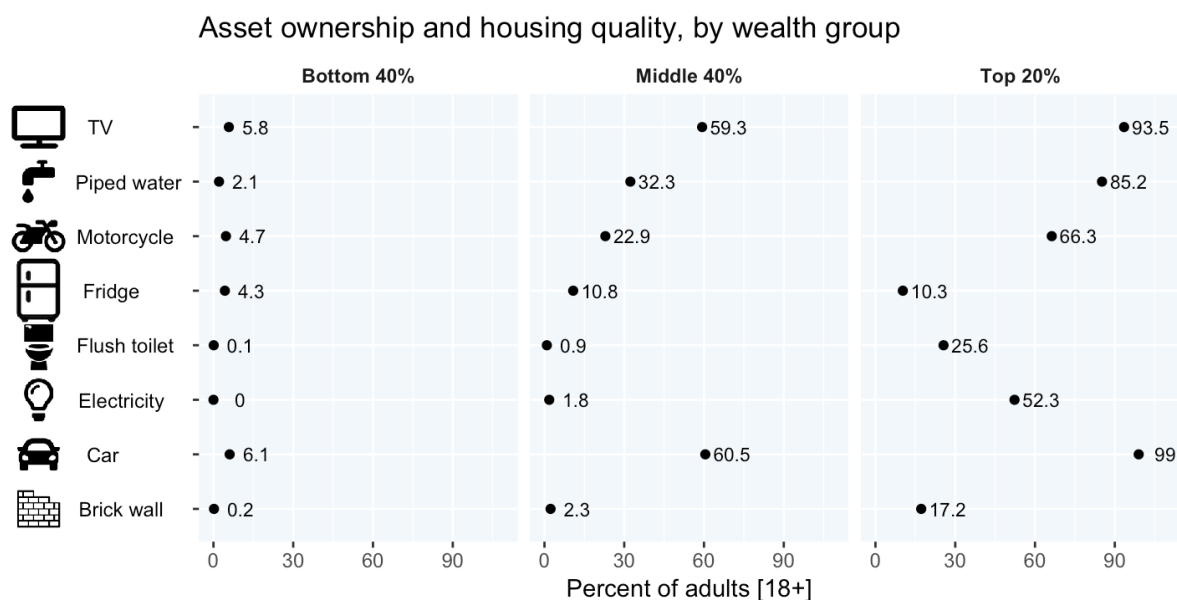
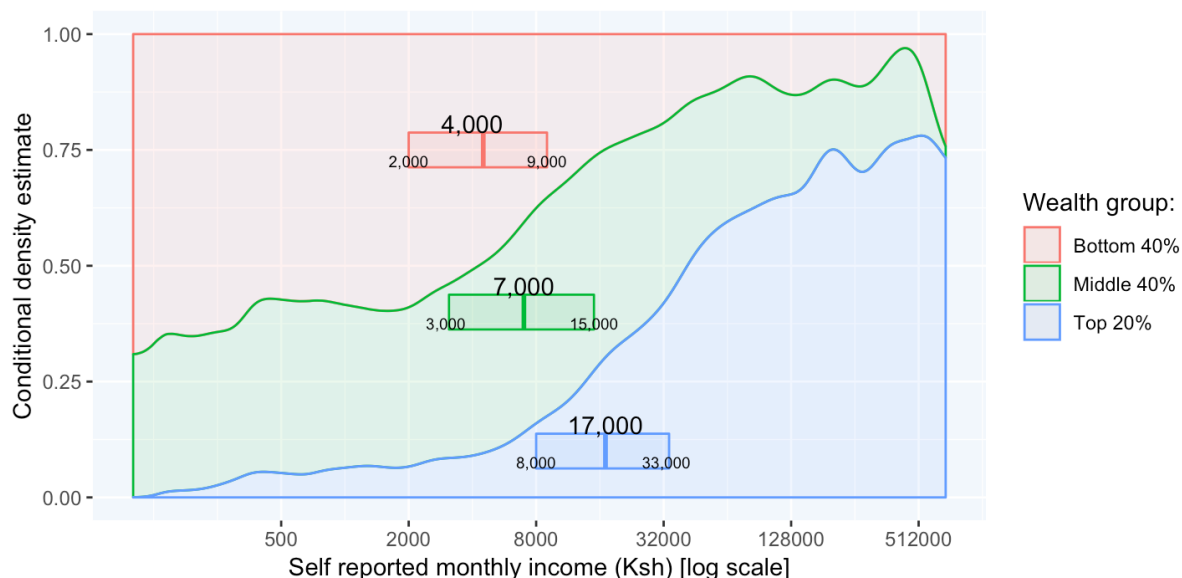


Fig 2.2: By self-reported income

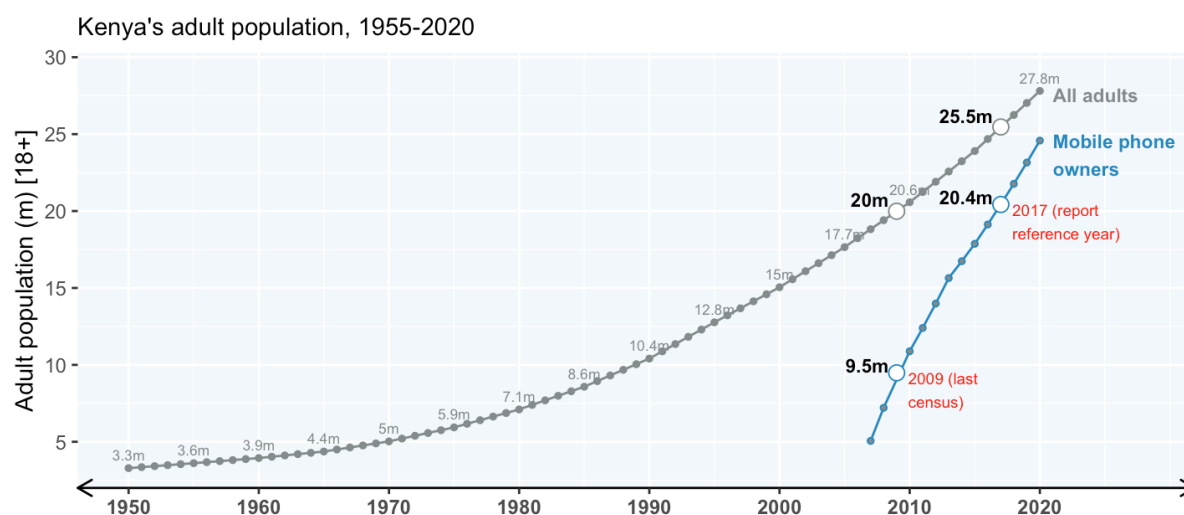
The distribution of self-reported monthly income by population sub-groups defined by asset wealth



Source: 2016 FinAccess household survey (FSD Kenya). Notes: The boxplots overlaid on the density plot shows the position of the 25th percentile, median and 75th percentile of income for each of the wealth groups. The value of these statistics is labeled on the plot. While self-reported income is not considered a reliable measure of income in a setting where earnings are volatile, intermittent and derived from micro-businesses, they are displayed here to provide a rough sense of order of magnitude differences in income between wealth groups

Reference population sizes, 2017

Fig 2.3: Overall population



Source: United Nations population division, medium fertility variant. Notes: Values within 5-year periods are interpolated by author. Since UN population estimates are reported for 5-year age intervals, the population of 18-20 year olds is assumed to be half the population of 15-20 year olds. Estimates of the mobile phone owning population are based on the 2006, 2009, 2013 and 2016 FinAccess data. Shares of the mobile phone owning population for 2017 - 2020 were extrapolated based on observed trends between 2006 and 2016.

Fig 2.4: Population sub-group sizes

Population sub-group	Mobile owners (m)	Share of mobile owners (%)
Residence: Nairobi	3.24	12.7
Residence: Non-Nairobi urban	5.72	29
Residence: Rural	11.49	58.3
Rural, Females, Over-30	3.97	20.1
Rural, Females, Under-30	1.8	9.1
Rural, Males, Over-30	4.07	20.6
Rural, Males, Under-30	1.66	8.4
Urban, Females, Over-30	2.06	10.5
Urban, Females, Under-30	1.92	9.7
Urban, Males, Over-30	2.35	11.9
Urban, Males, Under-30	1.9	9.6
Livelihood: Employment	2.91	14.8
Livelihood: Business owner	4.1	20.8
Livelihood: Agriculture	5.94	30.1
Livelihood: Casual worker	3.53	17.9
Education: Primary or less	10.39	52.6
Education: Secondary	6.67	33.8
Education: Tertiary or more	2.67	13.6
Age: [18-25)	3.98	20.2
Age: [25-45)	10.53	53.4
Age: [45-65)	3.97	20.1
Age: [65+]	1.25	6.3

3. Setting the stage: How has the adoption of mobile banking changed over time?

The emergence of digital lending is part of a broader trend stemming both from widespread adoption of mobile technology by consumers to facilitate their communication, payments, information and entertainment needs as well as by financial service providers to help lower delivery costs and reach untapped segments of the population.

Between late 2013 and late 2017, the share of mobile-owning adults actively using either the savings or loan features of mobile banking more than doubled, increasing from 12.4 to 30.3 percent at an average annual rate of 24.4 percent (Fig 3.1). Adoption of mobile banking among the wealthiest 20% of the population, grew at almost twice the rate as among the poorest 40%. By 2017,

almost 1 in 2 of Kenya's wealthiest mobile owners were using mobile banking, compared to less than 1 in 5 of Kenya's poorest.

The evolution of mobile banking usage rates in Nairobi and other urban areas were similar (Fig 3.2), growing at an average annual rate of about 20 percent per year. In rural areas, the share of mobile-owning adults using mobile banking increased from 6 to 23.6 percent, at an average annual rate of 33.3 percent.

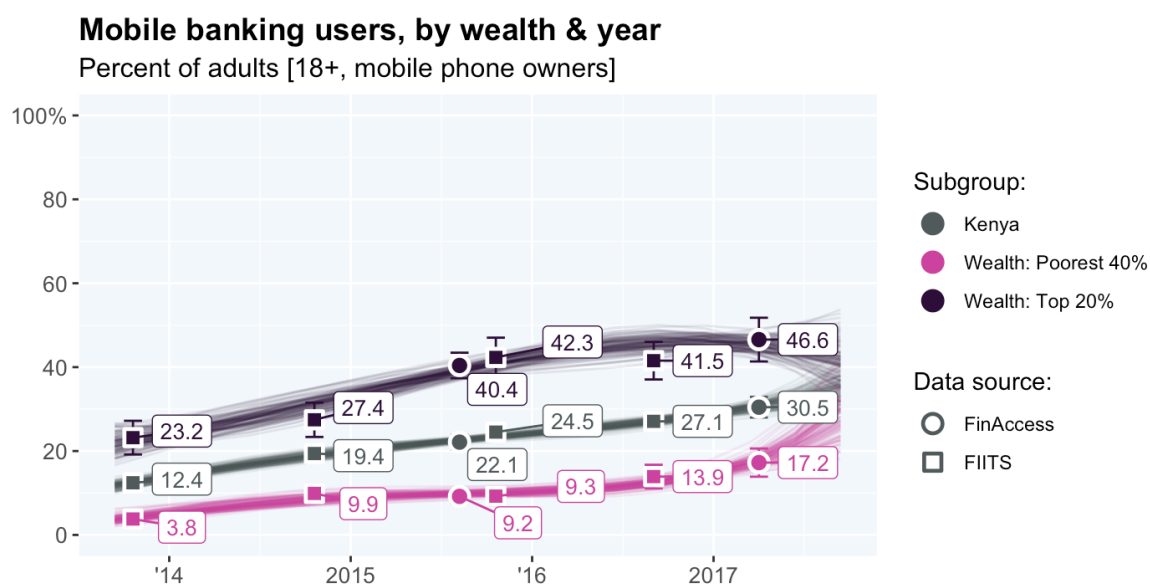
In late 2013, men were about twice as likely as women to be using mobile banking, but in late 2017, with 33 percent of men and 27 percent of women using mobile banking, men were only 25 percent more likely to be using mobile banking (Fig 3.3).

Young adults in the 18-25 age bracket were initially quicker to adopt mobile banking than older prime working age adults in the 25-45 year age bracket, but by 2017, both groups were just as likely users of mobile banking (Fig 3.4). Between 2013 and 2017 the rate of adoption of mobile banking among 18-25-year-olds was about half that of other age groups, among which adoption grew at an average annual rate of approximately 30 percent per year.

In late 2013, about 1 in 4 business owners, employed workers and casual workers used mobile banking (Fig 3.5), compared to only 1 in 10 agriculture. In the subsequent years, usage of mobile banking grew notably among the employed and business workers, but not among casuals, such that by 2017 over 40% of the employed and business workers were using mobile banking, while the share of casual workers using mobile banking remained at its 2013 level.

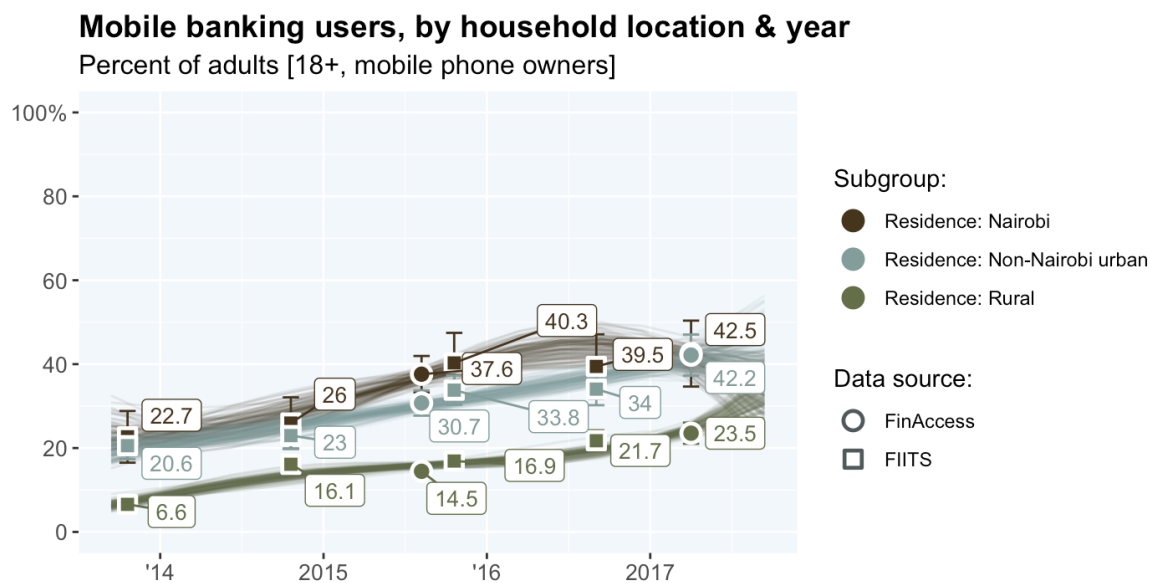
Mobile banking trends, by population subgroups, 2013-2017

Fig 3.1: By wealth



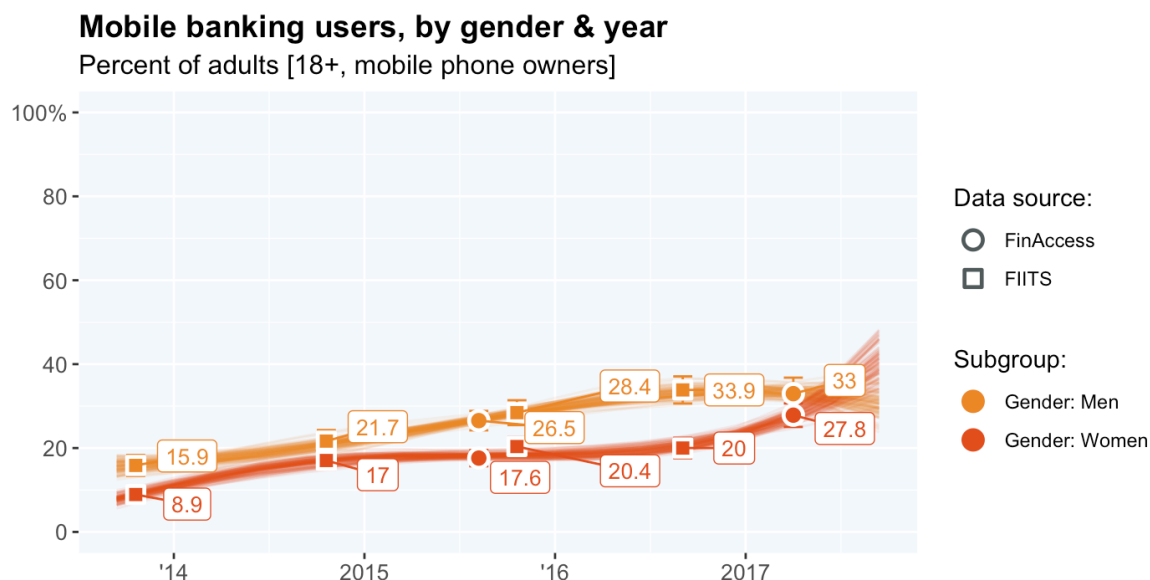
Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Fig 3.2: By location



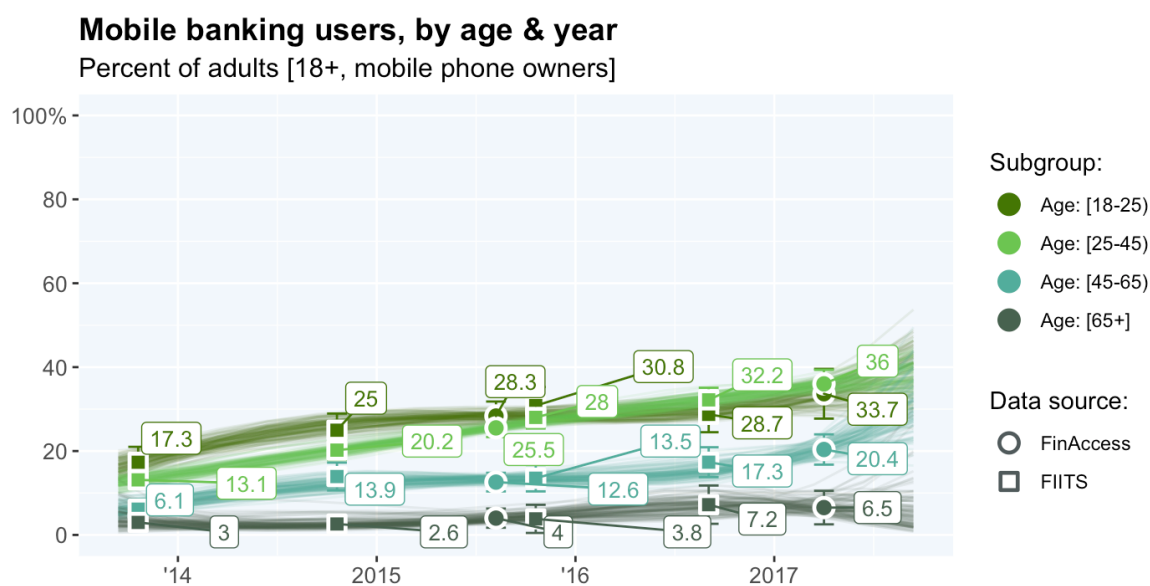
Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Fig 3.3: By gender



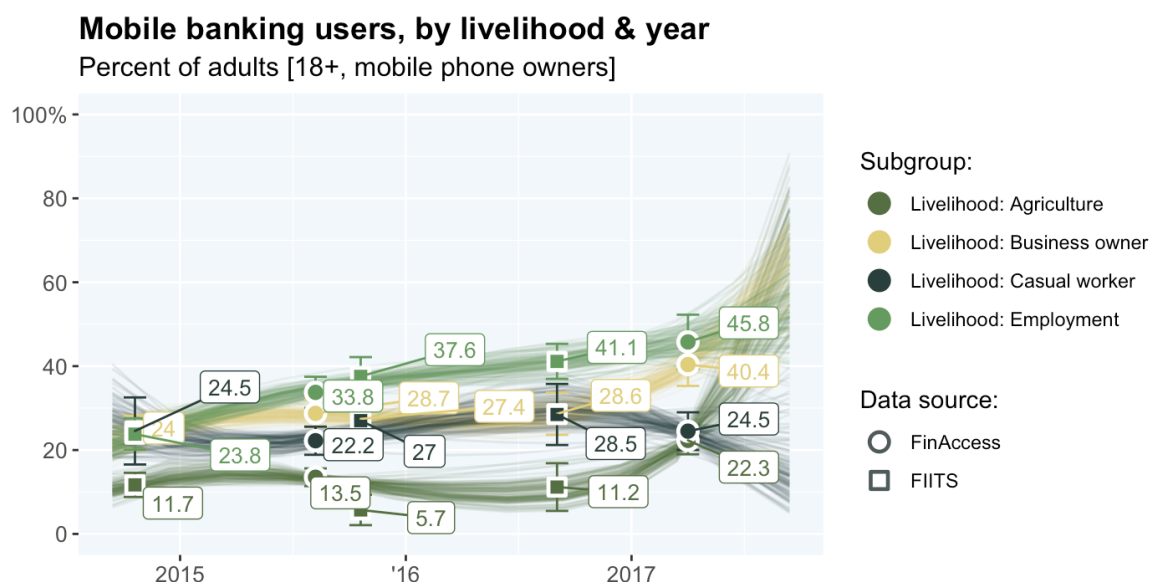
Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Fig 3.4: By age



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

Fig 3.5: By livelihood



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets. Notes: The point estimates from each survey are labeled. 100 trend lines are plotted based on simulations of regression parameters that estimate the probability of usage for each year using all available survey data. The greater the spread in these trend lines, the greater the uncertainty in their trajectory.

4. How prevalent is digital borrowing, who provides the loans and how much is borrowed?

In 2017, just over a third (34.8 percent) of Kenya's adult, mobile phone owning population (approximately 7 million people) had used digital credit. Among these borrowers, 64.2 percent are active: they either had an outstanding digital loan at the time of the survey, or had taken a loan in the 3 months prior to the survey. Individuals in rural areas represent both the majority of digital borrowers as well as the largest addressable market (individuals with mobile phones who have not used digital loans) (Fig 4.1).

A dominant majority (over three quarters) of digital borrowers across both urban and rural markets have taken loans provided by M-Shwari, around a third have taken loans from KCB M-PESA and about 1 in 10 have taken loans from Equity Eazzy. The two leading app-based digital loan products (Tala & Branch) have jointly captured around 6.7% of the market (approximately 1.3 million adults) (Fig 4.2). The variation in market share by provider across rural and urban areas is minimal.

Nairobi, Mombasa and South Rift (comprised of Kajiado, Narok, Bomet and Kericho counties) are the regions with the highest concentrations of digital credit users, while North Eastern and Upper Eastern (comprised of Garissa, Wajir, Mandera, Marsabit and Isiolo counties) are the regions with the lowest concentration of digital credit users (Fig 4.3).

The market landscape

Fig 4.1: Share of population by mobile owning and digital borrowing status

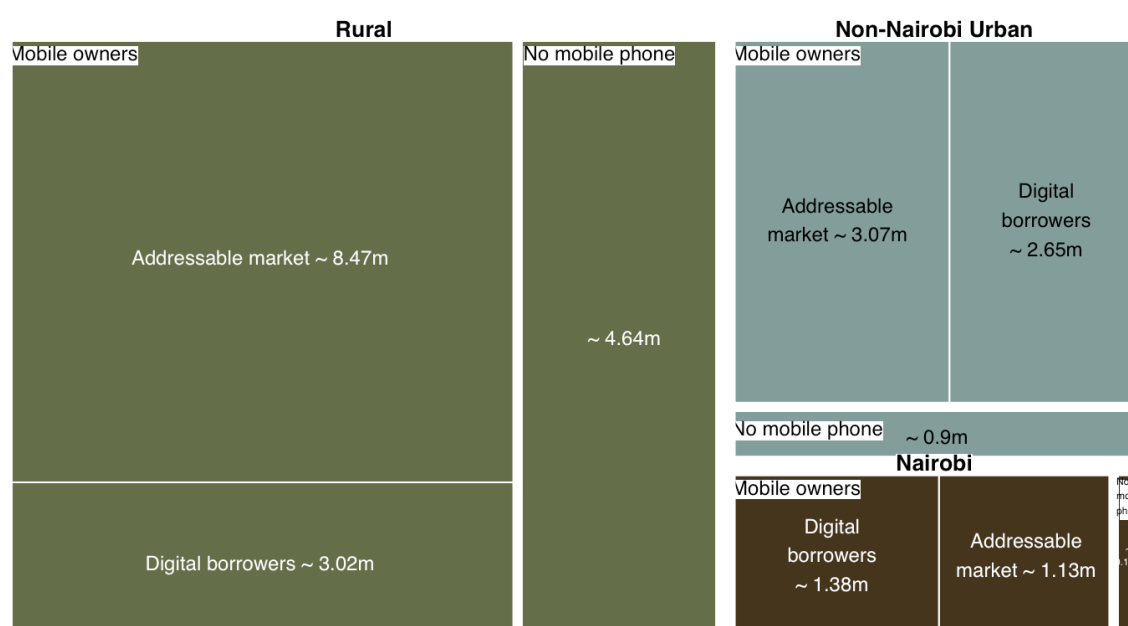
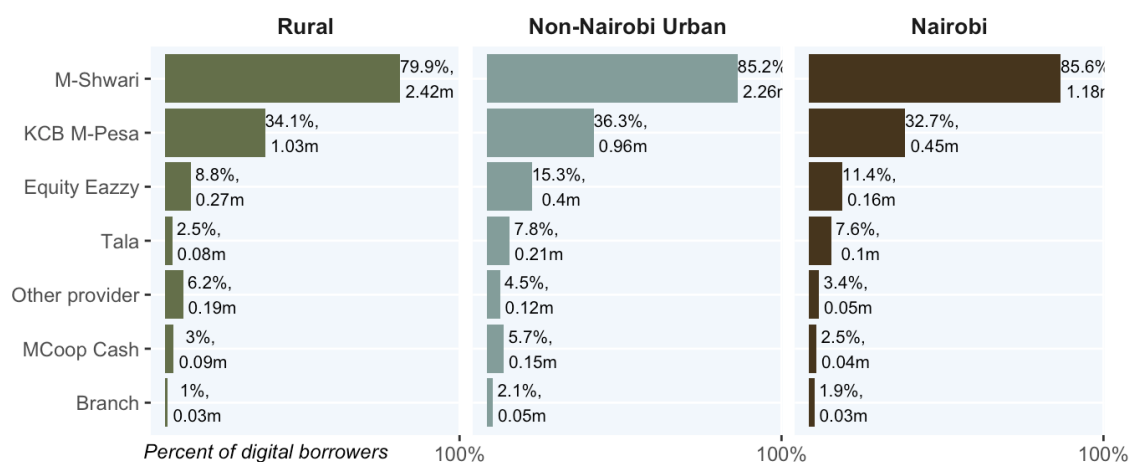


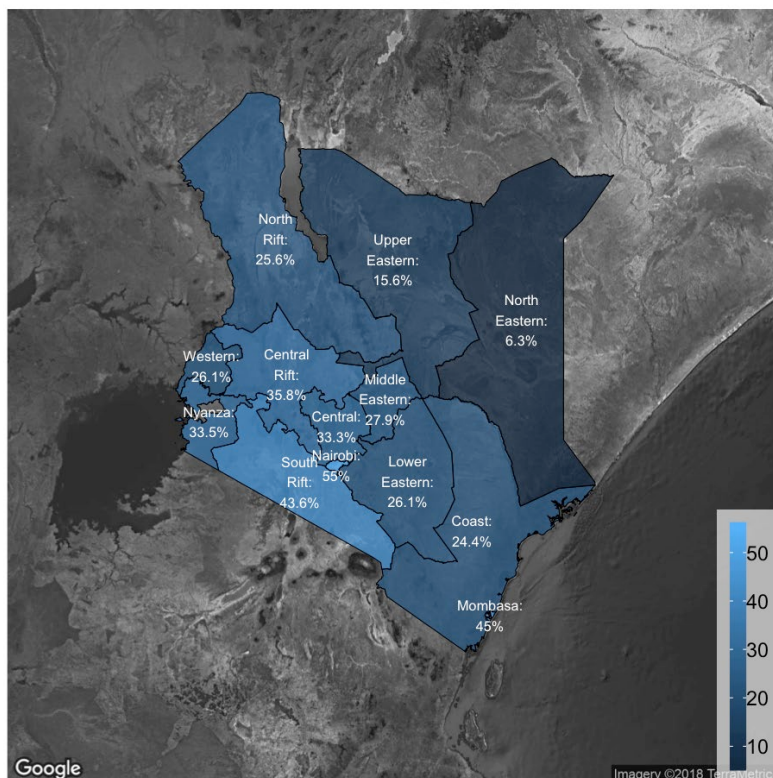
Fig 4.2: Digital borrowing by provider and location



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Notes: Borrowers may report using more than one provider, so columns do not add to 100%.

Fig 4.3: Digital borrowing by region

Digital borrowers, by region Percent of mobile owners [18+]



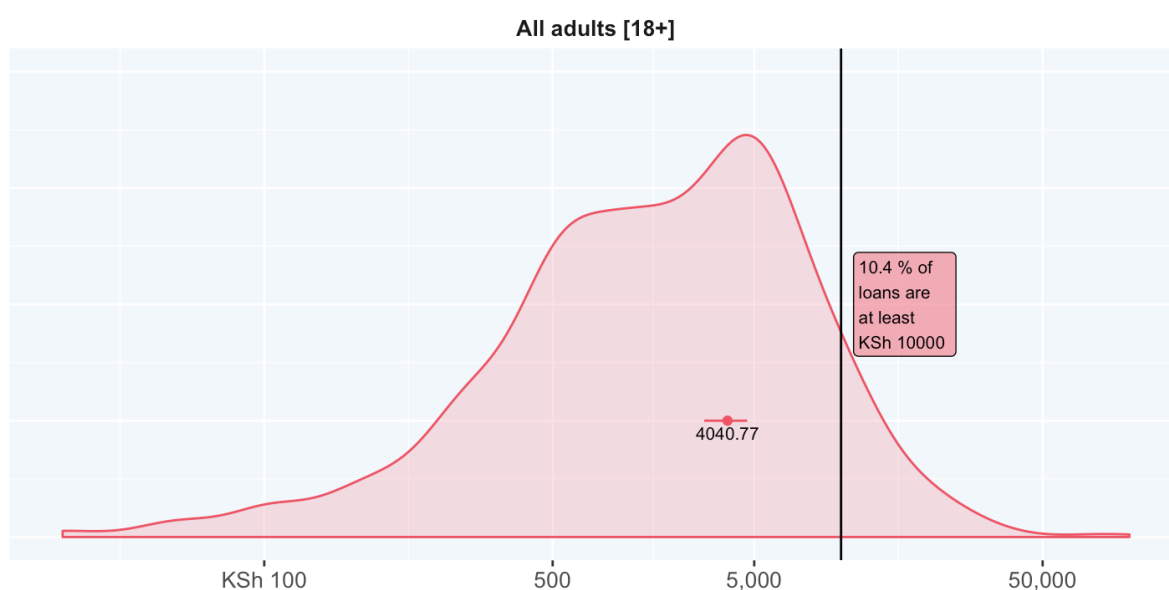
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Notes: Clusters of similar counties were used to create 13 regions.

The average size of digital loans taken by borrowers surveyed in the 2015/16 KIHBS is reported to be around Ksh 4,000 (USD 40) which represents about 45 percent of the typical digital borrower's monthly household consumption per person (KSh 9,000) (Fig 4.4). The median digital loan size is Ksh 2,500 and seventy percent of all digital loans fall between Ksh 500 and Ksh 7,000. About 10 percent of loans are greater than Ksh 10,000. Higher income borrowers belonging to the top 20% of the consumption distribution access digital loans averaging Ksh 4,400, whereas borrowers in the bottom 40% access digital loans averaging Ksh 3,100 (Fig. 4.5).

Although wealthier digital borrowers obtain higher sized loans in absolute terms, the poorest digital borrowers obtain a significantly higher share of their household's monthly per-capita consumption in loan value. For example, digital borrowers in the top 20% of the consumption distribution obtain loans equivalent to an average of over a third of their household's monthly consumption budget per person, while individuals in the bottom 40% of the consumption distribution obtain loans equivalent to an average of a full month's consumption budget per person (Fig 4.7).

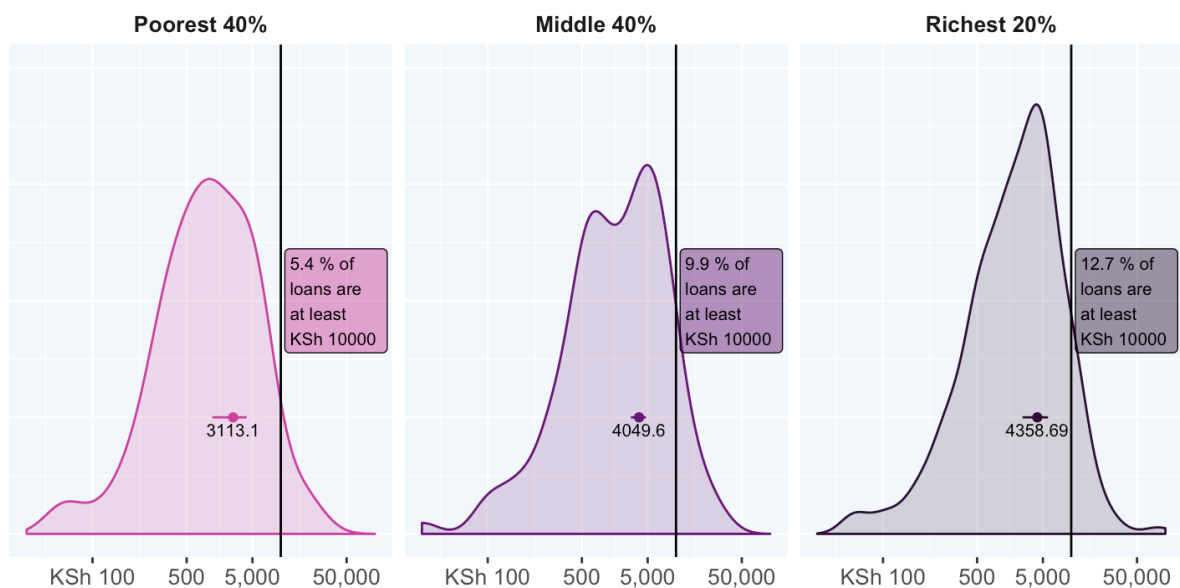
The distribution of digital loan sizes

Fig 4.4: All digital borrowers



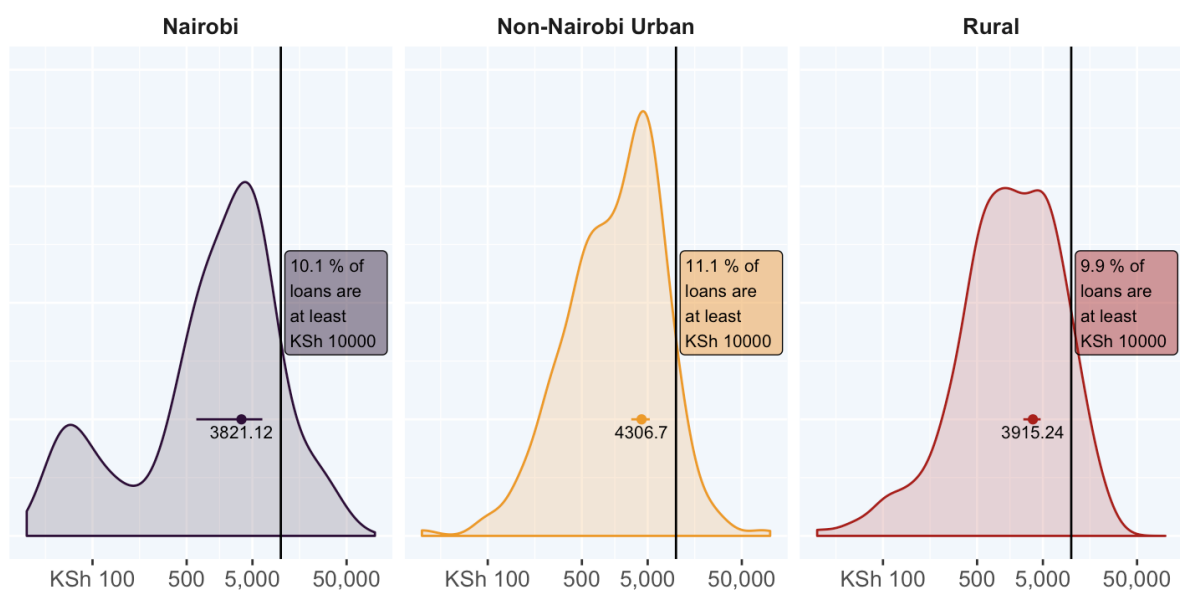
Source: 2015/16 Kenya integrated household budget survey. Notes: The sample mean and 95% confidence interval is shown.

Fig 4.5: By consumption group



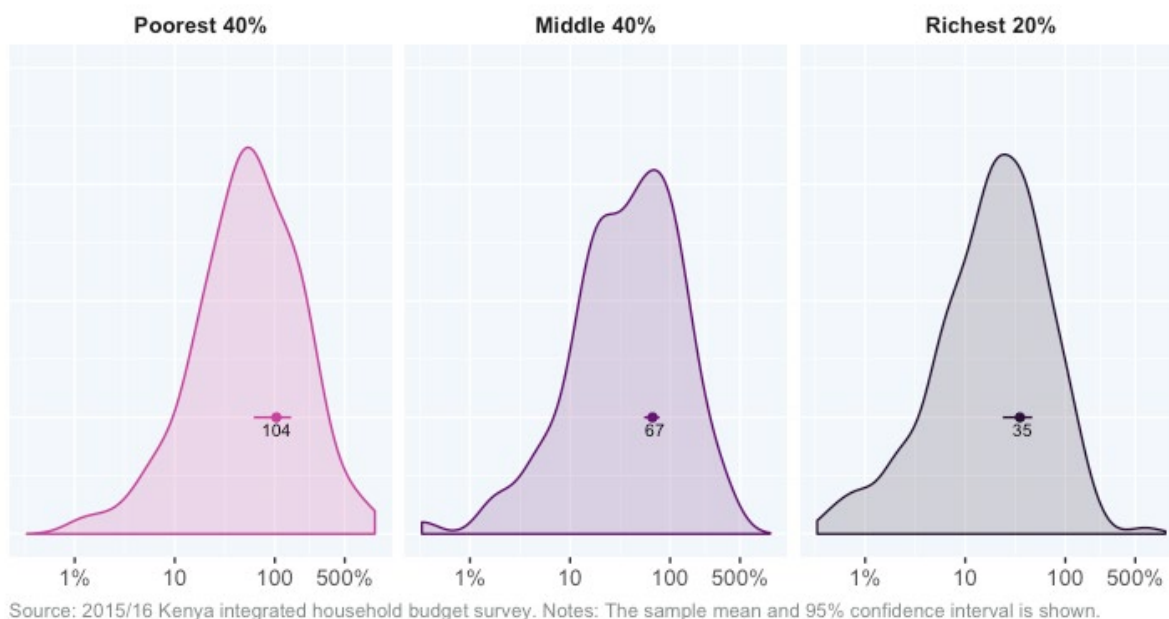
Source: 2015/16 Kenya integrated household budget survey. Notes: The sample mean and 95% confidence interval is shown.

Fig 4.6: By location



Source: 2015/16 Kenya integrated household budget survey. Notes: The sample mean and 95% confidence interval is shown.

Fig 4.7 Loan size as share of monthly household per-capita consumption



5. Which population segments have adopted mobile borrowing?

Adoption of digital credit has been greatest among adults in urban areas (Fig 5.1). **In Nairobi, about 1 in 2 mobile phone owners have used digital credit.** In urban areas outside of Nairobi, slightly fewer - about 45 percent - have borrowed from mobile loan providers. **Rural mobile phone owners are about half as likely as those in urban areas to have used digital credit.**

Men are more likely to take mobile loans than women - especially in rural areas - but the differences are relatively small. In rural areas, men are about 25 percent more likely to have taken a digital loan than women, while in Nairobi and other urban areas, the percent differences in borrowing are 7 and 11 percent, respectively (Fig 5.8). Among digital borrowers, men are much more likely to juggle more than one loan at a time (Fig 5.18 through Fig 5.21). On average about 1 in 3 male digital borrowers have more than one outstanding digital loan, compared to about 1 in 7 female digital borrowers. This gap is smallest among business owners (Fig 5.20): About 23% of female business owners who borrow digitally have concurrent loans compared to 29% of male business owners who borrow digitally.

Fig 5.2 displays the share of mobile phone owning digital borrowers for segments of the population defined by location, gender and age. The general pattern observed previously holds: urban areas have almost twice the mobile credit adoption rates and differences in adoption by gender are relatively small. **However, age differences in adoption are very pronounced among mobile-owning women in rural areas: women under the age of 30 are about 50 percent more likely to have used or be using digital credit compared to women over 30 years of age.** Rural women under the age of 30 are more active digital credit users than men of their same age cohort, whereas the opposite is true in urban areas.

Fig 5.14 shows the number of active digital borrowers per 100 inactive digital borrowers by demographic segment. A value of 100 means that there are equal numbers of active to inactive borrowers in a particular segment. Overall, active borrowers outnumber inactive borrowers across most population segments by close to a factor of 2. Three demographic groups have active borrowers that are more than double in size than inactive borrowers: urban, males over the age of 30, urban, females under the age of 30 and rural, females over the age of 30. **Rural, males under the age of 30 have the smallest share of active digital borrowers (9.2 active borrowers for every 10 inactive borrowers) across all demographic groups.** This may suggest that young men in rural areas have either had poor experiences with digital credit, mismanaged their first loans or have not found digital borrowing particularly value adding, relative to other groups.

Digital borrowing is most common among mobile owners who are wage employed or run their own business and least common among those in agriculture or who are dependent on social transfers (Fig 5.3). **1 in 2 mobile owners who are wage employed use digital credit compared to only 1 in 4 mobile owners in agriculture.** It is worth noting that if the need for credit is related to income volatility (to bridge income shortfalls), one would expect to see higher usage rates for more vulnerable livelihoods such as agriculture and casual work. However, this is not the case. This pattern could be related to aspects of the automated credit scoring decisions and that data that feeds into those decisions that make it more difficult for these groups to gain access to loans. It may also be that the more volatile your income, the more you are afraid of taking loans as your ability to repay is uncertain. These factors are explored in [section 6](#).

In addition to being the most common users of digital credit, employed workers are by far the most active borrowers: Among employed workers, active digital borrowers outnumber inactive ones by a factor of 3. Digital borrowers that depend on casual work or agriculture are the least active (Fig 5.3). To the extent that frequent and repeated usage of digital credit requires a sustained ability to pay back the principle and interest on short term loans, this pattern is perhaps not surprising. But this is still puzzling in the sense that if workers with more stable income profiles need small value, short term credit less, on average, than workers with unstable incomes, why are they using digital credit so frequently? It may be that it is lower-skill, low-wage earners with limited savings capacity that are driving a large share of the demand for digital loans, perhaps as a salary advance, in order to make ends meet between paychecks. Some [anecdotal evidence](#) supports this argument.

While 1 in 2 mobile owners in the wealthiest 20% of the population use digital credit, only 1 in 5 of the poorest 20% do. (Fig 5.4). However, the number of active to inactive borrowers among the poorest and richest mobile owners are similar. With about twice the number of active to inactive borrowers, the middle 40% of the population in wealth terms is the most active segment (Fig 5.16).

Educational attainment is strongly associated with digital borrowing and the relationship holds irrespective of the location or wealth of the household (Fig 5.10, Fig 5.11). Overall, mobile owners who have some level of tertiary education are almost three times as likely to be digital borrowers than mobile owners with primary education or less. **The fact that education related differences persist when controlling for wealth suggests that digital borrowing is facilitated by skills or networks (not just the income flow) that more education makes possible.**

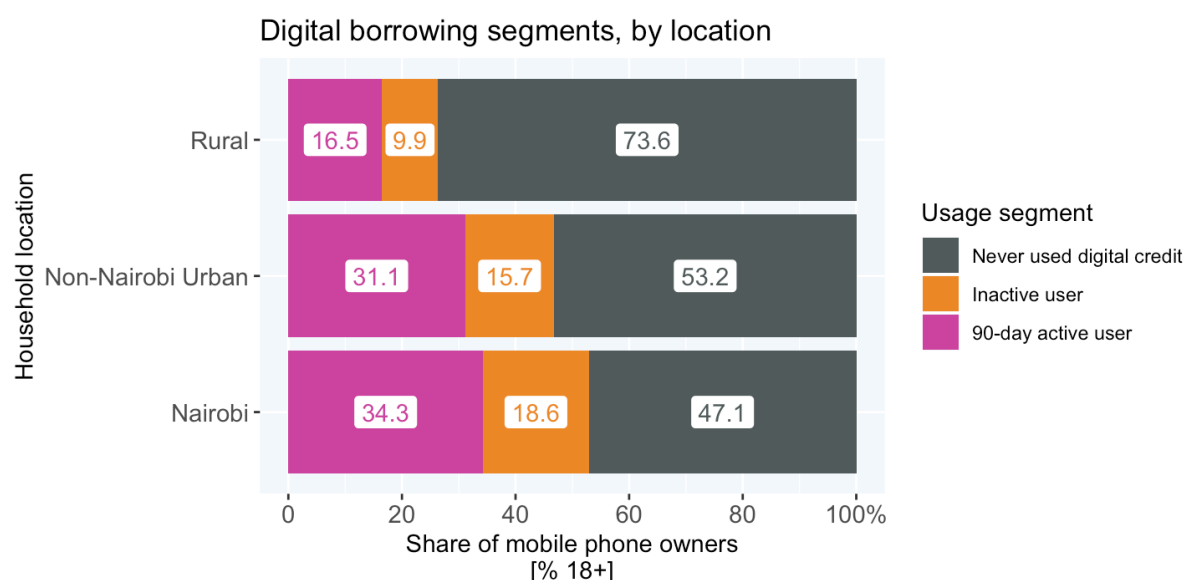
On average, the most vulnerable mobile owners are neither more common nor more active users of digital credit than the least vulnerable⁵ (Fig 5.12). If vulnerability is a proxy for the degree to

⁵ To explore whether vulnerability is associated with the propensity to borrow digitally, a variable based on five of the questionnaire items was created: (1) I often have trouble making money last between the times I get money, (2) Over the last year you had to sell some assets or borrow to repay a loan, (3) In the last 12 months your family has gone without enough often or sometimes, (4) In the last 12 months your family has gone without medicine often or sometimes, (5) I cannot obtain approximately one month of income within

which an individual faces more severe or frequent liquidity challenges (i.e. the ability to access cash-equivalents to meet short term needs), then the data suggests that digital credit is not a preferred instrument to alleviate those challenges. **However, among the poorest 40% of the mobile owning population, more vulnerability is associated with less digital borrowing.** This pattern might be explained by the interaction between risk aversion and ability to repay. People with both low and volatile incomes with a relatively stronger need for liquid financial resources may nonetheless be more reluctant to take on a strict repayment obligation that they themselves know they may not be able to honor especially when terms are inflexible and not repaying carries uncertain risks or additional penalties. Among higher income individuals, a decline in demand for digital loans associated with more vulnerability is not evident possibly due to the fact that greater ability to draw on current income or reserves lowers the perceived risk of taking out short term loans. [Section 6](#) examines the role of fear in driving avoidance of digital credit, even when a need for credit exists and [Section 11](#) examines the importance of vulnerability in the demand for digital credit controlling for other factors

Digital borrowing segments, by population subgroups, 2017

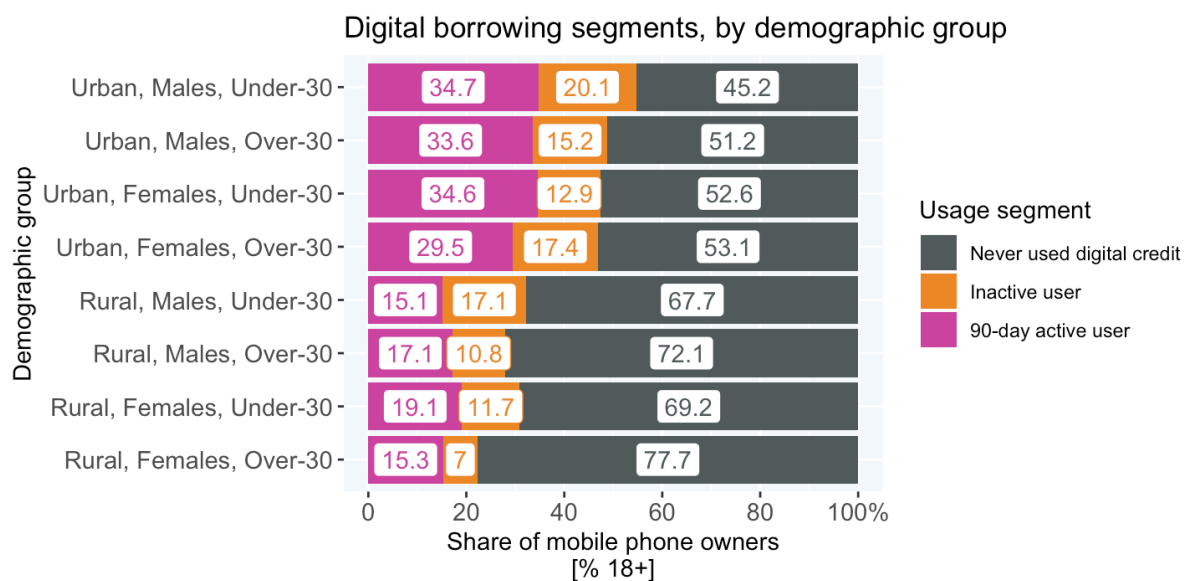
Fig 5.1: By location



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

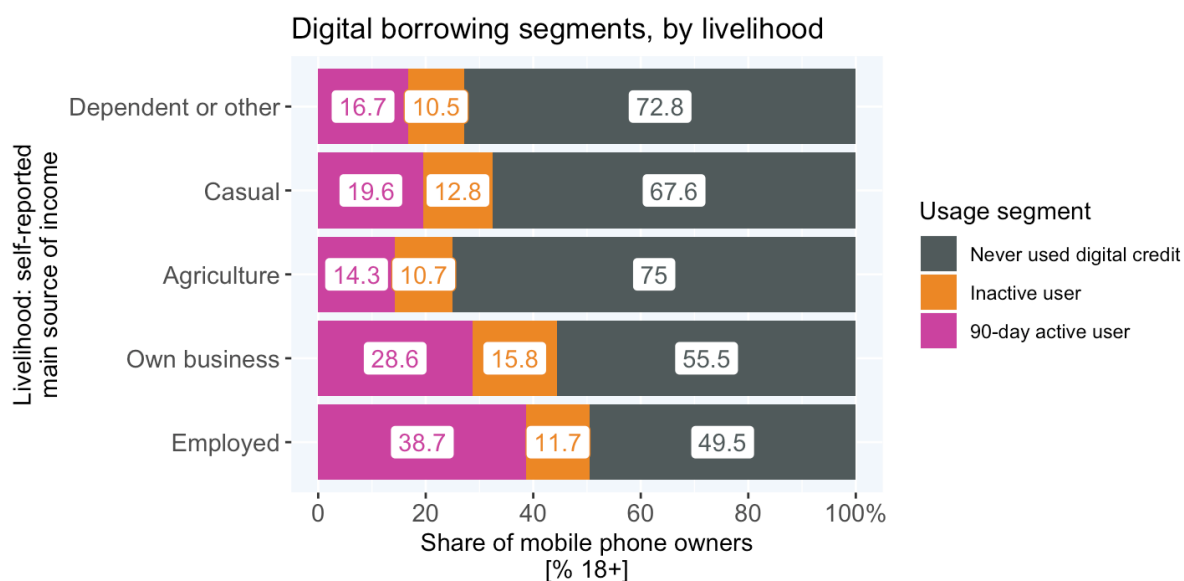
three days in the case of an emergency. If 3 or more of these statements are true, a respondent is classified as having "severe" vulnerability, if 1 or 2 are true, a respondent is classified as having "moderate" vulnerability, if none are true, a respondent is classified as having "low" vulnerability.

Fig 5.2: By demographic group



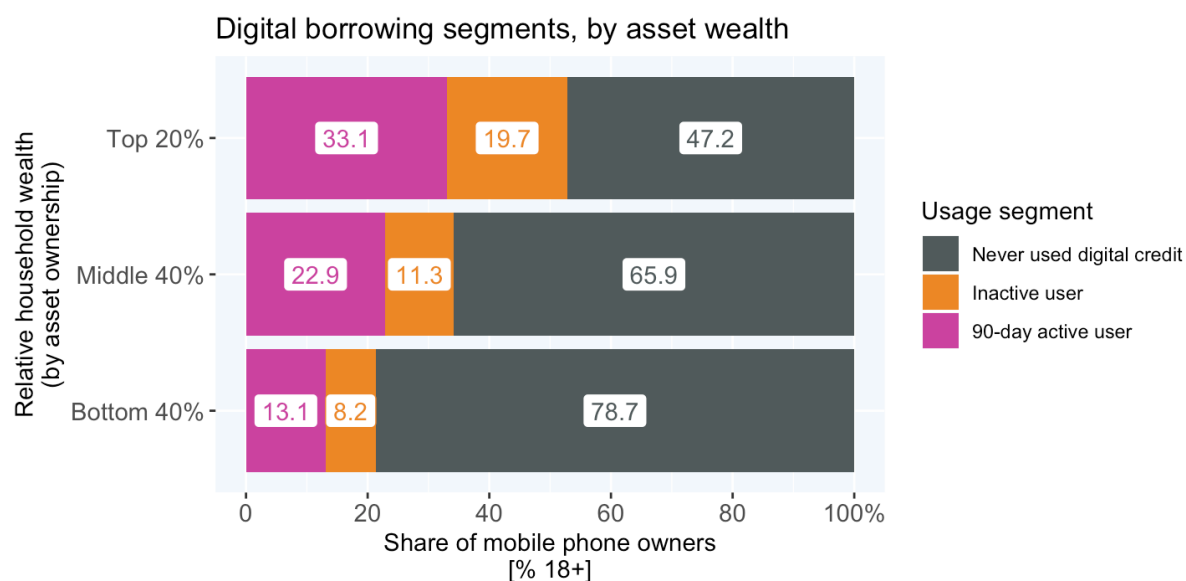
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 5.3: By livelihood



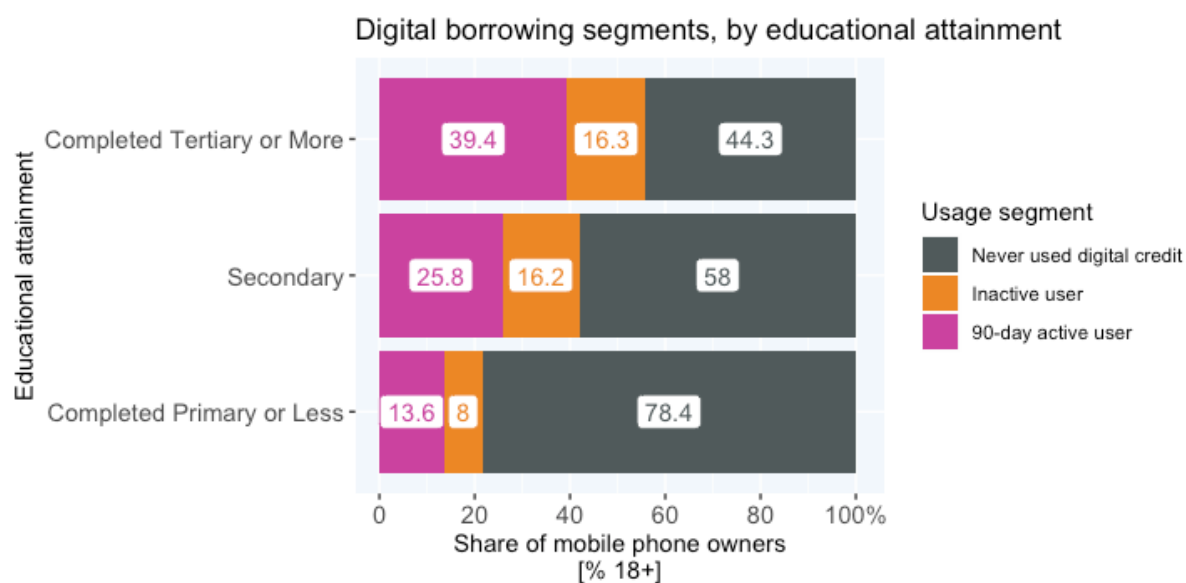
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 5.4: By wealth



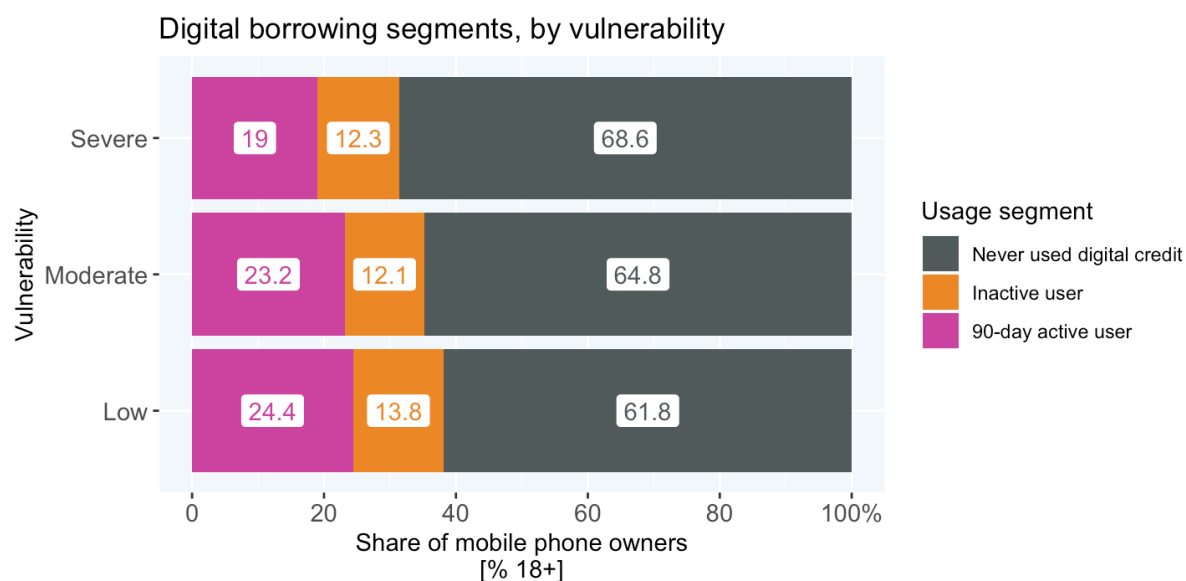
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 5.5: By education



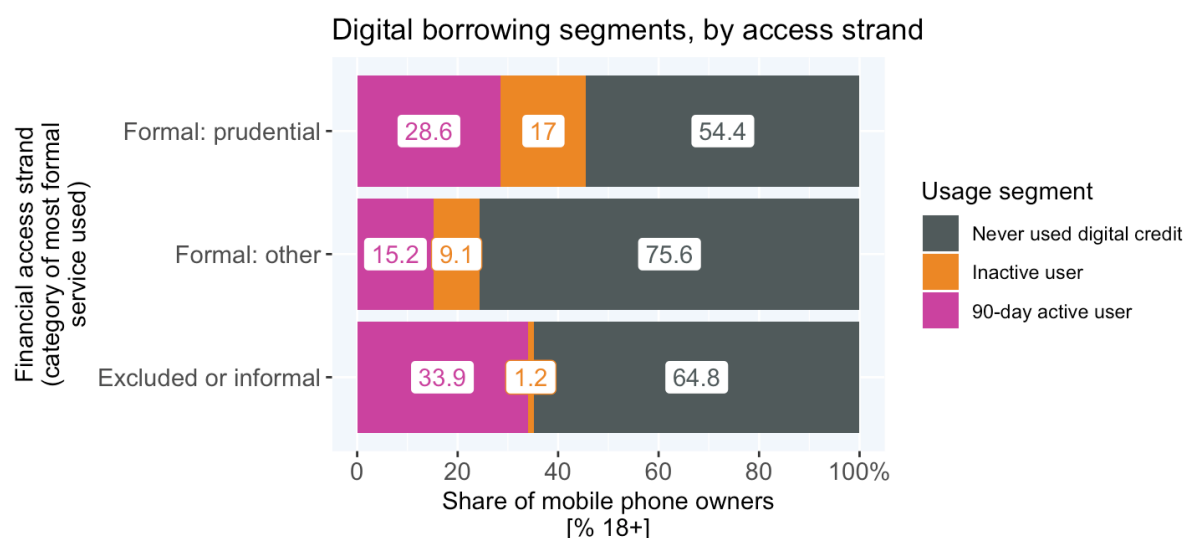
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 5.6: By vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 5.7: By access strand



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Notes: Access strand represents the access strand the respondent would otherwise be assigned to if not for digital credit.

Digital borrowers, by population subgroups, 2017

Fig 5.8: By location & gender

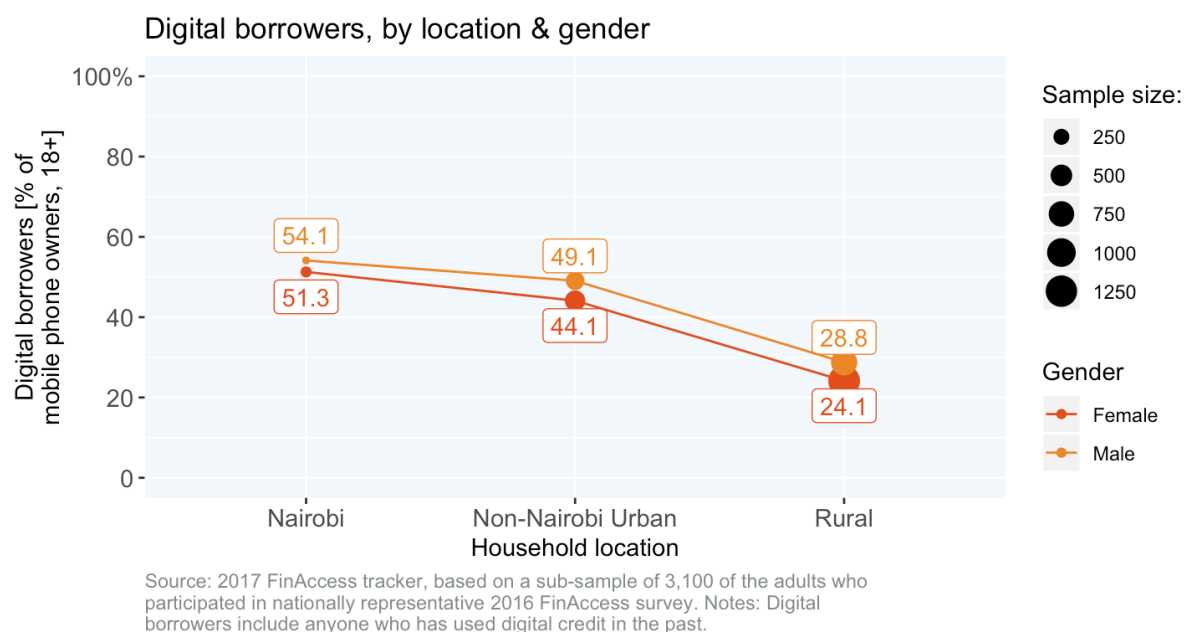


Fig 5.9: By livelihood & gender

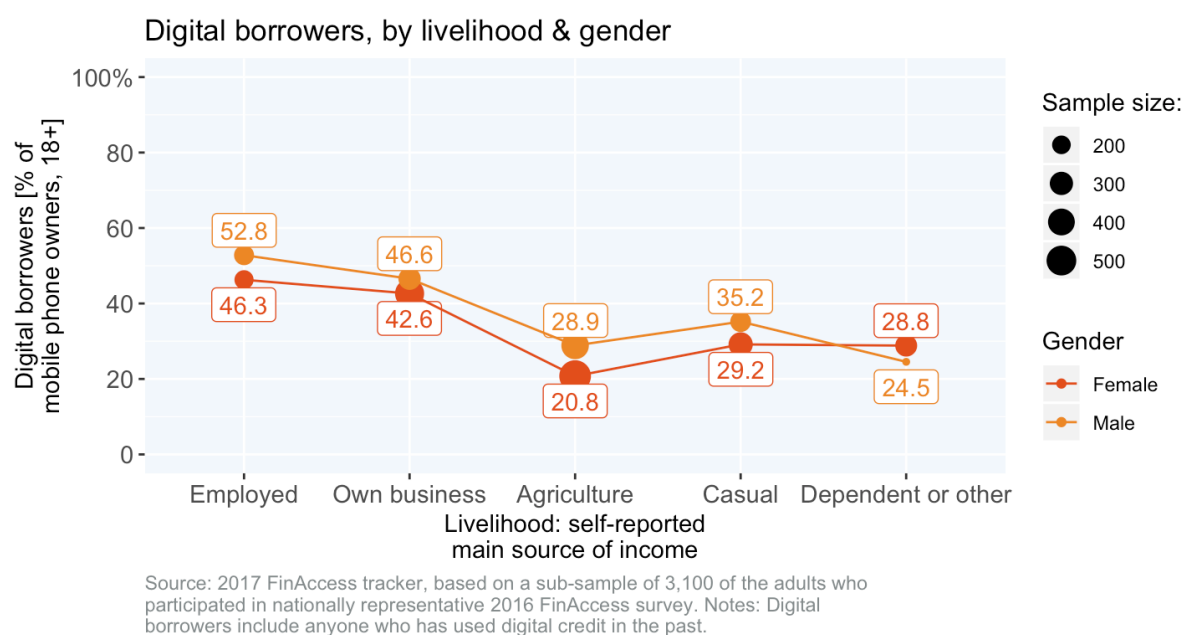


Fig 5.10: By education & location

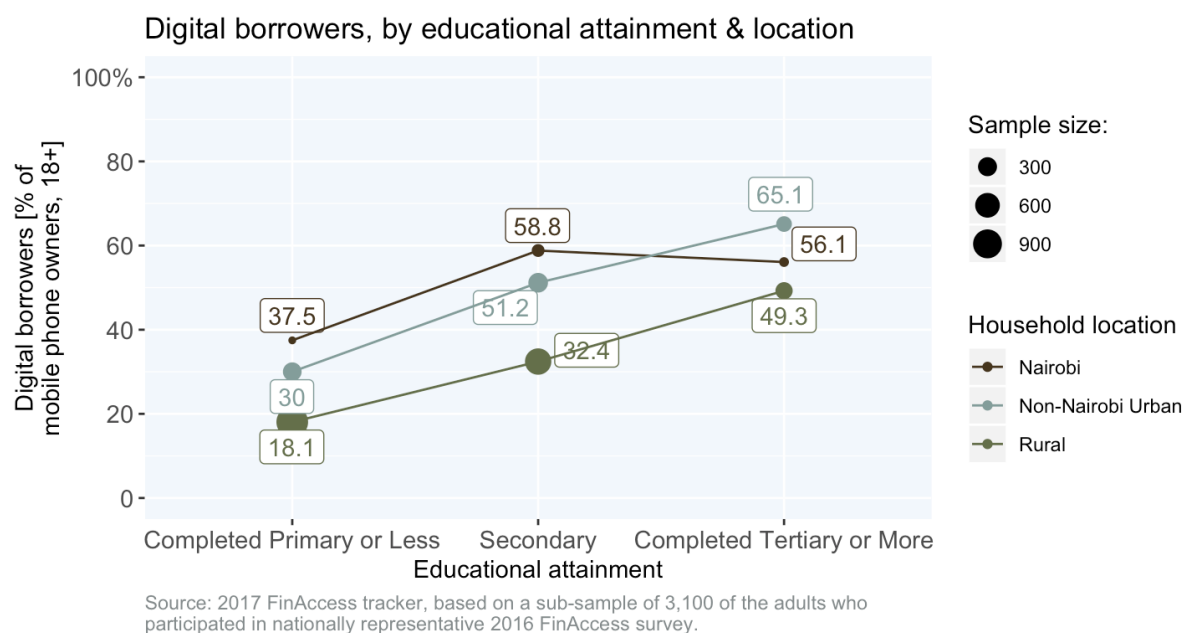


Fig 5.11: By education & wealth

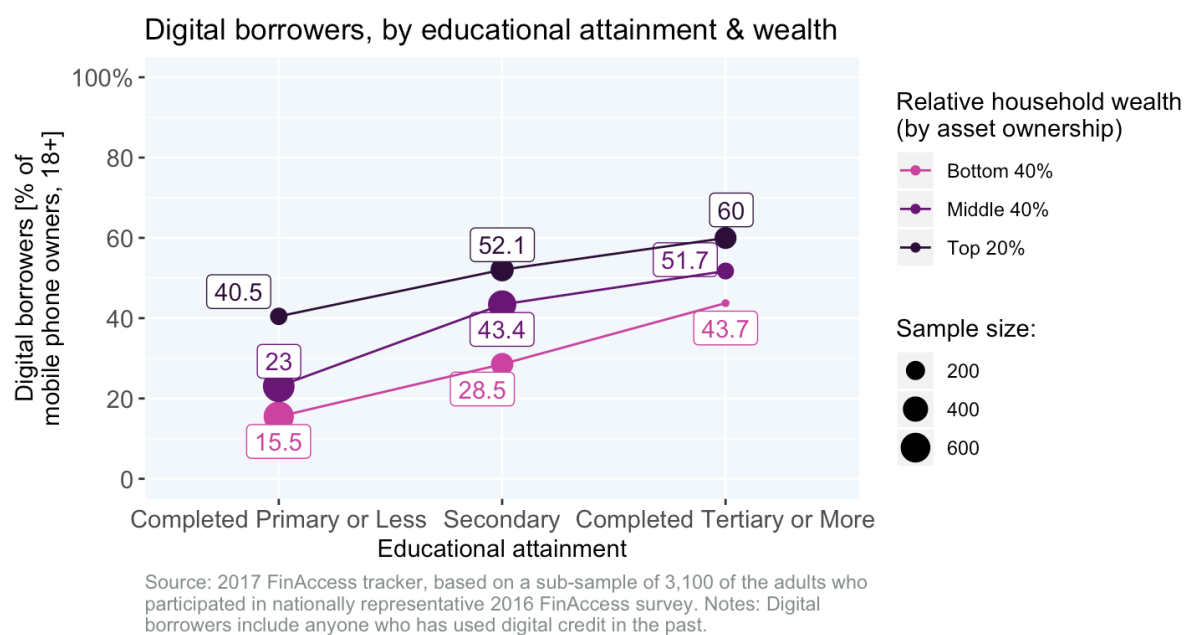


Fig 5.12: By vulnerability & wealth

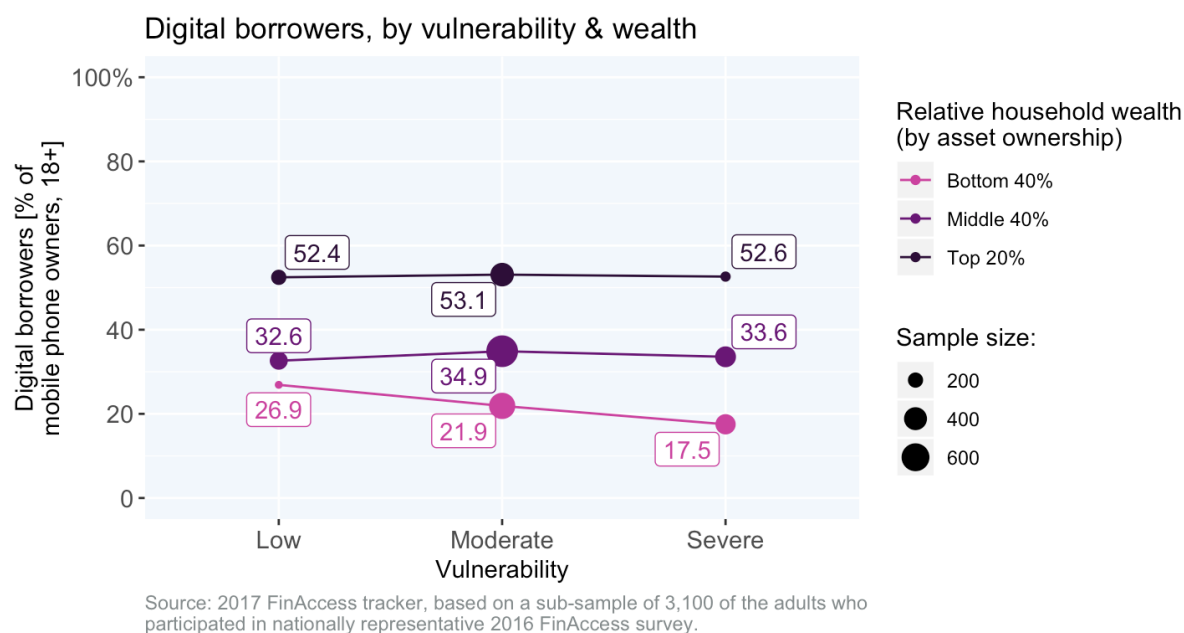
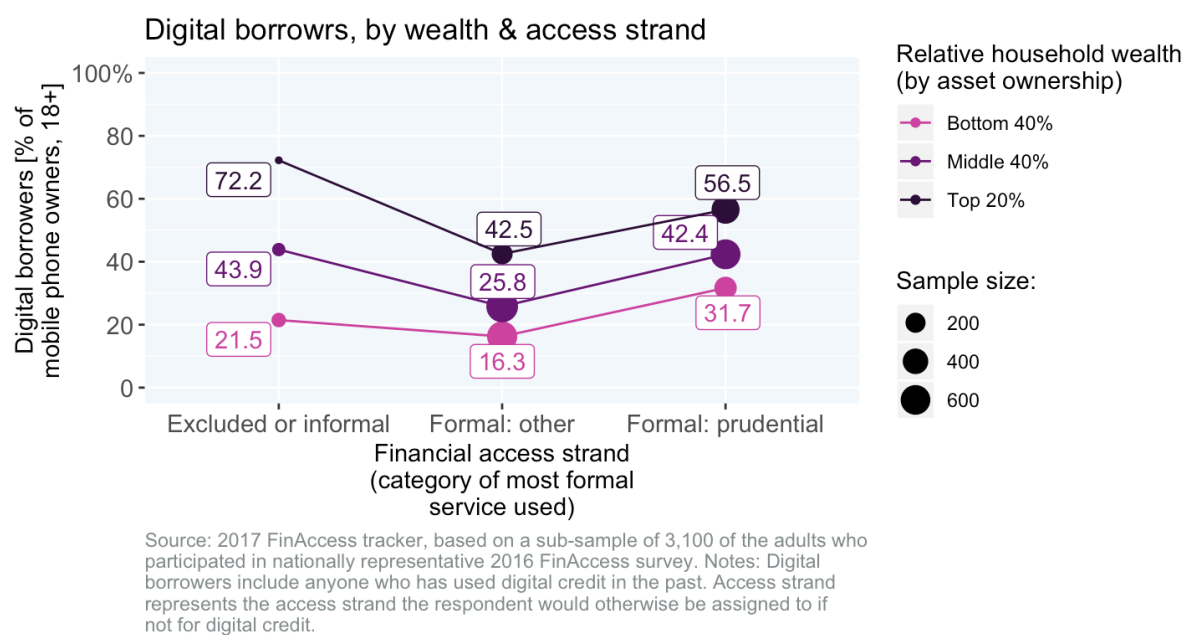


Fig 5.13: By wealth & access strand



Active per 100 inactive digital borrowers, by population subgroups, 2017

Fig 5.14: By demographic group

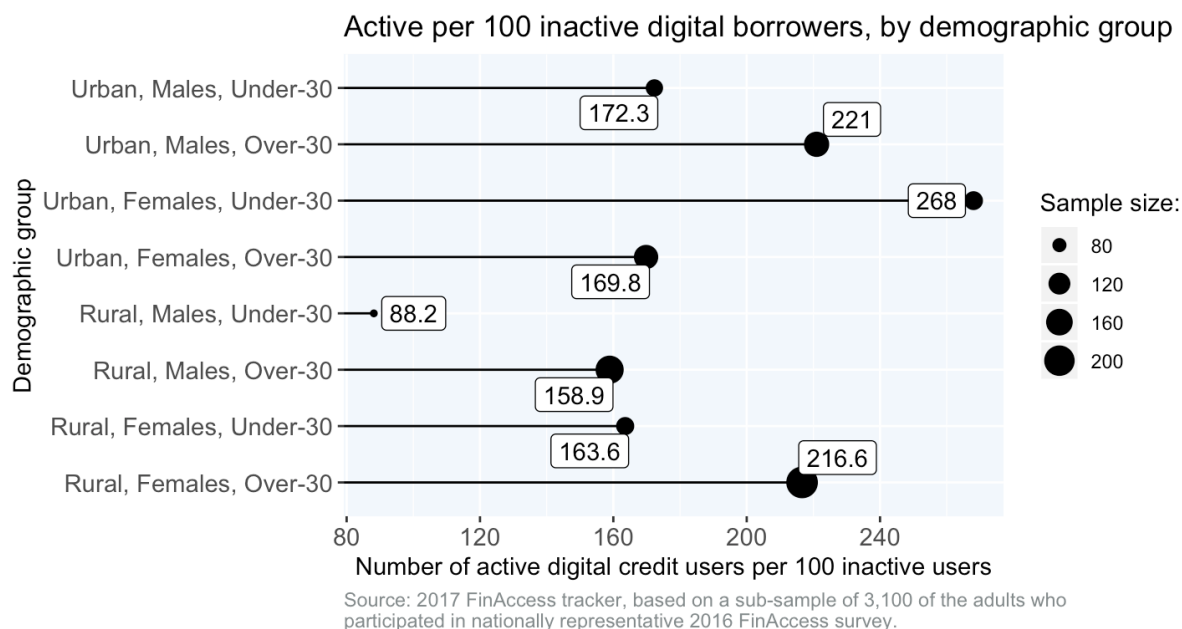


Fig 5.15: By livelihood

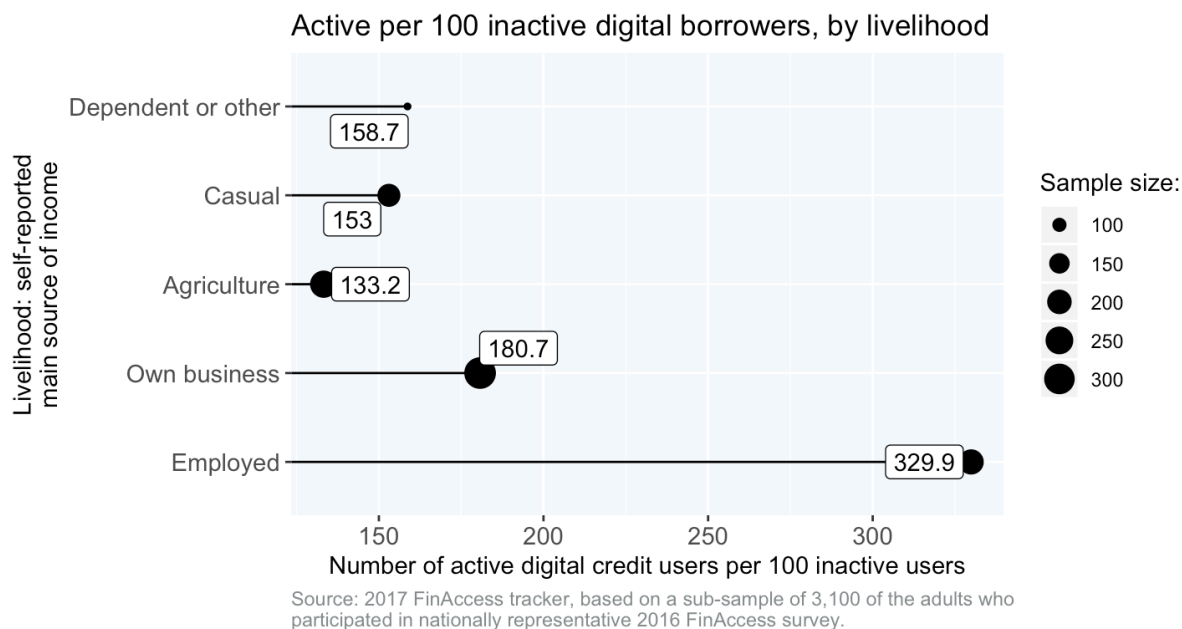


Fig 5.16: By wealth

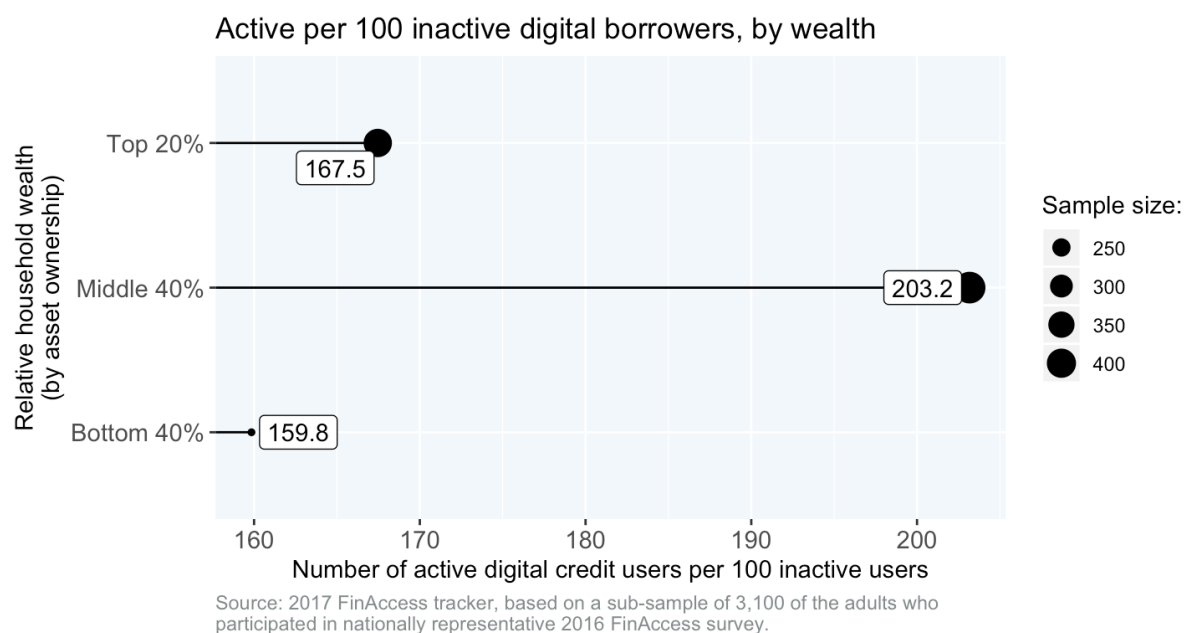
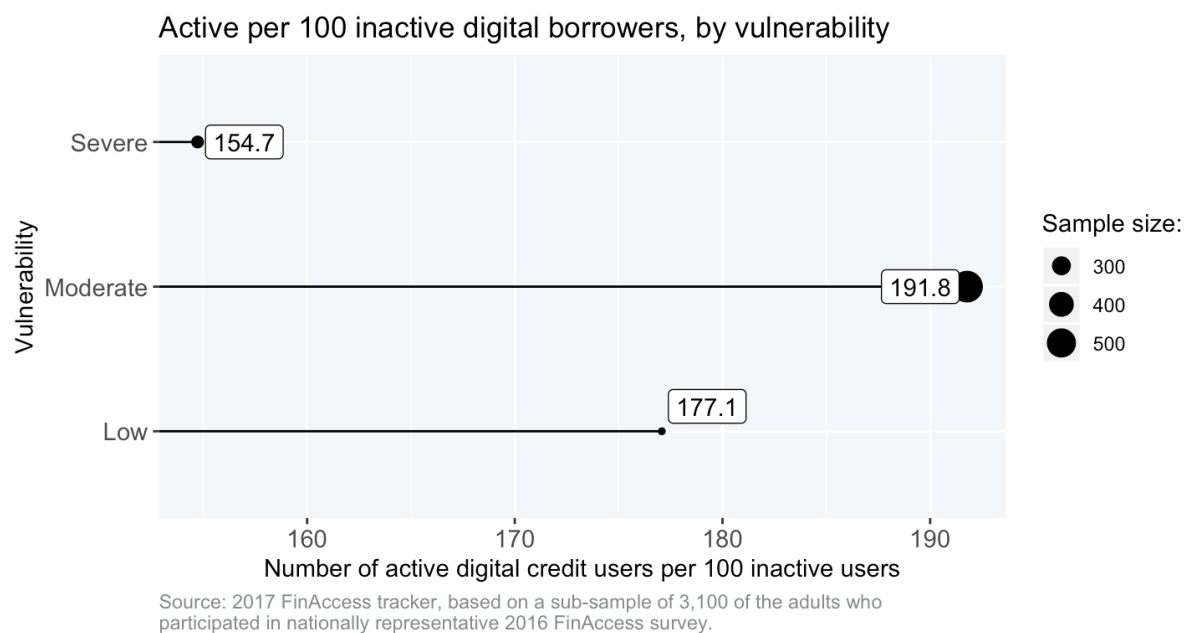


Fig 5.17: By vulnerability



Concurrent digital borrowing, by population subgroups, 2017

Fig 5.17: By location & gender

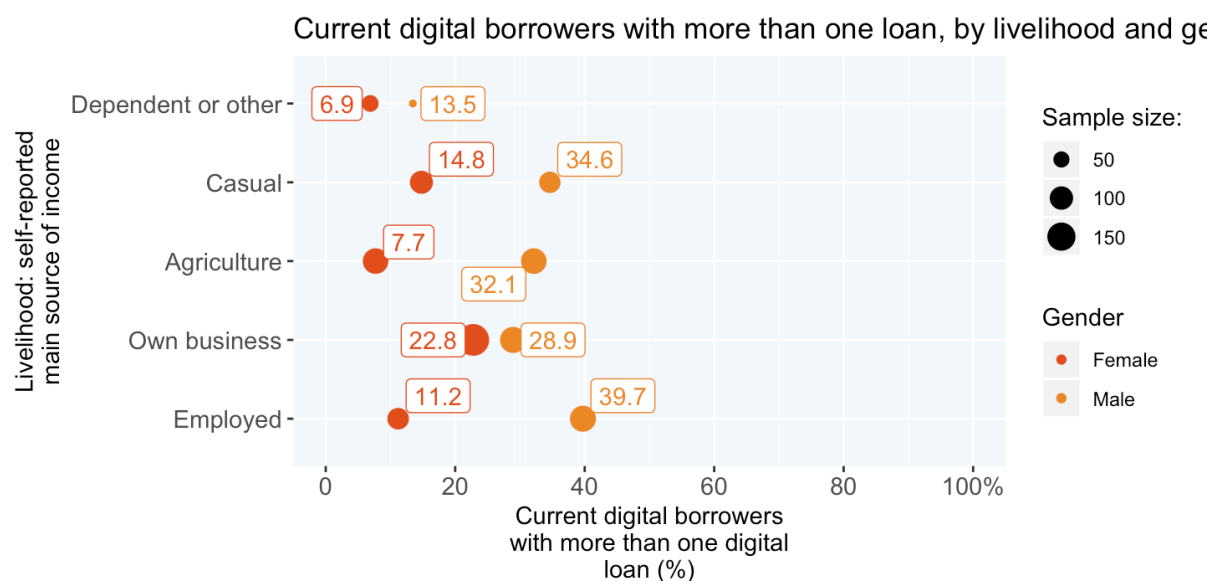


Fig 5.18: By demographic group

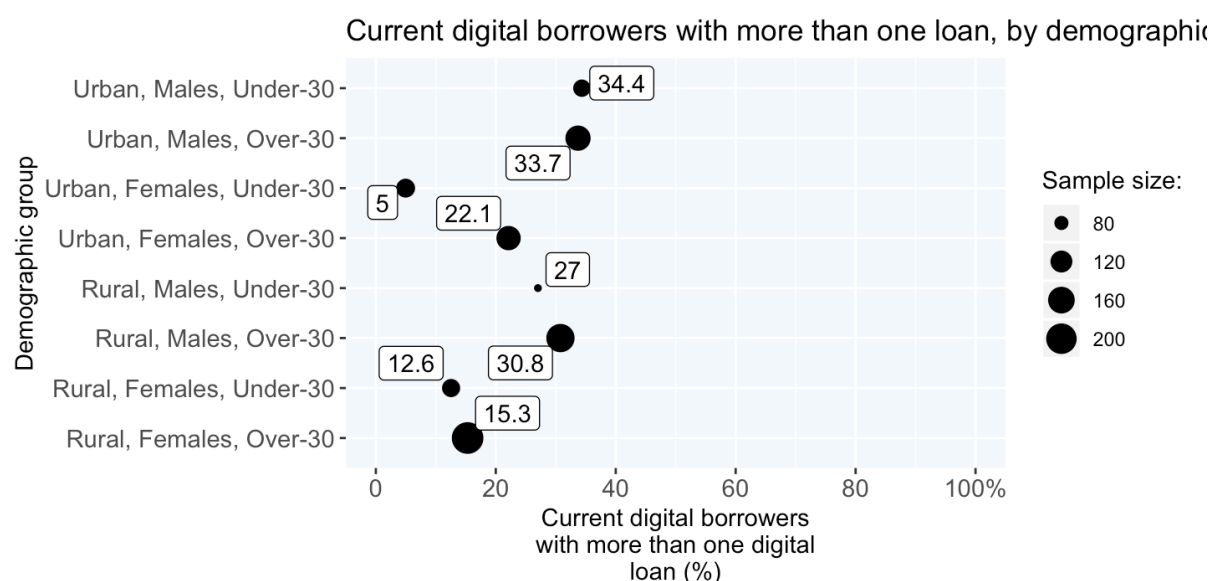


Fig 5.19: By livelihood & gender

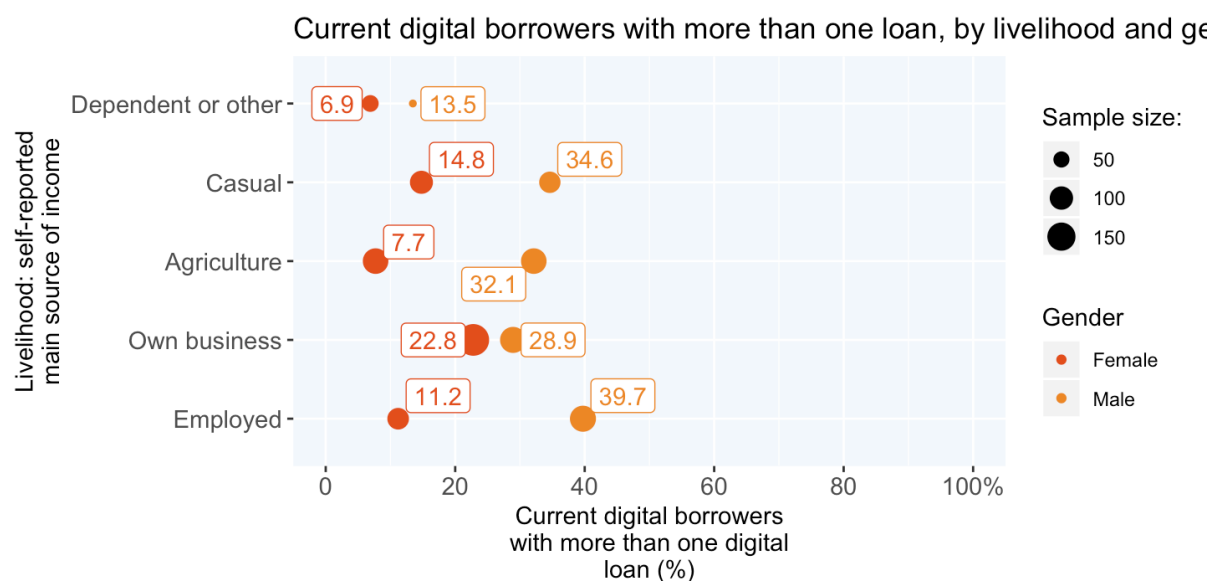
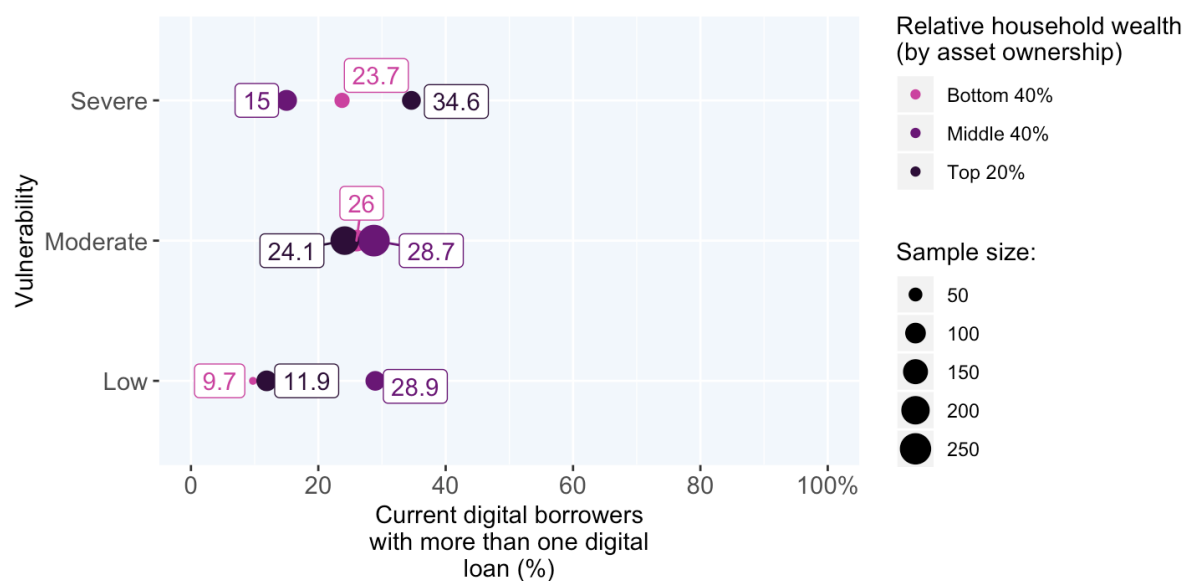


Fig 5.20: By vulnerability & wealth



Adoption of digital credit conditional on need, by population subgroups, 2017

Fig 5.21: By livelihood & gender

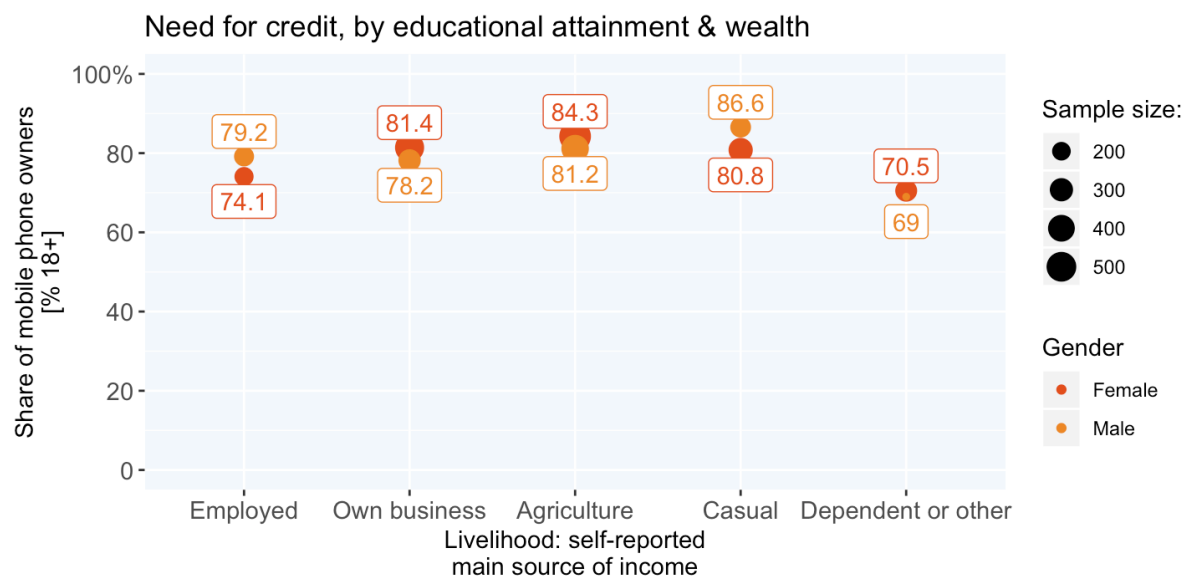


Fig 5.22: By livelihood & vulnerability

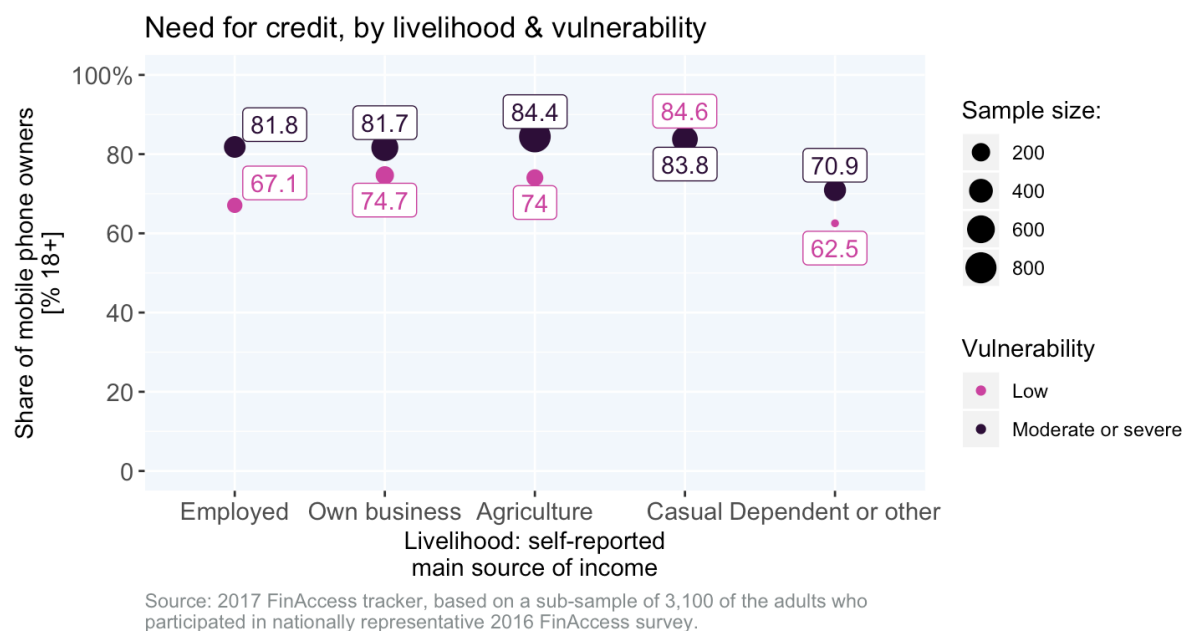


Fig 5.23: By livelihood & gender

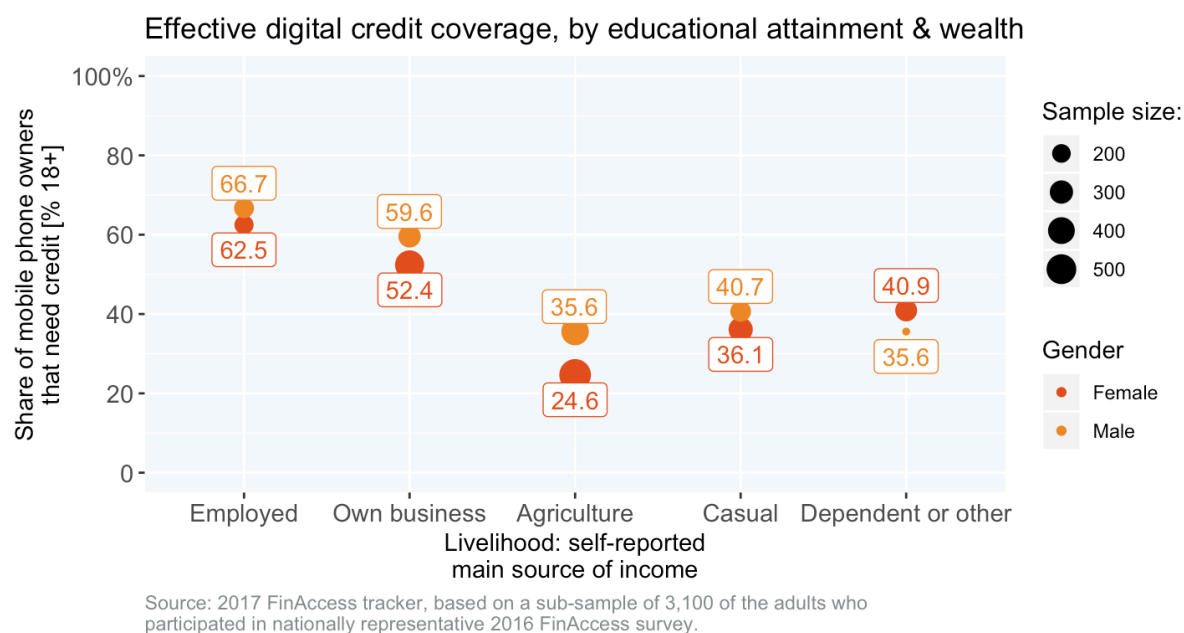
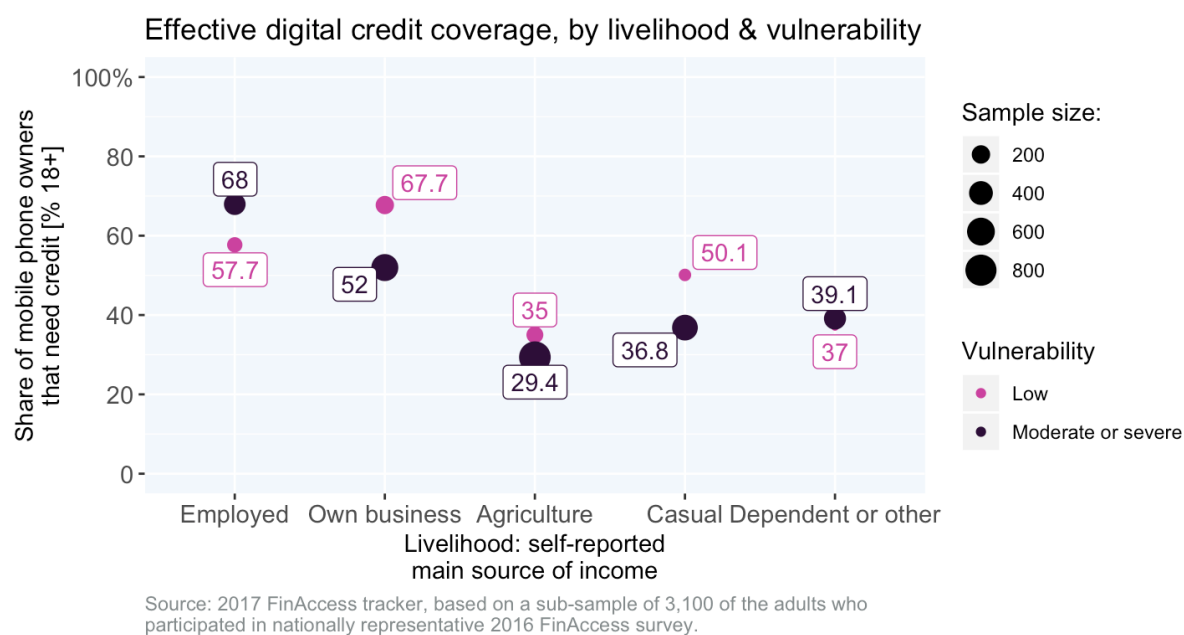


Fig 5.24: By livelihood & vulnerability



6. Why do people take or avoid digital loans?

Fear of loans, lack of need and lack of awareness are the three most common reasons that mobile owners do not borrow digitally. The three least common reasons were dislike of certain product features (such as the size of the loan or the loan period), lack of trust and lack of account requirements (such as not having a mobile money account).

Women were about 35 percent more likely than men to cite fear as a reason for not borrowing (Fig 6.1). Agricultural and casual workers were also substantially more likely to cite fear as a reason for avoiding digital loans than employed workers (Fig 6.3). In addition, individuals with greater vulnerability were also more likely to cite fear and lack of awareness as key reasons they avoided using digital credit compared to less vulnerable (Fig 6.4).

Not needing a loan was a key reason young, urban men, the employed and the wealthiest mobile owners avoided digital credit. Lack of awareness was a key reason mobile owners in rural areas (with the exception of men under the age of 30), the poorest 40% and agricultural workers had not used digital credit (Fig 6.2, Fig 6.3).

About 1 in 4 rural, males under the age of 30 cited that not qualifying was a reason they had not taken a digital loan (Fig 6.1) suggesting that this group may be more likely labelled as ineligible for loans by the credit scoring mechanisms used to determine creditworthiness.

Convenience and disbursement speed are the two primary reasons digital borrowers prefer digital loans to other types of loans. These perceived advantages are consistent across most population segments. Overall, close to 3 in 4 digital borrowers cited convenience as a key advantage of digital credit, while 41 percent cited disbursement speed. The three least commonly reported advantages, were fees, loan size and privacy (Fig 6.5). With almost 9 in 10 citing convenience, urban females under the age of 30 appeared to particularly value the ease with which they could access credit, relative to other groups. Rural youth, on the other hand, seem to disproportionately value disbursement speed as a key advantage of digital credit.

BOX 2: Early adopters of M-Shwari were motivated by curiosity and the desire to borrow

In 2012, FSD Kenya in collaboration with BFA and Digital Divide Data, conducted the [Kenya Financial Diaries study](#). Towards the end of the study, about 9% of the 298 households that participated had adopted M-Shwari, but only a third were able to access a loan. Interviews with these early adopters revealed that the possibility of accessing to credit, rather than the savings features, as well as curiosity motivated their decision to register for the service.

We asked M-Shwari customers why they had opened an account, their answers included: “[I] thought it would be handy to get quick loans when needed”, “to borrow a loan”, “to access its loan services”, “to get a loan when I need it”, “to experiment”, “to experience a new financial instrument”.

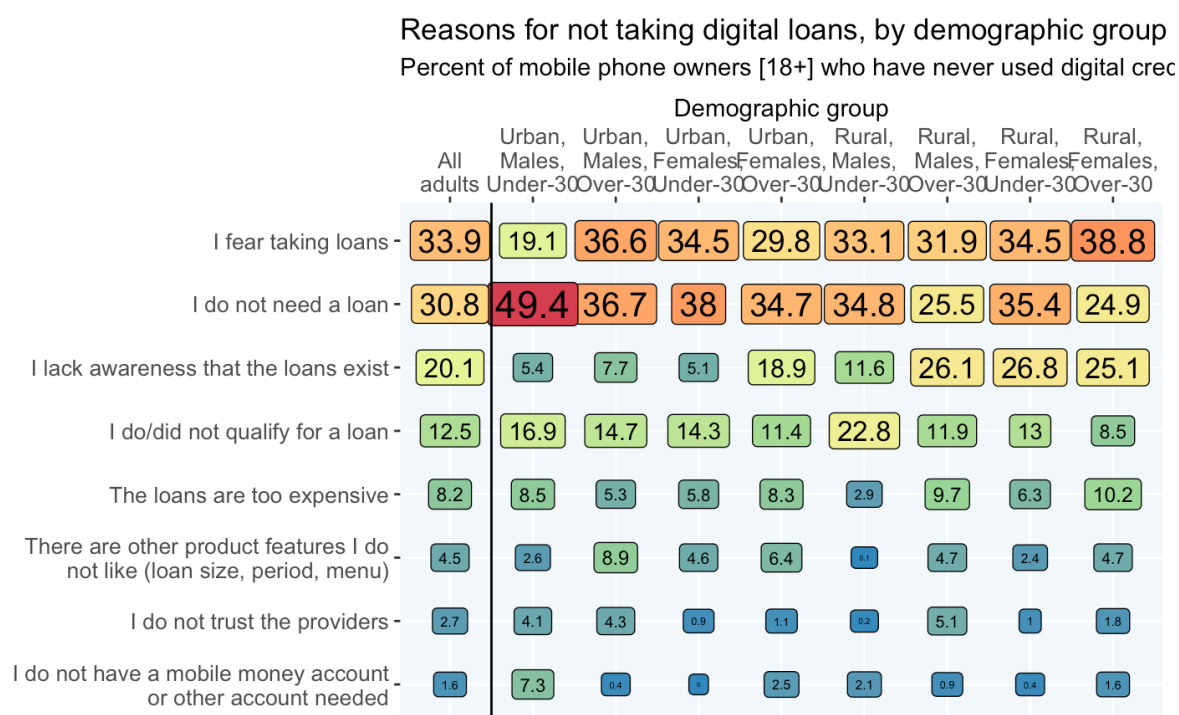
A member of the research team also noted how one borrower had discovered, through experimentation, how to increase the loan limit: “Eli has also learned how to go about the product. To increase his credit rating, whenever he is paid by M-PESA, he first of all takes it all to his M-Shwari

account and then withdraws it a few minutes later. He tells me 'They will look at how much and how many times I deposit, so I have to do it.' He then requests a loan, and he is given. His loan limit currently has been increased from Ksh2,000 to Ksh2,300."

[Read more about the Kenya Financial Diaries study](#)

Reasons people avoid digital credit, by population subgroups, 2017

Fig 6.1: By demographic group



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.2: By wealth

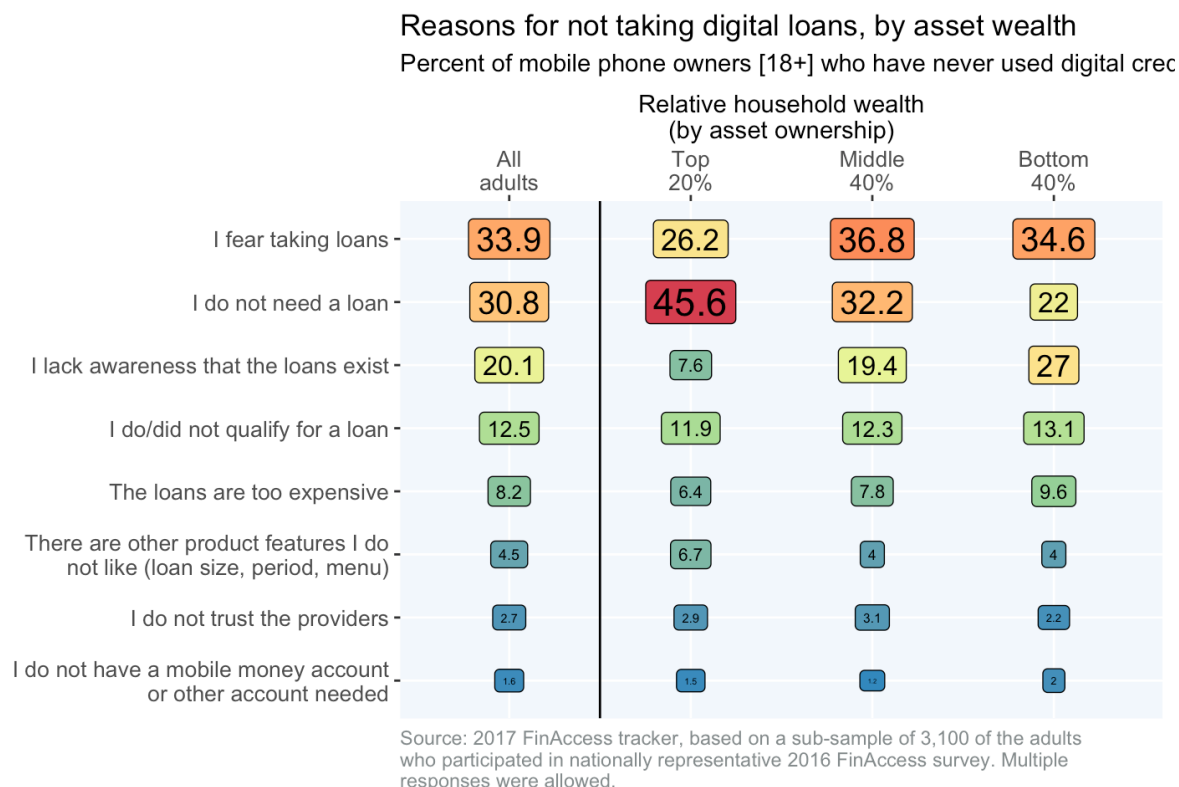


Fig 6.3: By livelihood

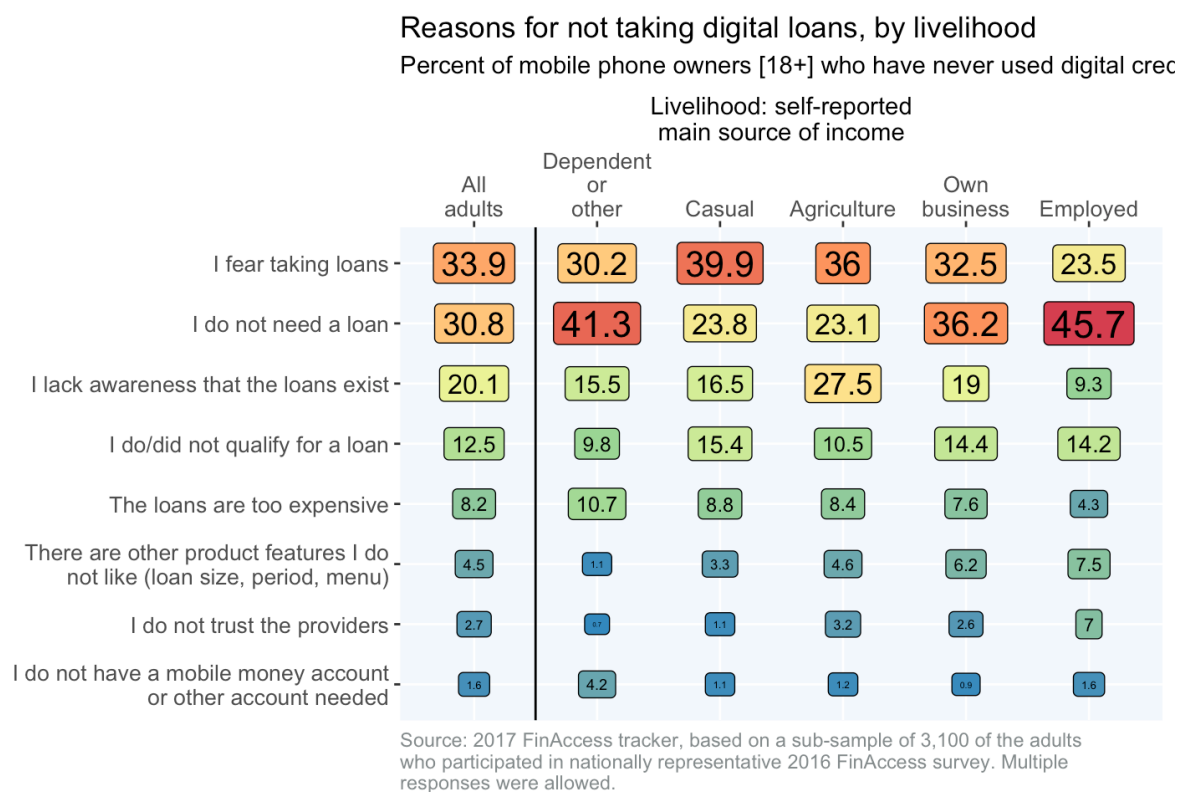
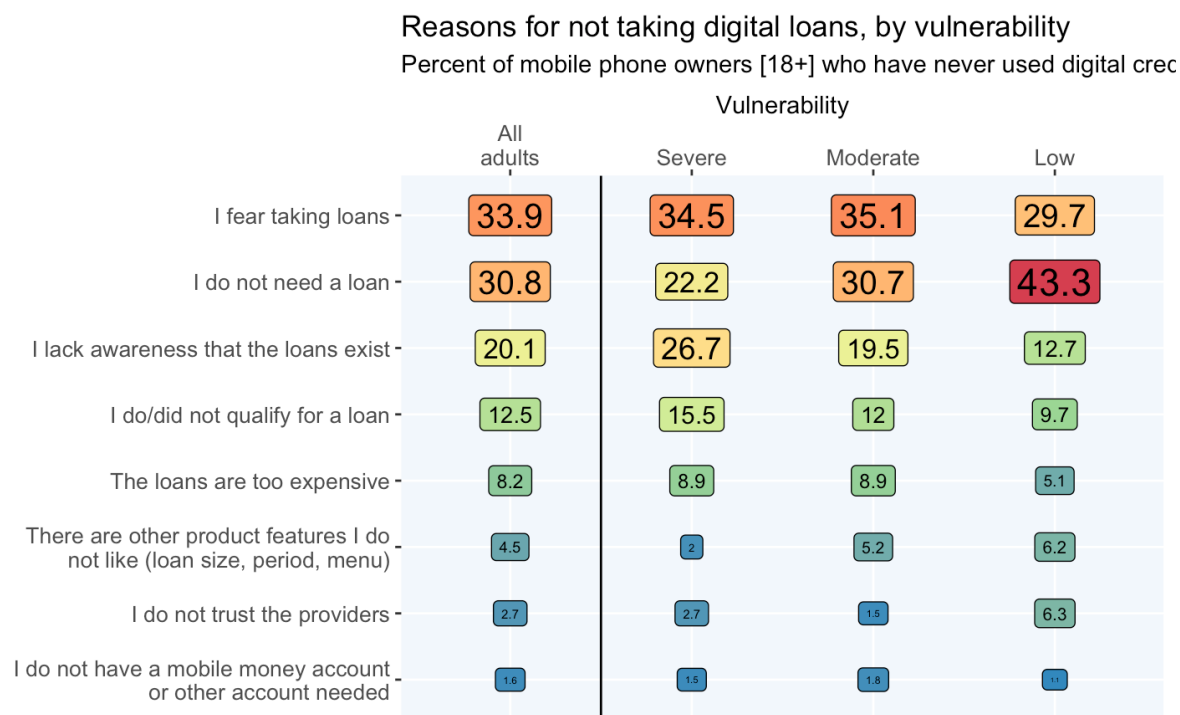


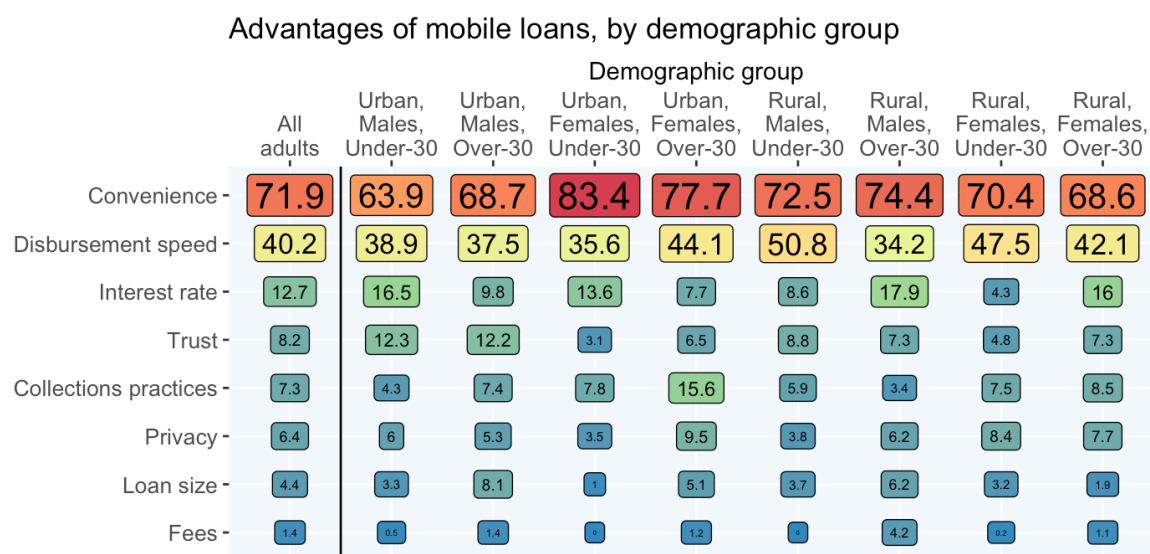
Fig 6.4: By vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

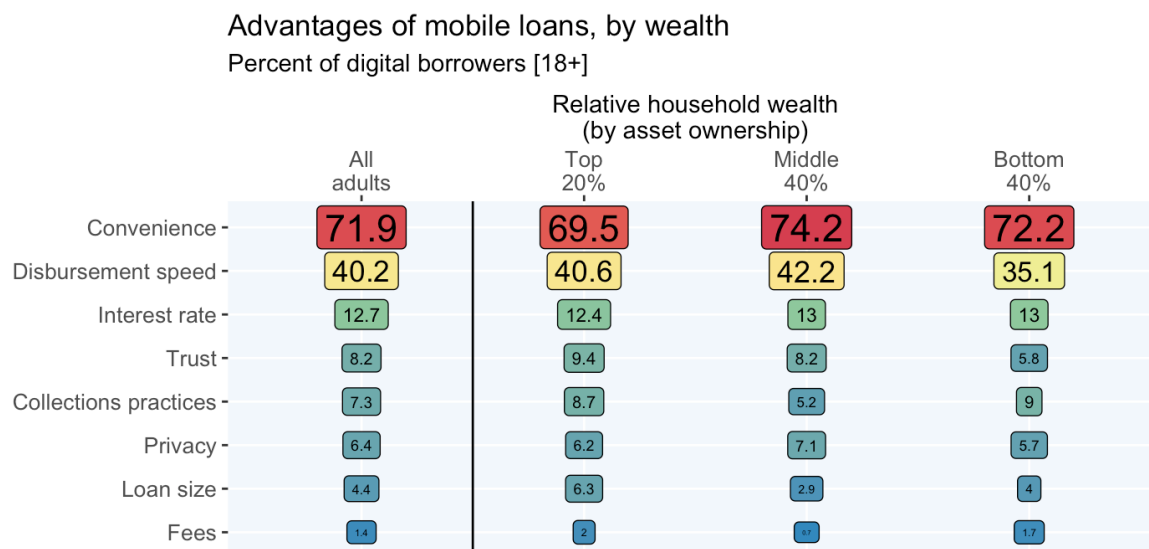
Reasons mobile loans are preferred to loans from other providers, by population subgroups, 2017

Fig 6.5: By demographic group



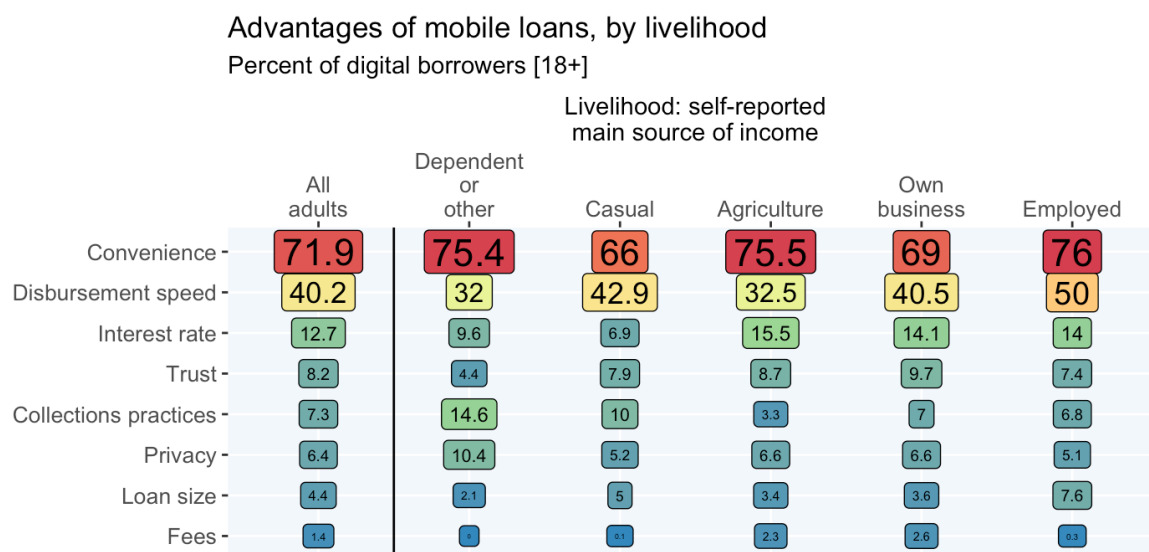
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.6: By wealth



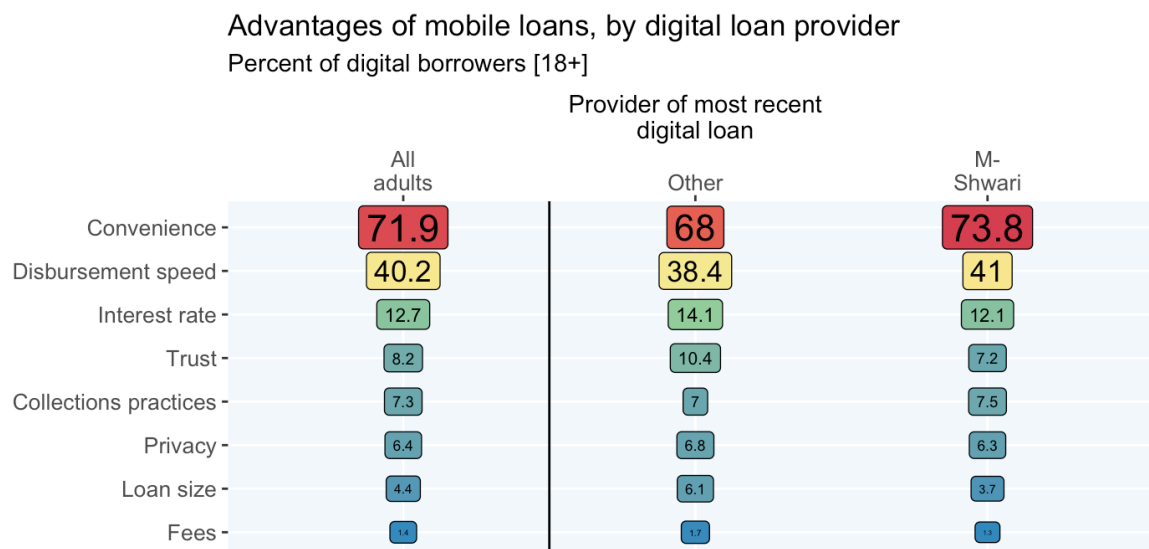
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.7: By livelihood



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.7: By digital loan provider



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Just over one in three digital borrowers reportedly used their most recent digital loan for a business or farm application or to meet ordinary day to day needs (Fig 6.9). The next most likely uses were to pay for education or to purchase airtime. The least commonly reported uses of digital loans was to cope with non-medical emergencies and to bet.

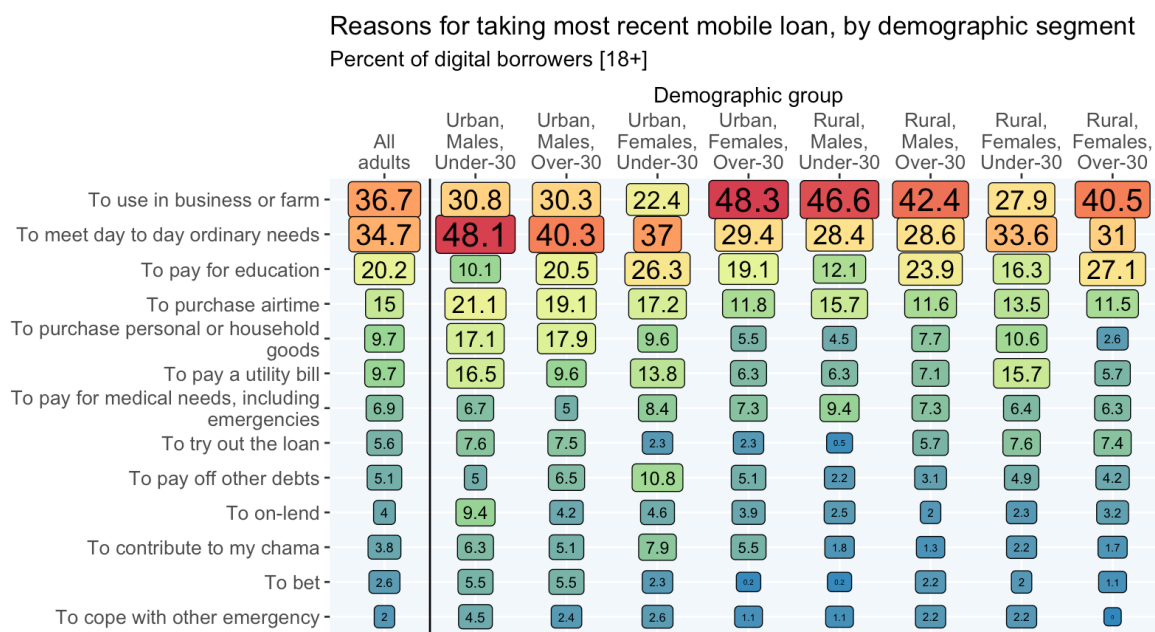
Using the most recent digital loan for meeting day to day needs was most common for urban, men under the age of 30 (45 percent), while a business or farm application was most commonly cited among urban, women over the age of 30 (Fig 6.9). **Rural, women over the age of 30 were relatively more likely to use their most recent digital loan to purchase airtime.** Urban men and women under the age of 30 reported the most diverse set of use-cases for their most recent loan.

The poorest digital borrowers were more likely to report using their last digital loan for education and personal or household goods, relative to other wealth groups (Fig 6.10).

M-Shwari loans are more likely used to support ordinary day to day needs and less likely to support business or farm activities than loans from other providers (Fig 6.12). This could relate to the higher average loan size or longer loan terms available from other providers and their suitability for investment in higher value assets.

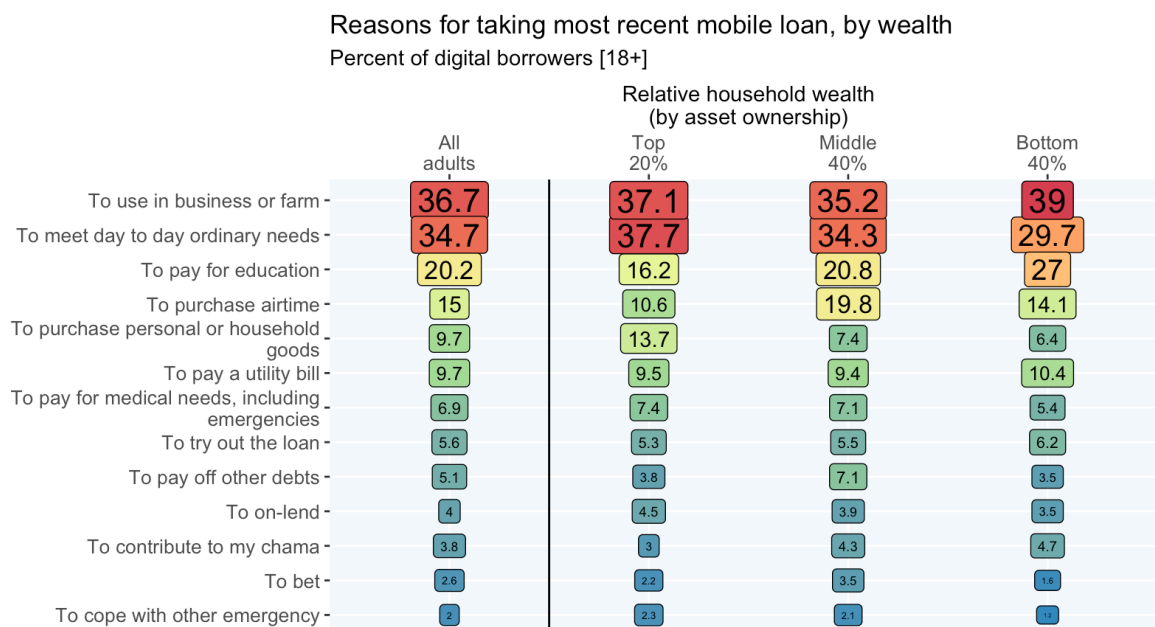
Uses of digital loans, by population subgroups, 2017

Fig 6.9: By demographic group



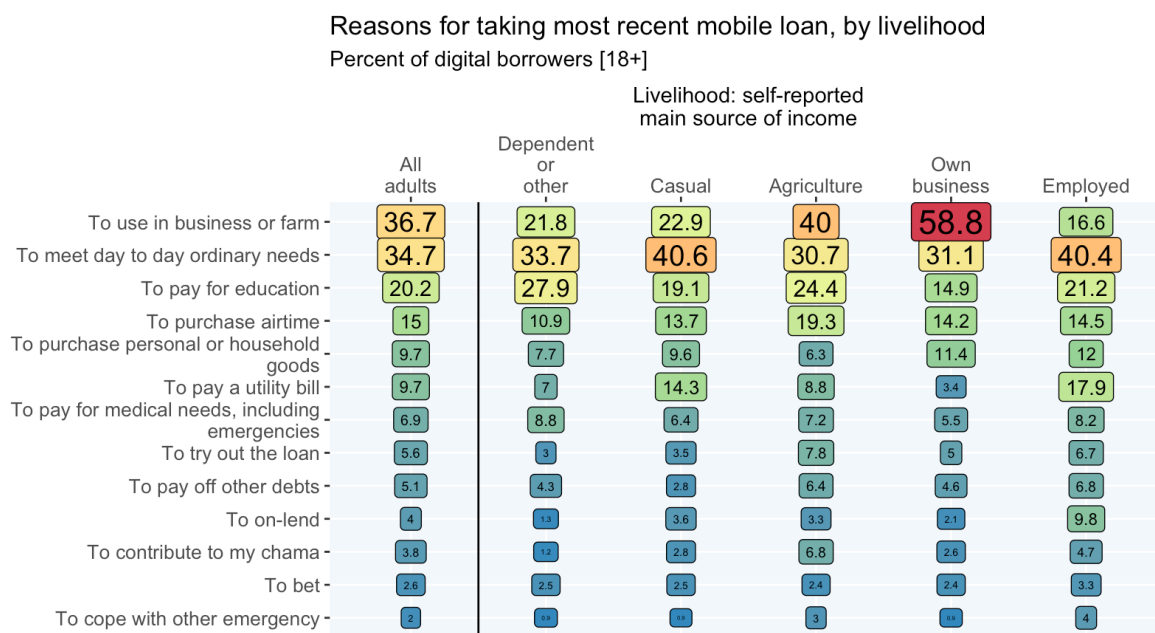
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.10: By wealth



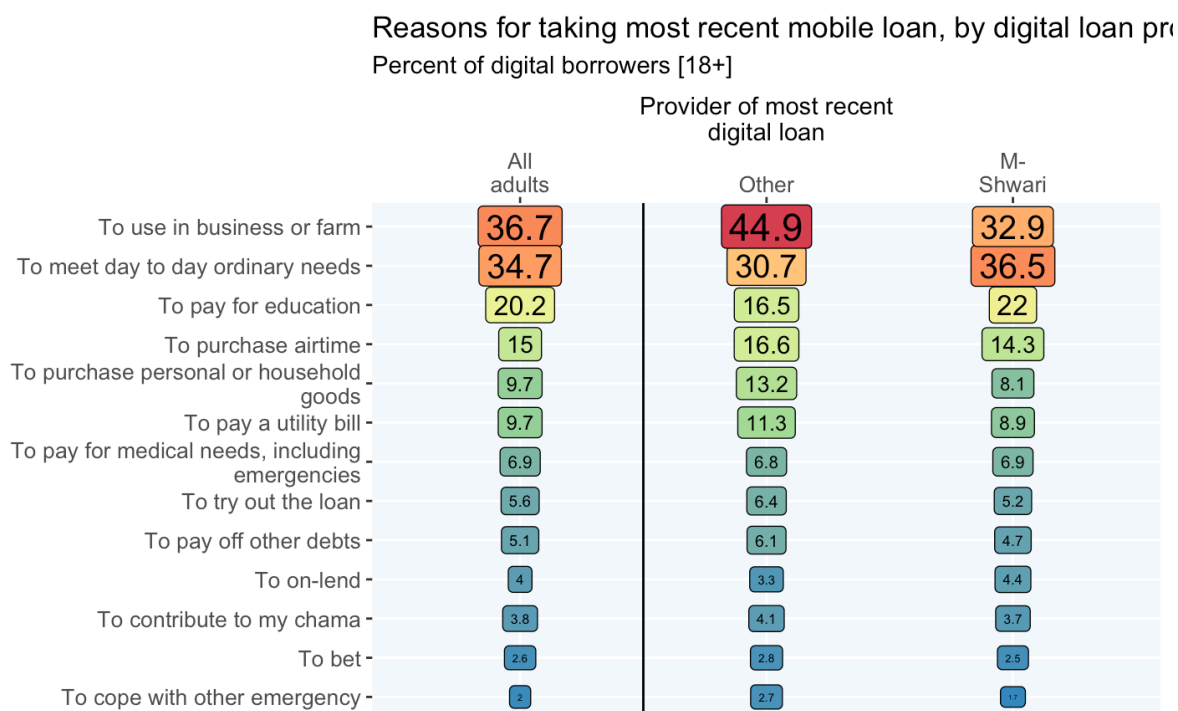
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.11: By livelihood



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 6.12: By digital loan provider



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

7. How common is late payment & default on digital loans?

It is worth noting that default and non-repayment are likely to be systematically under-reported by survey respondents since non-repayment on debt can be shameful to admit for some, and therefore survey-based estimates of non-repayment and default are likely to underestimate the true rates. The degree of this bias is unknown, but comparisons of survey-based default rates with default rates obtained from provider data could shed light on how off-the mark the survey estimates in this section are.

BOX 3: What happens when you default on a digital loan?

One of the emerging concerns with digital credit stems from the observation that of 10.6 million borrowers listed with [TransUnion](#) - one of Kenya's three licensed credit reference bureaus (CRB) - 2.7 million are negative, in that lenders have submitted the names of those borrowers to the CRB due to a non-performing loan (NPL). CRB reporting varies by lender. An M-Shwari loan, for example, is repayable within 30 days, if the loan isn't repaid by day 30, the outstanding amount is automatically rolled over for 30 more days and an additional 'roll-over fee' is incurred⁶. CBA pursues a series of strategies to encourage repayment, including sending SMS warnings that the borrower will be reported to the CRB, but the borrower will not be listed until 120 days after the loan was taken.

In Kenya, the act of submitting a report based on an NPL is known, somewhat threateningly, as *blacklisting*. Of the 2.7 million negative reports on digital loans in TransUnion's database, 400,000 are for loans of less than USD 2⁷. The trouble for borrowers is that the presence of even a single negative report can adversely affect their chances of borrowing from any lender, regardless of their overall borrowing history⁸.

One of the challenges with the way CRB data has historically been used by lenders is its use as a binary check for red-flags, rather than using the borrower's overall credit performance (say based on a credit score) using both positive and negative listings. Most banks require potential borrowers with negative listings to first pay outstanding amounts on listed loans, and to then obtain a clearance certificate from the CRB to prove to the lender that outstanding debts have been settled. A clearance certificate from one of Kenya's CRBs runs at Ksh 2,200 (or about USD 22) which is twenty times the size of M-Shwari's lowest loan limit of Ksh 100.

[Read more about how Kenya's credit reference and information sharing works from the Credit information sharing association of Kenya \(CIS Kenya\)](#)

Overall, about 1 in 2 digital borrowers reported to have paid a loan late while 12.5 percent reported to have defaulted on a loan. Fig 7.1 divides digital borrowers into three mutually exclusive

⁶ M-Shwari terms and conditions.

⁷ Microsave blog: [Are We Really Financially Excluding 2.7 Million With Digital Credit in Kenya?](#)

⁸ Daily nation article: [Pain of Kenyans blacklisted for amounts as small as Sh100 in mobile loans, bank fees](#)

groups: borrowers who never repaid late or defaulted, borrowers who repaid late but did not default and borrowers who defaulted.

About 60 percent of rural females over the age of 30 have never repaid late or defaulted, the best performance of any demographic group. However, this group also has the second highest default rate - 15.8 percent of digital borrowers in the group - of the eight demographic segments in (Fig 7.1). The demographic segment with the poorest repayment performance are rural males under the age of 30, among which 2 in 3 digital borrowers have either defaulted or paid late (almost 1 in 5 have defaulted). The segment with the lowest default rate - 6.3 percent - are urban males under the age of 30.

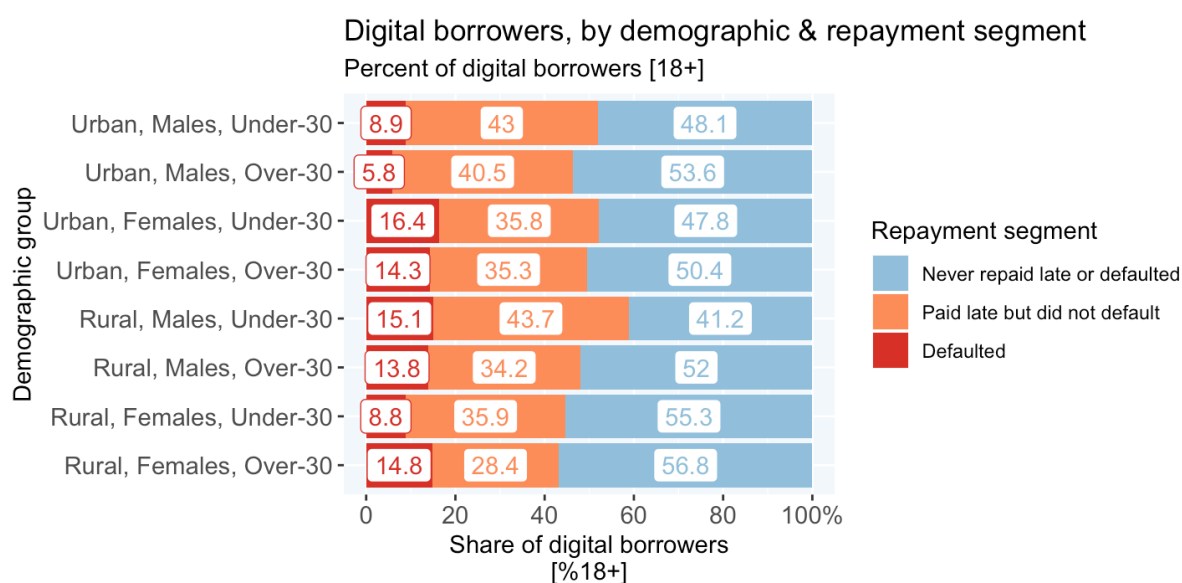
While default rates decrease with more wealth, overall late repayment rates increase. For example, while 14 percent of digital borrowers that belong to the poorest 40% of the population have defaulted on a loan, 29 percent paid late but did not default. For digital borrowers in the richest 20% of the population, 10 percent defaulted - lower than their poorer counterparts, but 39 percent paid late without defaulting - about 50 percent more than the digital borrowers in the poorest 40% of the population (Fig 7.2).

Default and late repayment do not vary significantly across livelihoods (Fig 7.3), there is some variation in the default rates which are slightly higher for digital borrowers who depend on agriculture or casual work, but the differences are small and not statistically significant.

M-Shwari borrowers are about 30 percent more likely to pay late or default than borrowers of digital loans from other providers. Among digital borrowers whose last loan was M-Shwari, close to 14 percent reporting having defaulted on a digital loan compared to 8 percent of digital borrowers whose last loan was from another provider (Fig 7.3).

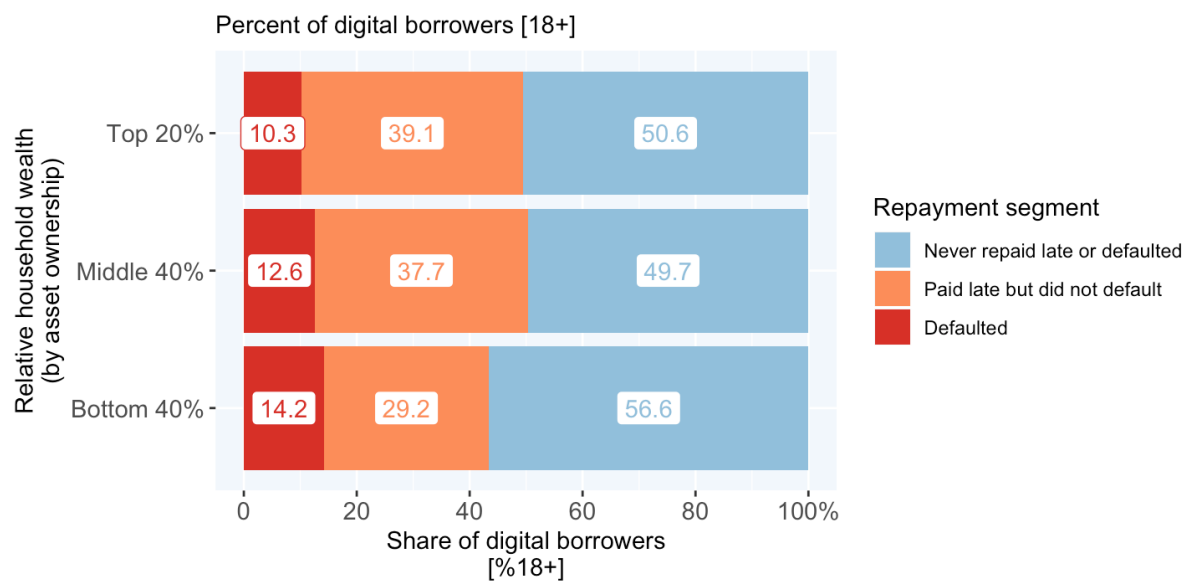
Digital borrower repayment segments, by population subgroups, 2017

Fig 7.1: By demographic group



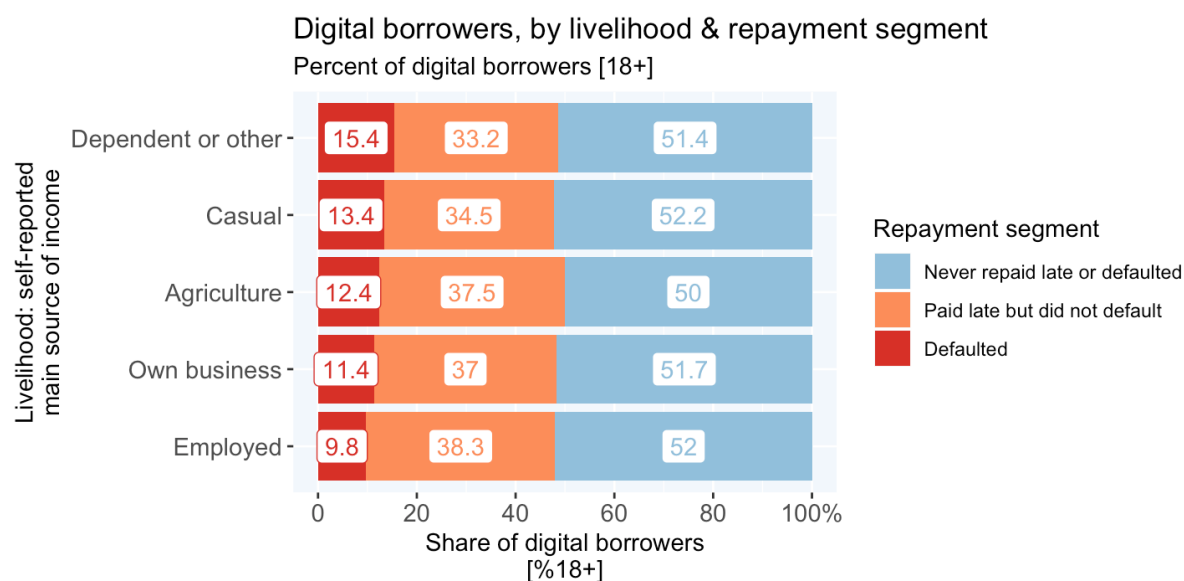
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 7.2: By wealth



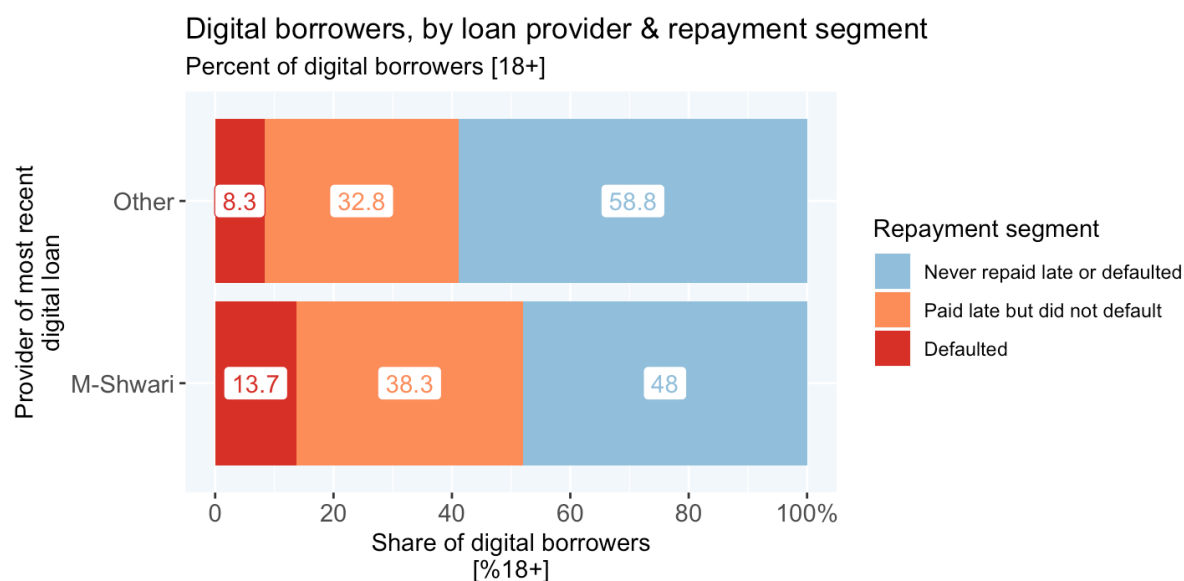
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 7.3: By livelihood



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

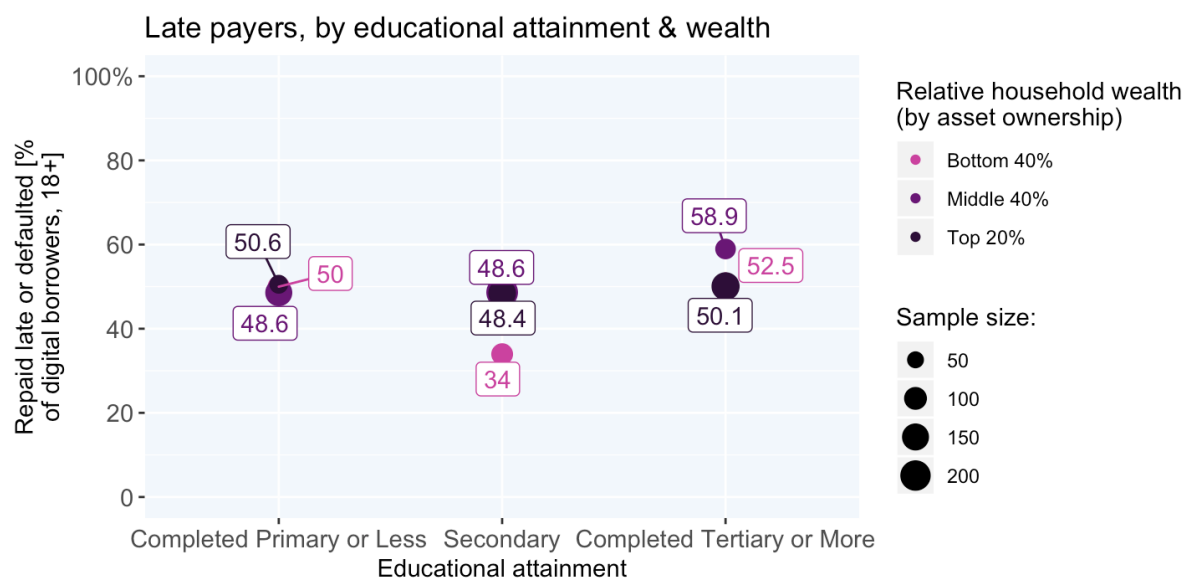
Fig 7.4: By digital loan provider



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Late digital loan repayers, by population subgroups, 2017

Fig 7.5: By education & wealth



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey.

Fig 7.6: By vulnerability & wealth

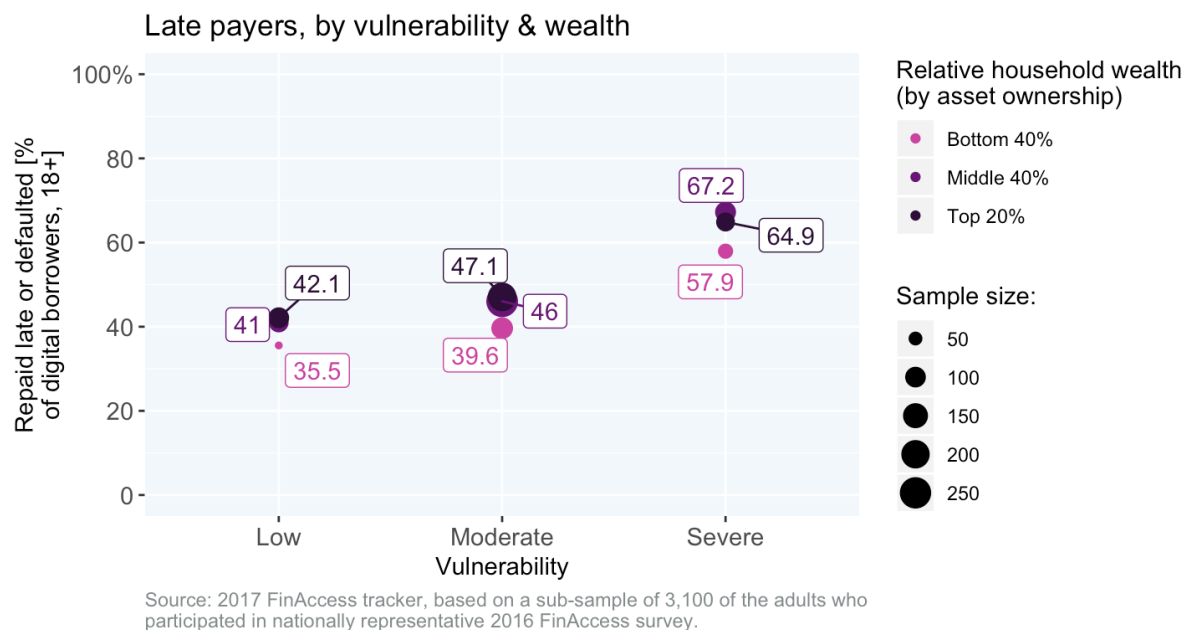
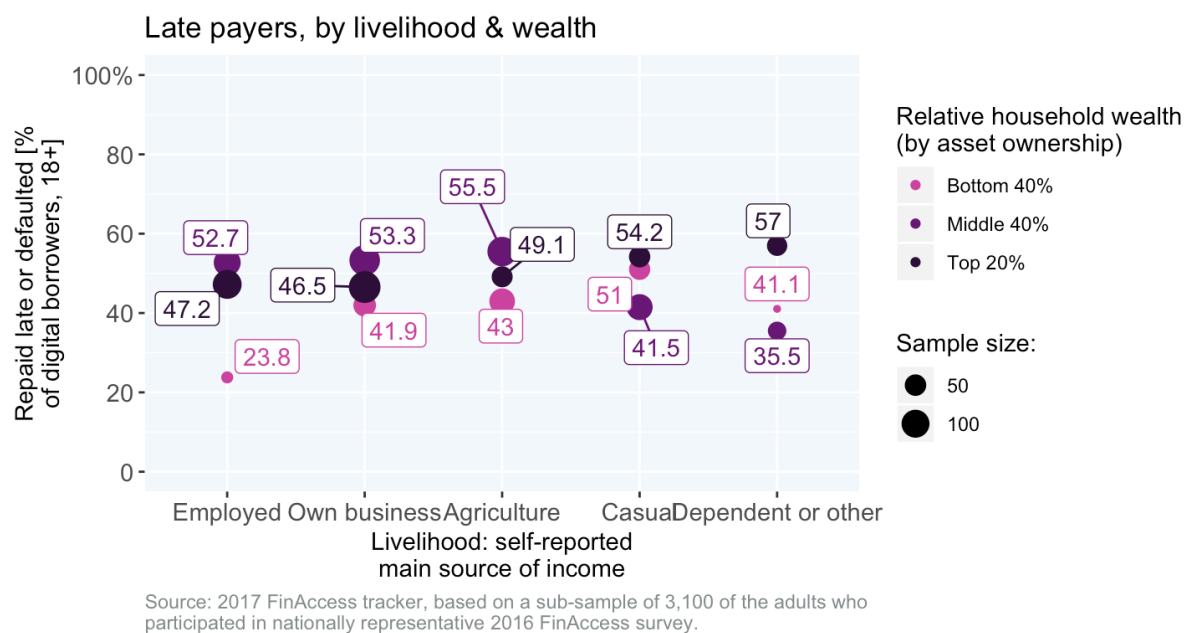


Fig 7.7: By livelihood & wealth



Digital loan defaulters, by population subgroups, 2017

Fig 7.8: By education & wealth

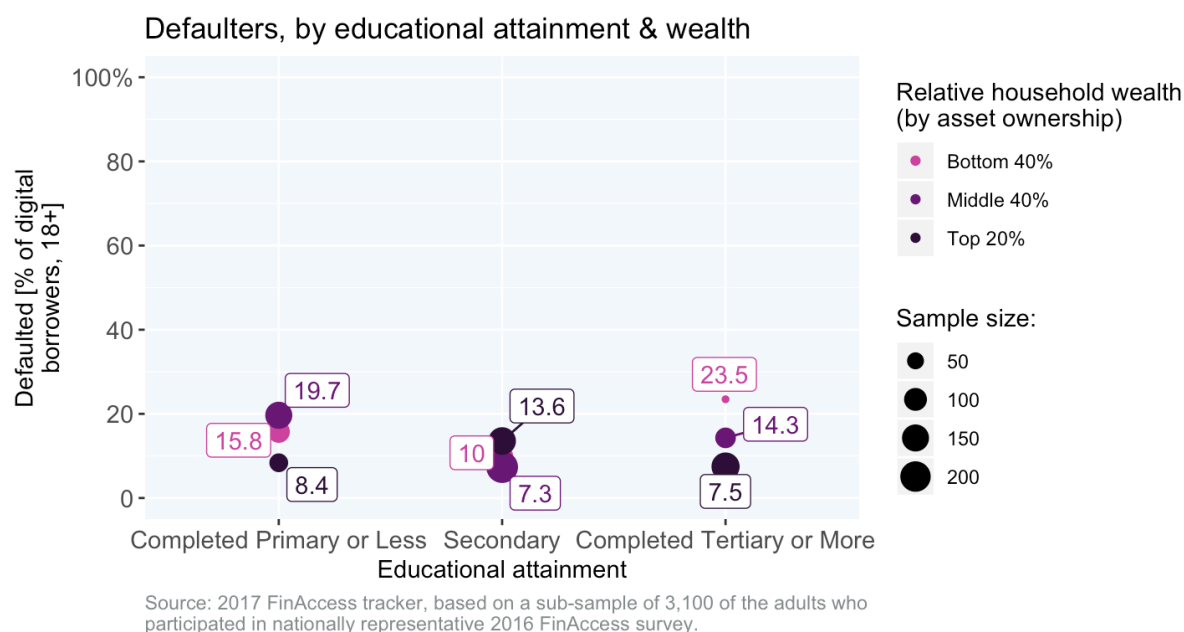


Fig 7.9: By vulnerability & wealth

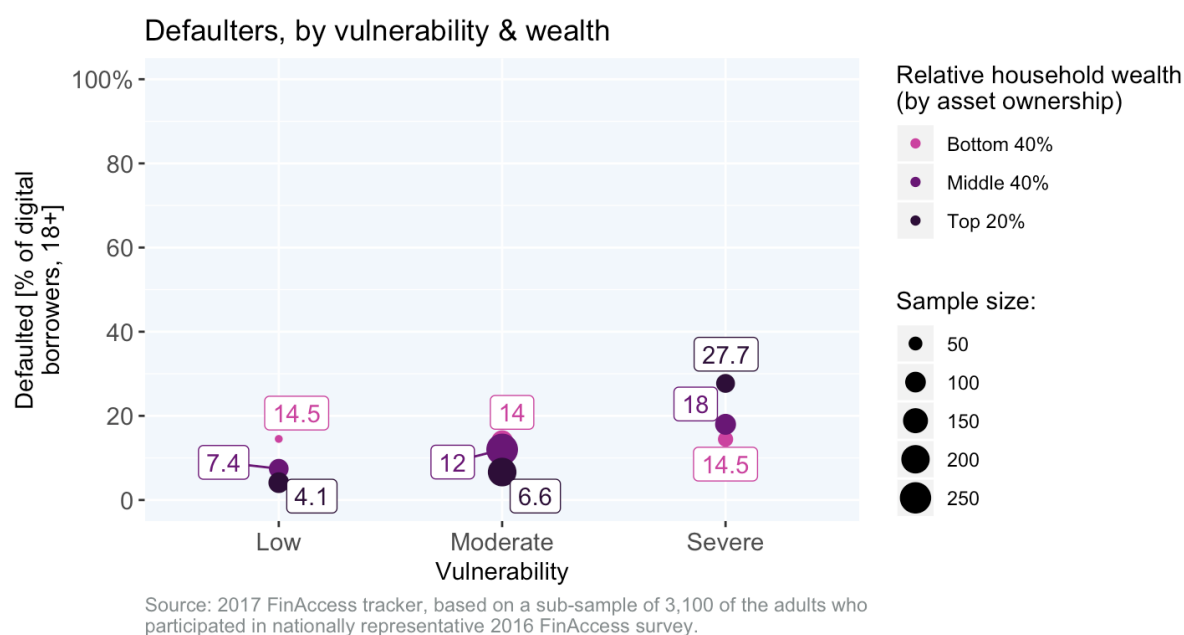
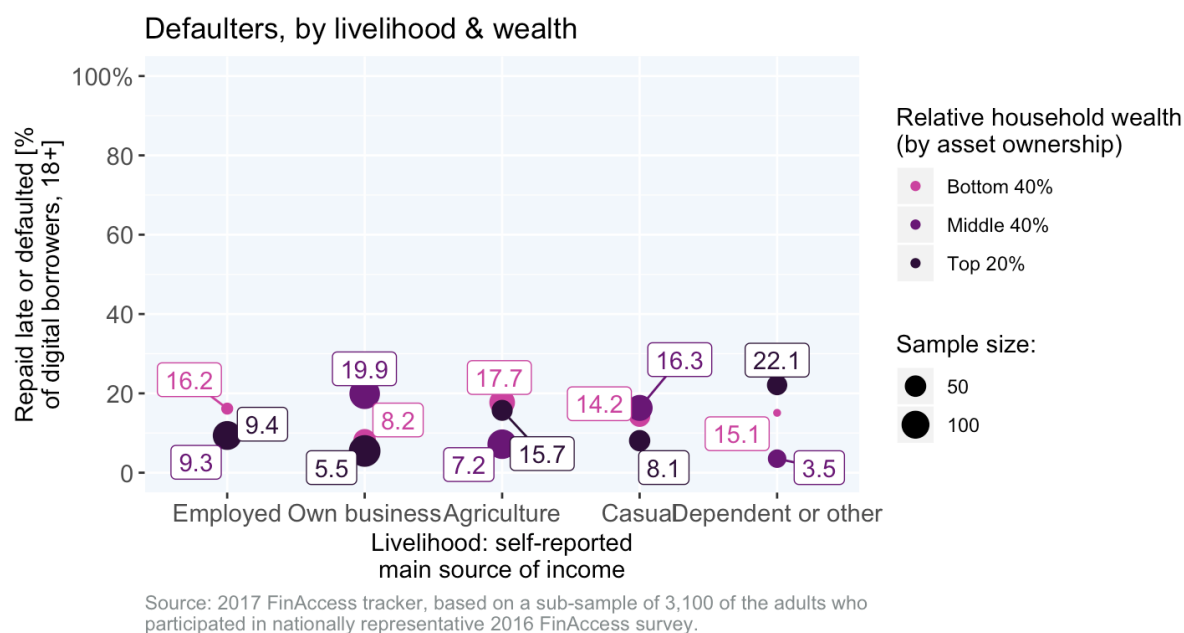


Fig 7.10: By livelihood & wealth



8. How do people repay their digital loans and why do they pay late?

Over two-thirds of digital borrowers report having had to use funds from sources other than current income to repay a digital loan. About half of digital borrowers report having had to use their savings and about one in three digital borrowers reported having had to use one or more potentially adverse repayment strategies: borrow more, reduce food purchases, skip a school fee payment, sell assets or forego medical treatment. Of these, the most common are reducing food purchases (1 in 5 digital borrowers) and borrowing more money (16 percent of digital borrowers). Individuals who have never repaid late or defaulted are the most likely to have used current income to repay a loan. The data also suggests that a key factor dictating whether someone repays a loan late versus defaulting is the ability to draw on a reserve of funds. Late payers who have not defaulted are about 12 percent more likely to use savings to repay a loan and about 20 percent likely to reduce food purchases, borrow more or pursue other adverse repayment strategies (Fig 8.1).

Looking at repayment modalities across demographic groups (Fig 8.2) reveals that urban males above the age of 30 are most likely current income to repay their digital loans, while urban females over the age of 30 and rural females under the age of 30 are the most likely to have used non-income, non-savings strategies to repay digital loans.

While the top 20% of borrowers in terms of asset wealth are more likely to report having used savings to repay a digital loan, the likelihood of using funds other than from savings or current income to repay digital loans is not influenced by asset wealth (Fig 8.3). This is not the case with vulnerability. **About 1 in 2 of the most severely vulnerable digital borrowers reported reducing food purchases, borrowing money, skipping school fee payments, selling assets or foregoing**

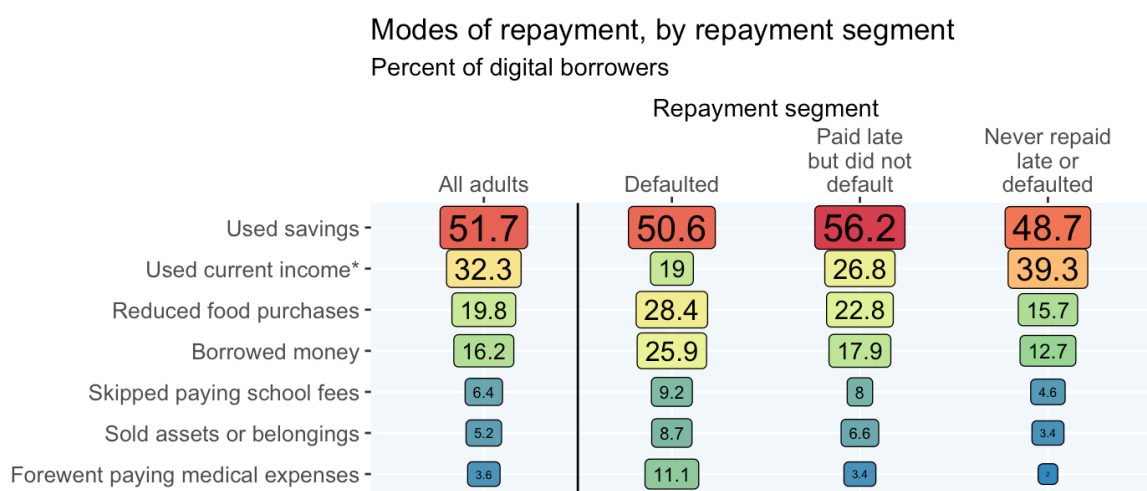
medical expenses in order to repay a digital loan, compared with only 1 in 3 of moderately vulnerable digital borrowers and 1 in 7 low vulnerability borrowers.

The four most common reason digital borrowers who had paid a loan late gave for late repayment was poor business performance (21%), losing a job or source of income (19%), not planning well enough (17%) and saying that funds were tied up with more important expenditures (16%) (Fig 8.5).

However the reasons vary significantly by demographic groups, wealth groups and vulnerability groups. For example, for urban males, losing a job was the most common reason for paying late, whereas for urban females, poor business performance and prioritizing basic needs were. For rural males, not planning well enough was the most common response and rural females were almost twice as likely than any other demographic group to offer "No particular reason" as the primary reason they paid late.

Modes of repayment, by population subgroups, 2017

Fig 8.1: By repayment segment



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed. *Used current income is an inferred response category for individuals who reported that they had never used savings, reduced food purchases, borrowed money, skipped school fee payments, sold assets or forewent medical expenses to repay a digital loan.

Fig 8.2: By demographic group

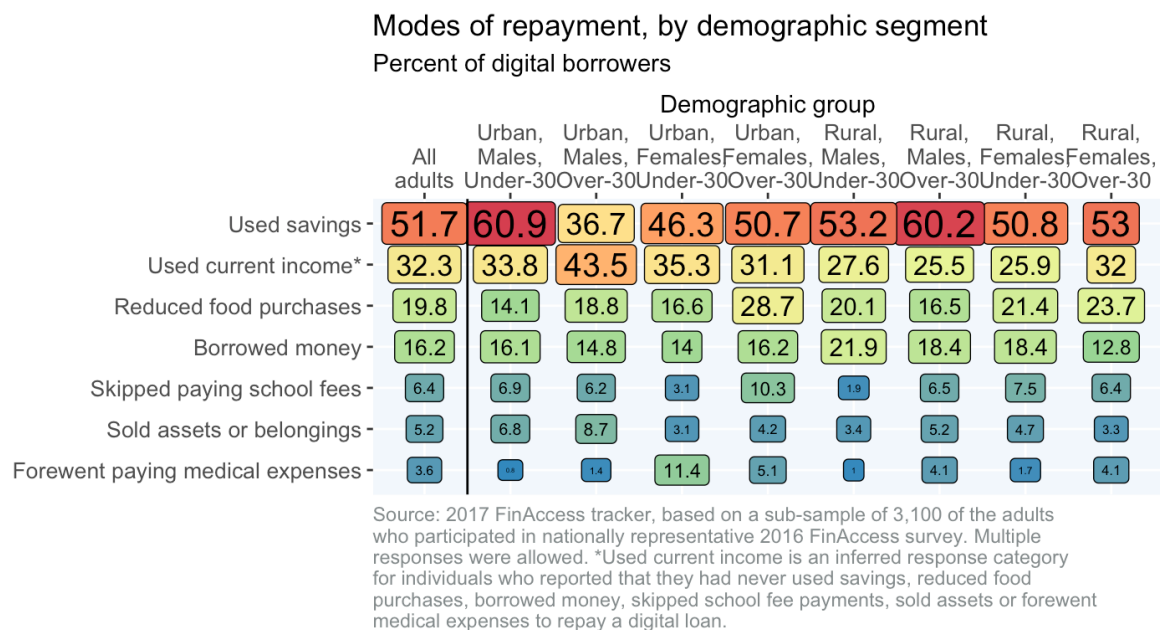


Fig 8.3: By wealth

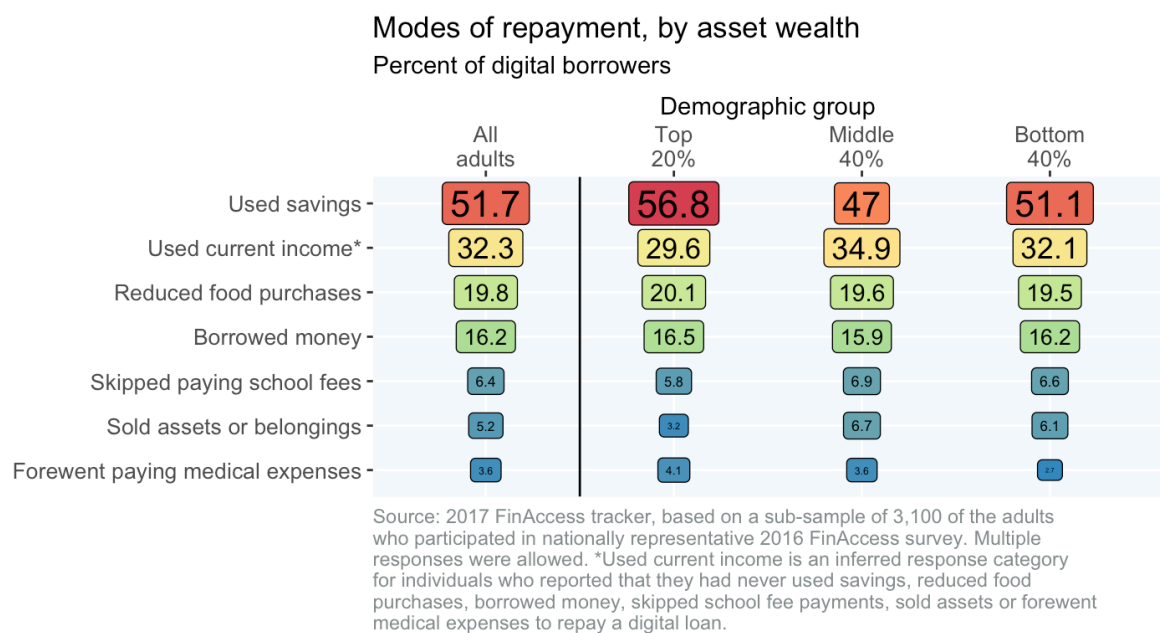
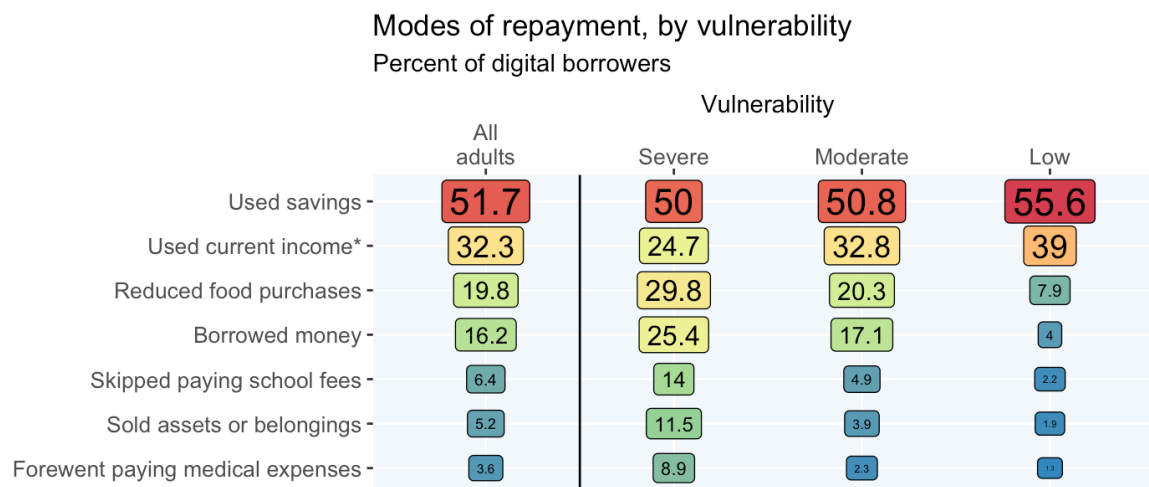


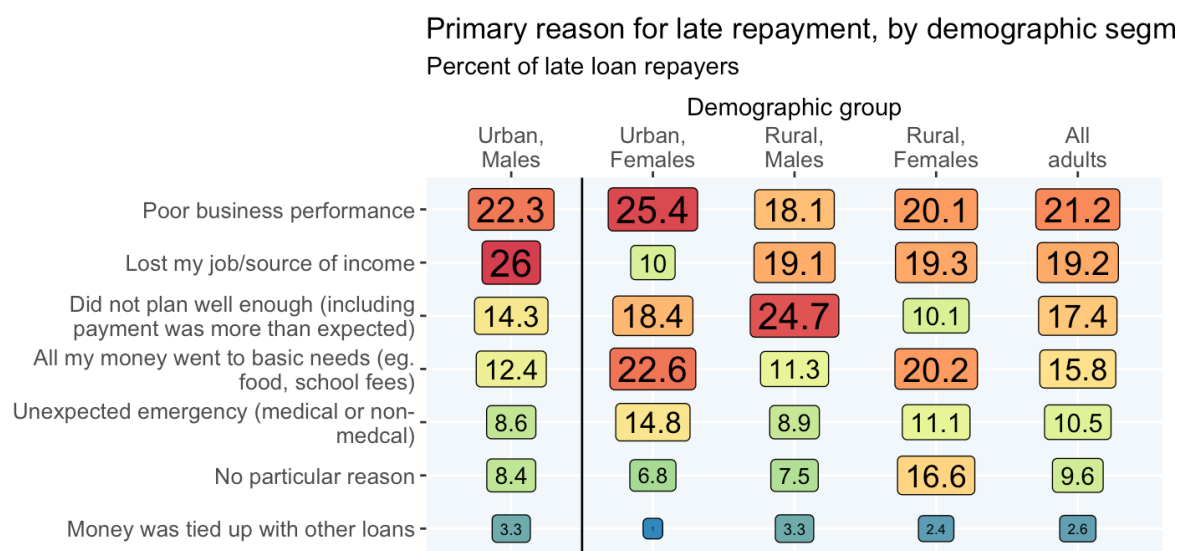
Fig 8.4: By vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed. *Used current income is an inferred response category for individuals who reported that they had never used savings, reduced food purchases, borrowed money, skipped school fee payments, sold assets or forewent medical expenses to repay a digital loan.

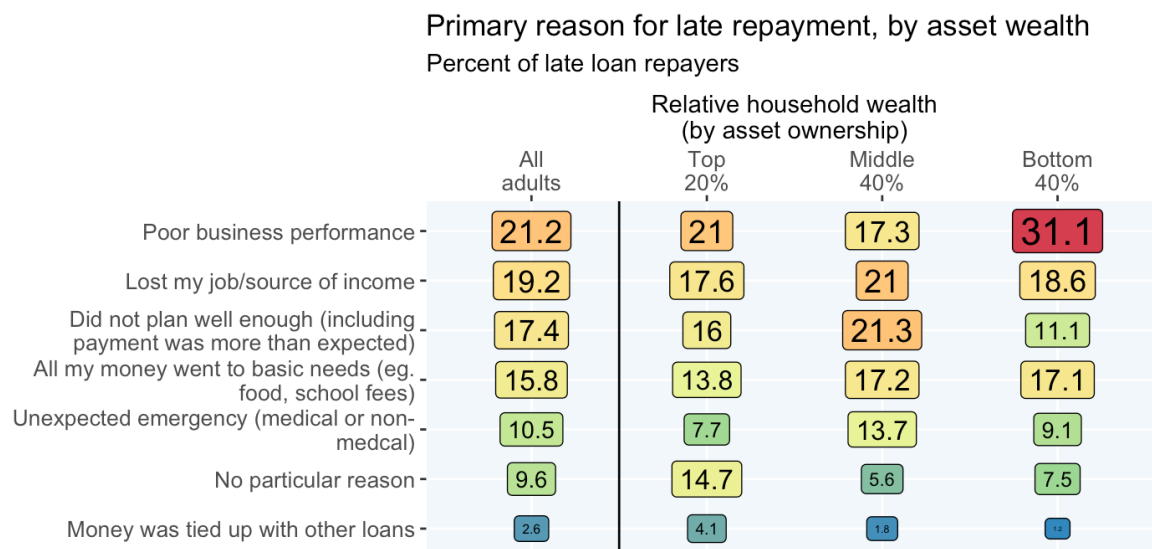
Reasons for paying digital loans back late, by population subgroups, 2017

Fig 8.5: By demographic group



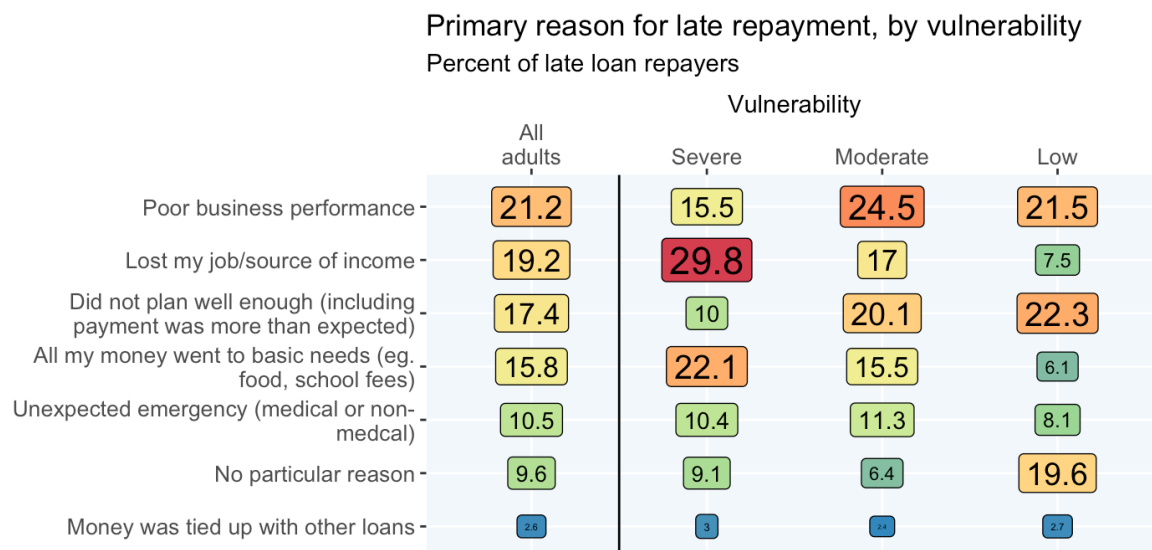
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 8.6: By wealth



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 8.7: By vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

9. What are common customer experiences and perceptions with digital loans?

The relatively high rates of late repayment on digital loans seen in section 8 are reflected in the common reference to receiving calls and SMS messages from lenders to encourage repayment on an overdue balance as part of the borrowing experience (Fig 9.1). **About 1 in 4 digital borrowers felt the repayment period was too short, 14 percent reported that the lender unexpectedly charged fees or withdrew money from their savings account or mobile money wallet and 10 percent felt that the cost of the loan was too high.** Around 8 percent were either reported to the credit bureau, did not fully understand the loan terms or needed to contact customer care but could not figure out how.

These findings were fairly consistent among digital borrowers across demographic groups with a few exceptions. Urban males were the most likely to report getting hit with unexpected fees or withdrawals and **rural males under the age of 30 were the most likely to cite getting reported to the credit bureau by the lender.**

Individuals with primary schooling or less were almost twice as likely to cite having difficulty understanding loan term or contacting customer care (Fig 9.2) compared to individuals with secondary or tertiary educational attainment. They were also more likely to feel that their repayment period was too short. Interestingly the variation in these experiences by digital borrower segments defined by education are greater than those defined by wealth (Fig 9.3).

Experiences with digital loans, 2017

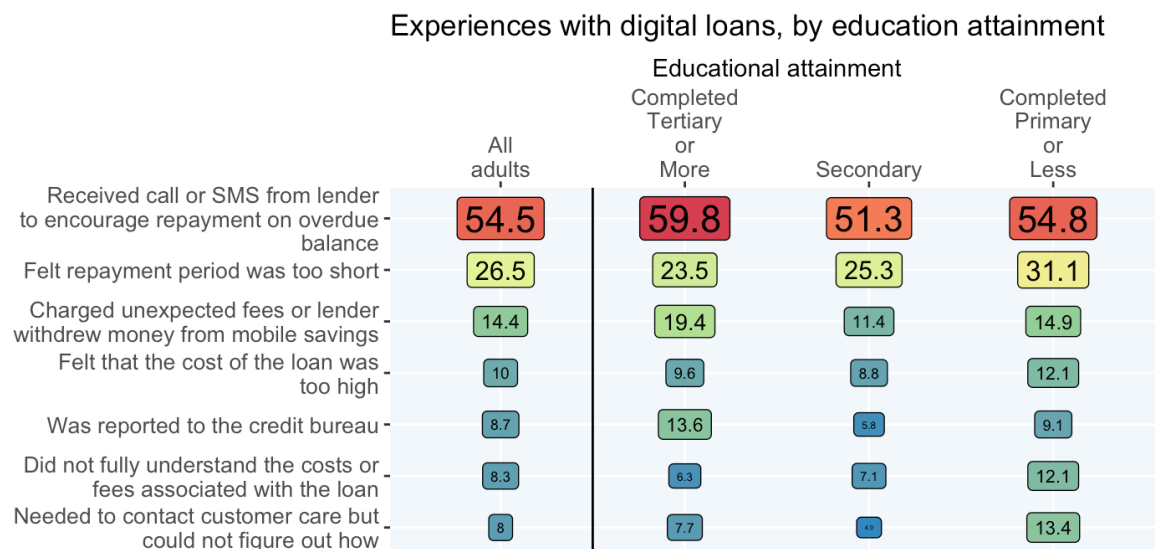
Fig 9.1: By demographic group

Experiences with digital loans, by demographic group

	Demographic group								
	All adults	Urban, Males, Under-30	Urban, Males, Over-30	Urban, Females, Under-30	Urban, Females, Over-30	Rural, Males, Under-30	Rural, Males, Over-30	Rural, Females, Under-30	Rural, Females, Over-30
Received call or SMS from lender to encourage repayment on overdue balance	54.5	52.7	54.9	61	57.2	60.4	51.7	45.5	54.8
Felt repayment period was too short	26.5	26.2	26.7	22.7	32.5	29.4	28.2	17.3	25
Charged unexpected fees or lender withdrew money from mobile savings	14.4	19.1	19.2	10.9	11	8.3	14.7	6.6	16.5
Felt that the cost of the loan was too high	10	8.2	11.2	6.3	12	10	11.9	4.9	10.8
Was reported to the credit bureau	8.7	3.6	10.6	12.8	3.6	17.7	11	4.9	7.6
Did not fully understand the costs or fees associated with the loan	8.3	10	13	10.4	6.8	6	4.5	5.8	8.8
Needed to contact customer care but could not figure out how	8	7.8	11.7	3.5	5	7.1	10.6	6.9	8.9

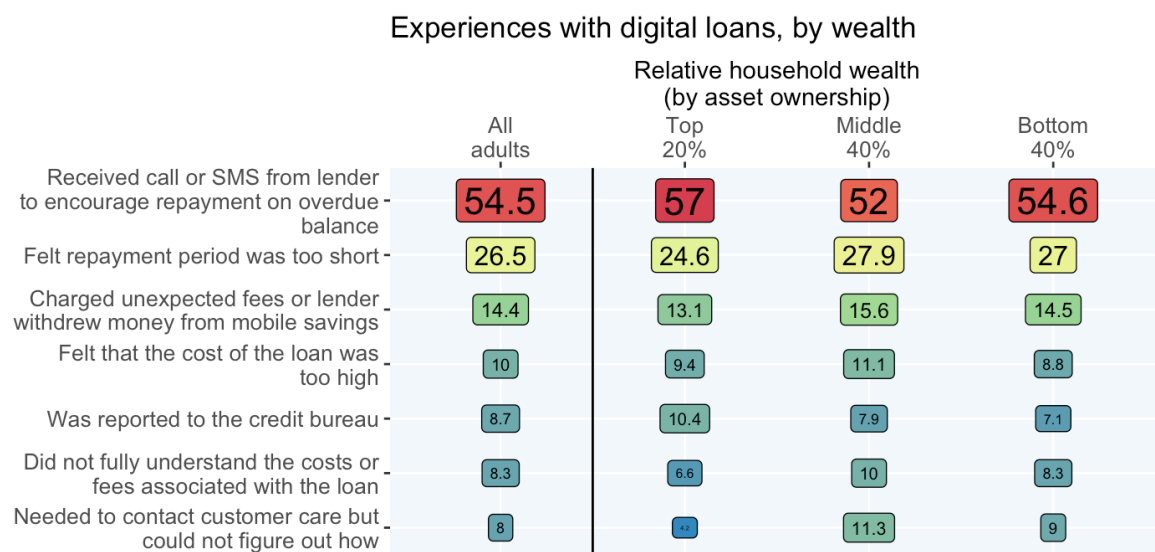
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 9.2: By education attainment



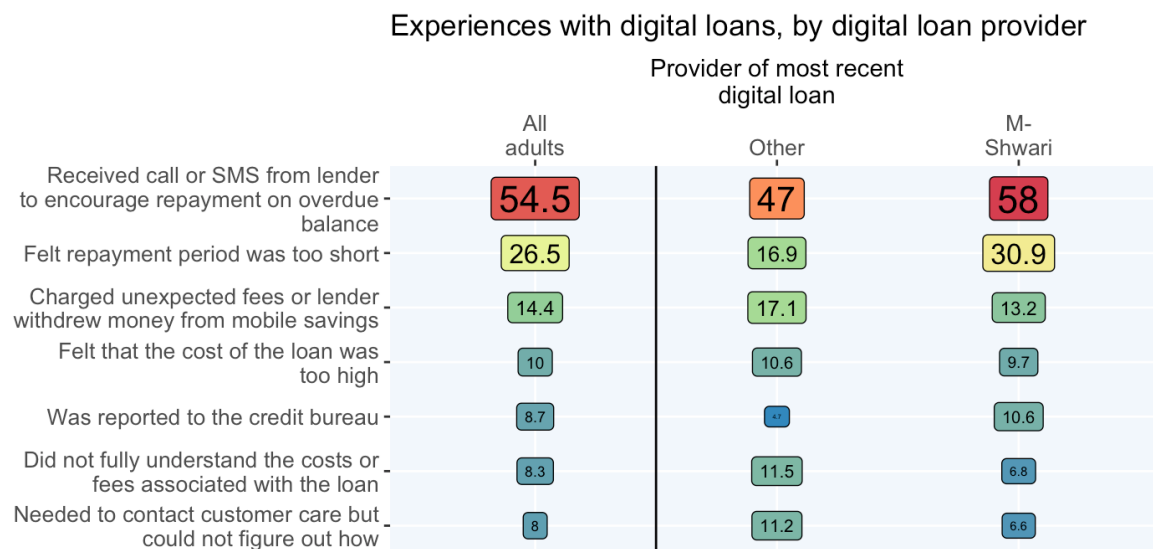
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 9.5: By wealth



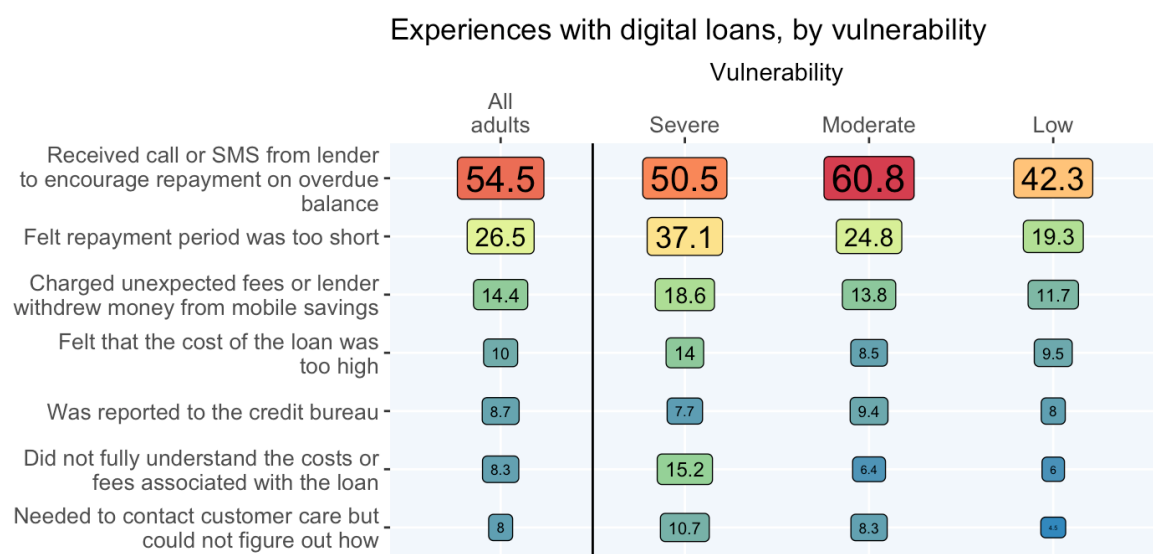
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 9.4: By digital loan provider



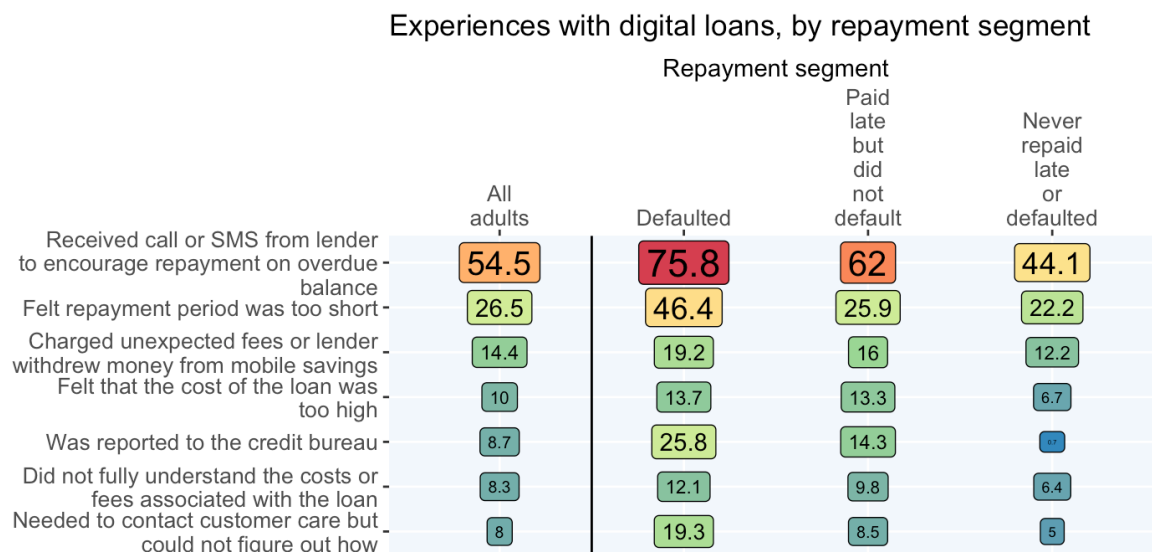
Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 9.5: By vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

Fig 9.6: By repayment segment



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

10. How have digital loans influenced the broader credit landscape?

Looking at the overall credit landscape (Fig 10.1), mobile loans seem to have taken the position of an all-purpose borrowing tool with broad appeal. **With close to 19 percent of mobile owners currently using them (at the time the survey was conducted), mobile loans, alongside loans from the social network (friends, family, neighbors and other associates) are now the most common types of loans in use.** The 'use case' profile of mobile loans most closely resembles loans from the social network which are used for a diverse set purposes: mostly for day to day needs, working capital and education payments, but also for emergencies, personal consumption and other payments. Other sources of loans, such as those from a shopkeeper, savings group or bank, are used for a more concentrated set of use cases. For the largest-value use cases, such as buying land, a house or a vehicle, only bank, SACCO and MFI loans are used.

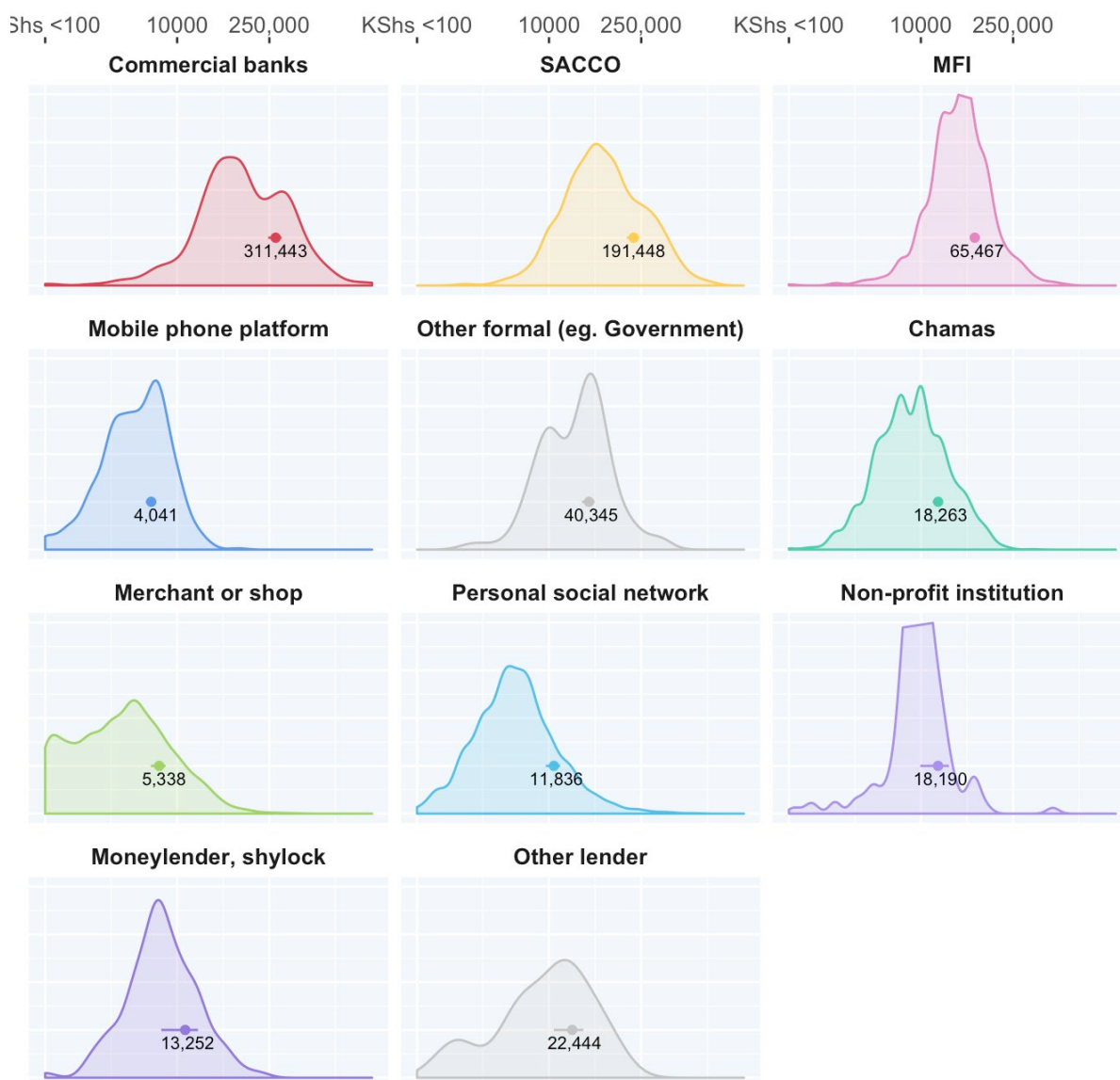
Mobile loans are more frequently used to pay utility bills, airtime (both of which are most conveniently paid for with a mobile money account). For these use cases there is a natural fit: use digital money to pay for a good or service which accepts (perhaps exclusively) digital payments. This does raise the question of whether unnecessary or excessive borrowing might occur if people aren't in the habit of saving digitally (in a mobile money or mobile banking account) yet need to purchase items or pay bills electronically. The adoption of smartphones and expansion of e-commerce will likely increase the demand for digital lending in the years to come.

The borrowing landscape

Fig 10.1: Borrowing prevalence & loan use, by lender

	Borrowing prevalence (% of mobile phone owners)		Reported loan use cases (% of current borrowers)										
	Ever used a loan from...	Currently using a loan from...	To meet day to day ordinary needs	To use in business or farm	To pay for education	To buy land, a house or vehicle	To pay for medical needs, or including emergencies	To purchase personal or household goods	To pay off other debts	To pay a utility bill	To purchase airtime	For social reasons	
Any provider	87.5	45.5	37	27.6	24	7.6	6.3	6					
Mobile loan	34.6	18.9	34.7	36.7	20.2		6.9	9.7	5.6	9.7	15		
Social network (friends, family, neighbor, employer)	59.9	18.4	44.8	29.3	29.7		10.2	6.2	5.3				
Shopkeeper	39.8	13.1	85.6	9.7	9.7			5.9			6.4		
Savings group (chama)	28.1	9.4	16.4	43.5	34.9	5.6	6	6.9					
SACCO	17.4	5.4	6.8	39.3	36	23.4		6.2					
Commercial bank	25.5		11.9	40.6	29.2	21							
Microfinance institution or bank (MFI/MFB)	10.5		28.4	76.5	70.4	61.1	8	14.3	7.1	5.7			
Informal moneylender (eg. shylock)	5.4		5.5	27.9	26.7	11.9		5.4	18.6	7.9		14.3	

Fig 10.2: Distribution of loan size, by lender



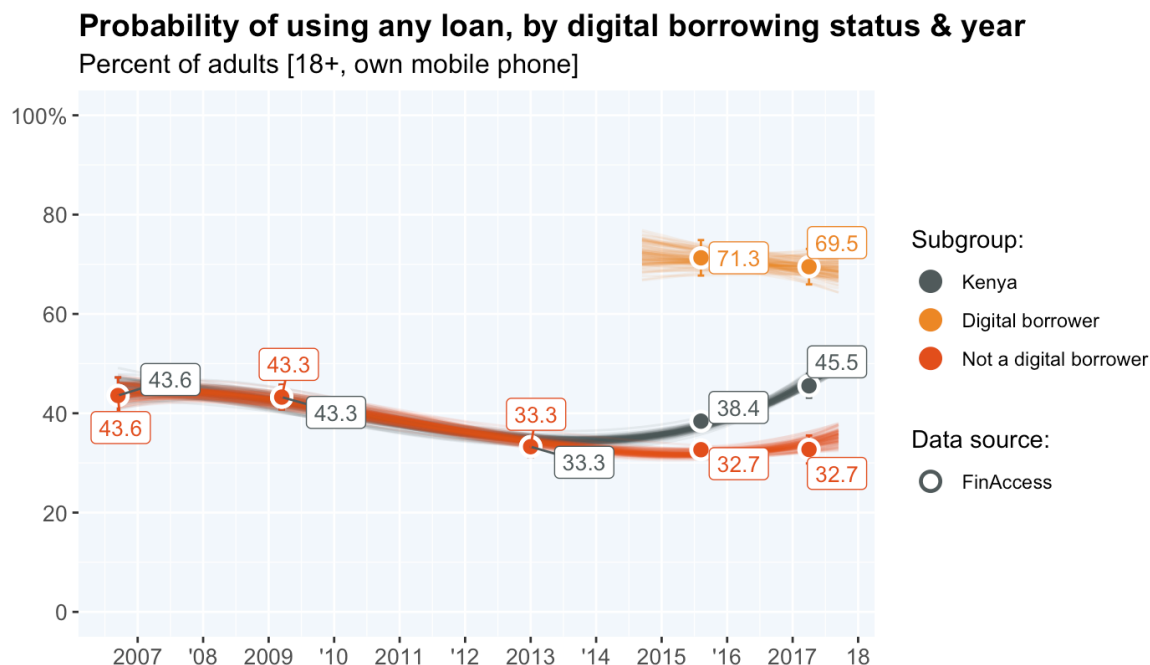
Source: 2015/16 Kenya integrated household budget survey. Notes: The sample mean and 95% confidence interval is shown.

As mentioned earlier, the impact of digital loans on access to credit has been significant. Fig 10.3 shows trends in the percent of adults currently using any kind of loan (from either a formal or informal provider) by digital borrowing status. In early 2013, 1 in 3 mobile owners were using a loan, by mid-2017, almost 1 in 2 mobile owners were using a mobile loan. The trend line for mobile owners who never borrowed digitally provides a rough counterfactual for loan usage had digital lending not emerged, suggesting that **digital lending expanded access to loans for an additional 13 percent of mobile phone owners, amounting to 2.55 million people who might not have otherwise used credit.**

The emergence of digital credit does not seem to have diminished the likelihood of people taking informal loans (Fig 10.4). Both of these analyses suggest that for the most part digital credit has expanded total access to credit rather than shifted people away from other sources of loans.

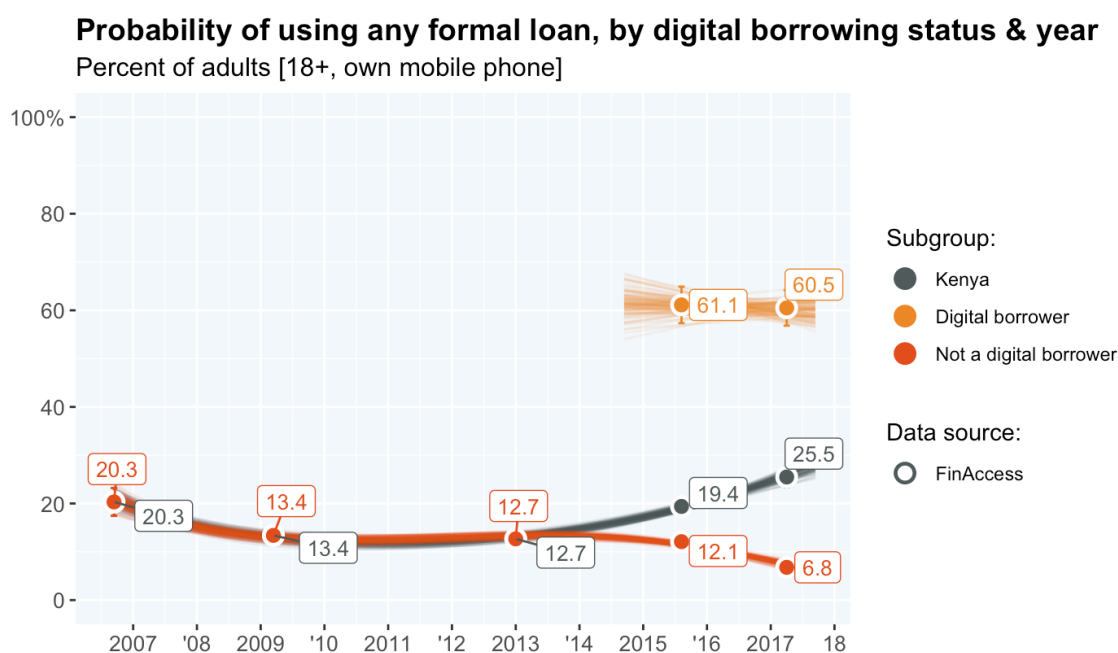
The relationship between digital borrowing and the probability of using different types of credit, 2006-2017

Fig 10.3: Probability of using any loan (formal or informal)



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets.

Fig 10.4: Probability of using any formal loan



Source: FinAccess (FSD Kenya), Financial inclusion insights (Intermedia) and Findex (World bank) micro datasets.

Fig 10.5: Probability of using any informal loan

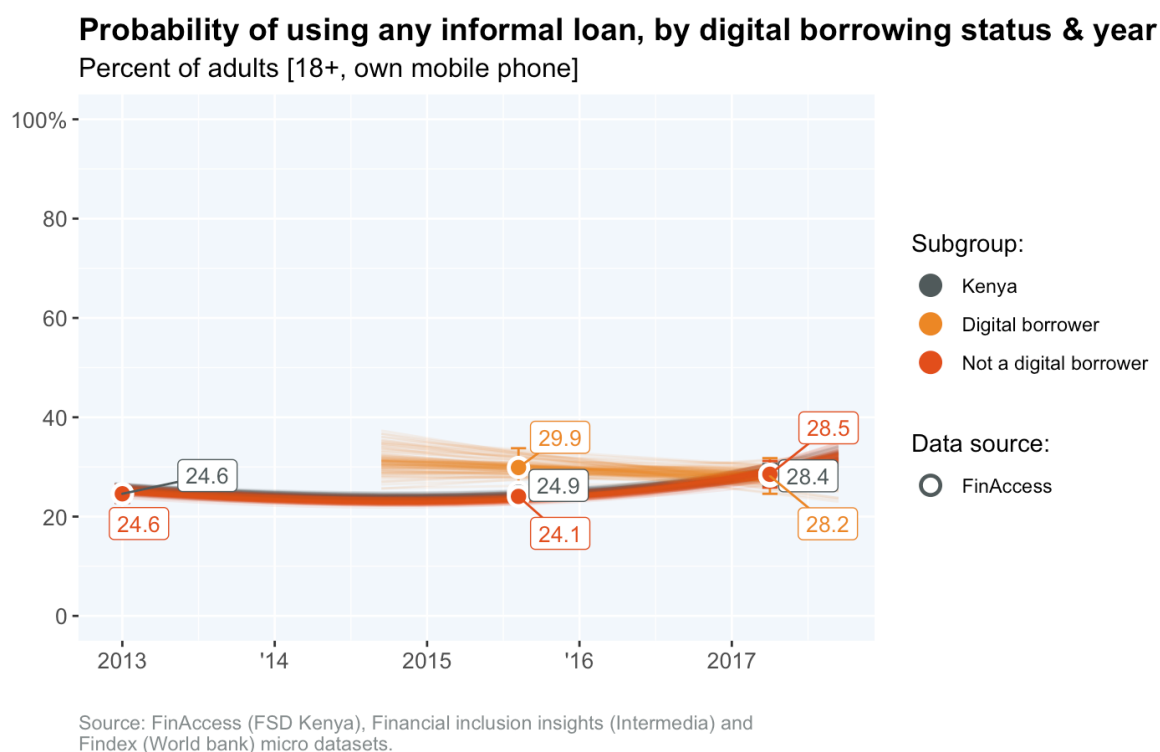
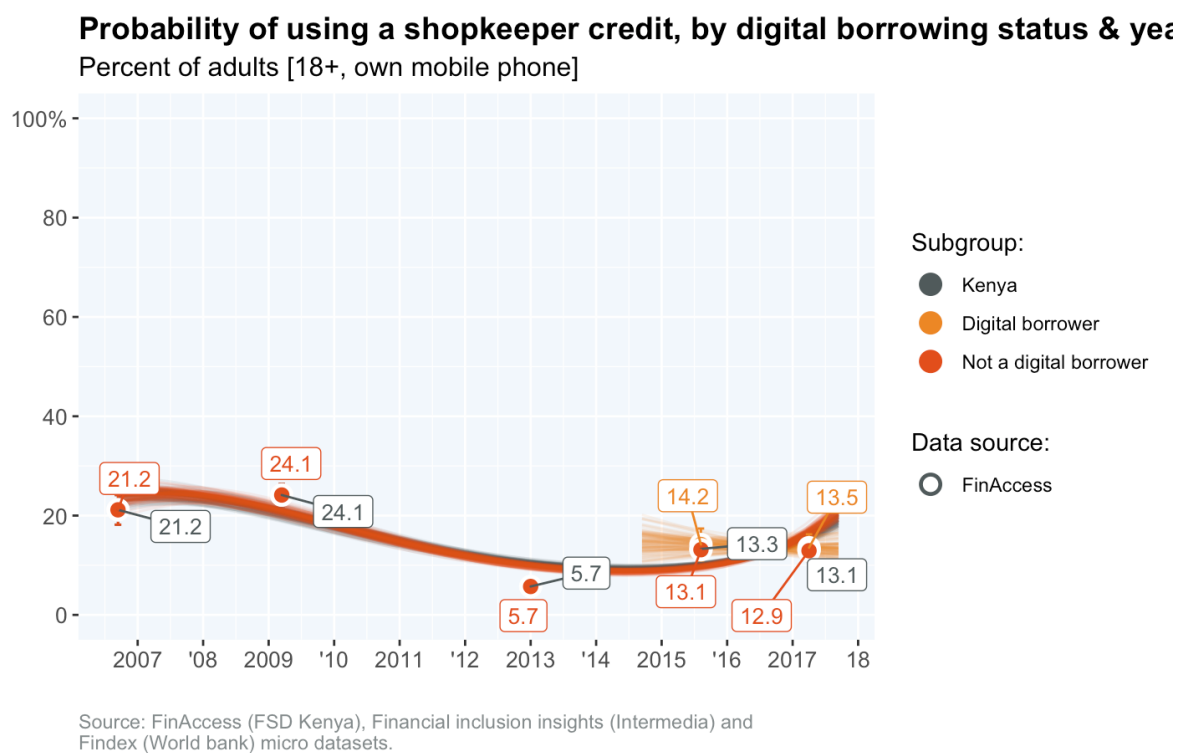


Fig 10.6: Probability of using shopkeeper credit



11. What are the key drivers of digital credit usage and repayment?

The analyses presented in Sections 1 through 8, explored descriptive differences in the patterns of usage and repayment of digital credit. This section uses a multivariate regression framework to try and identify the factors which are independently important in driving behaviors associated with the adoption, usage and repayment of digital credit.

Fig 11.1, Fig 11.2 and Fig 11.3 show the marginal effects of individual socio-economic, personal and behavioral characteristics on the probability of 10 different digital credit behaviors, holding all other characteristics constant. To clarify how these effects are interpreted, let's take an example from model 1 in Fig 11.1, which explores the influence of a range of factors on the probability that mobile phone owners use digital credit. The model's average predicted probability that a mobile phone owner uses digital credit is 29.1 percent (referred to as the base probability in the figure). Compared to adults with some level of tertiary education (the omitted education category), individuals that have at most completed primary education are 14.6 percent less likely to use digital credit, all else equal. Given the model, we expect the probability that adults with completed primary education use digital credit to be around 25 percent (which is 14.6 percent lower than the base probability of 29.1 percent).

The probability of uptake of digital credit (having taken a mobile loan at least once at some point in the past) for mobile phone owners decreases for people above the age of 55, lower levels of educational attainment, lower levels of household wealth and location in a rural area (Fig 11.1 - Model 1). It also decreases for people who are dependent on transfers as a source of livelihood. **The probability of digital credit uptake increases for casual workers (relative to employed workers), being able to correctly divide (suggestive that greater comfort with numbers facilitates digital borrowing), having had a bank loan in the past (which may suggest experience with formal credit gives people greater security, knowledge to try new credit modalities) and having used mobile betting in the past 90-days.** Mobile betting has the largest independent effect (in terms of magnitude) on uptake of digital loans: active mobile bettors are 20% more likely than adults who report they do not gamble to use digital credit.

Adults with moderate or severe vulnerability, who have used a bank or chama loan before and who are above the age of 55, are between 10 and 15 percent more likely to be active users of digital credit. (Fig 11.1 - Model 2). With the exception of digital borrowers with primary or less education and those who depend primarily on casual work, there appear to be no statistically significant predictors of 7-day usage. This could be related to the nature of needs driving very recent usage, which if urgent and unexpected, could be essentially random across digital borrowers.

The predicted probability that someone who has never used digital credit says that fear is a reason they avoid digital loans is 31.9 percent. Compared to employed adults (who have never used digital credit), farmers are 18 percent more likely to cite fear as a reason for avoiding digital loans, and compared to non-bettors, active mobile bettors are 13 percent less likely to cite fear, all else equal (Fig 11.1 - Model 4).

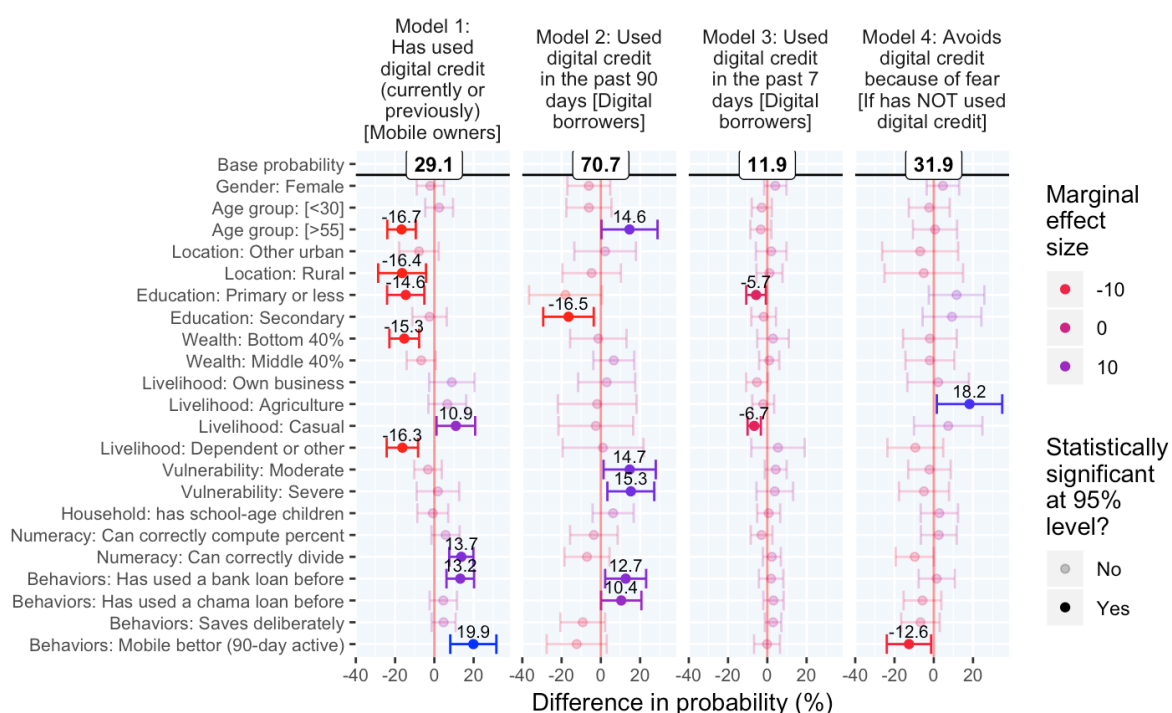
The models in Fig 11.2 explore factors associated with how digital borrowers use loans. Digital borrowers who run their own business are 66 percent more likely than employed individuals to use their most recent digital loan for production, and adults who depend on agriculture are 33 percent more likely than employed individuals to use their most recent digital loan for production (Model 1). Adults who save deliberately (i.e. for a specific goal) are 14 percent more likely than adults who don't save deliberately to use their most recent digital loan for production.

Using the most recent digital loan for basic or personal consumption, is less likely among business owners (compared to employed digital borrowers) and people who are saving deliberately (compared to those who don't), all else equal (Model 2). Using the most recent loan for financing education or paying a bill is also less likely among business owners, but more likely for people saving purposefully and for people who have used a bank loan before (Model 4). There are no statistically significant factors influencing the usage of digital loans for emergencies (Model 3).

Finally the models in Fig 11.3 explore factors associated with late repayment. **The probability of paying late or defaulting is about 30 percent less likely among digital borrowers above the age of 55, and between 20 and 45 percent more likely for digital borrowers exhibiting signs of moderate or severe vulnerability. Active mobile bettors are around 24 percent more likely to have paid late or defaulted.** The expected probability that any digital borrower pays late or defaults is 50%.

The marginal effect of socio-economic, personal and behavioral characteristics on usage and repayment of digital loans, 2017

Fig 11.1: Drivers of uptake & usage



Notes: This chart displays the marginal effects of different demographic, socio-economic and behavioral characteristics on the propensity to use and repay digital credit based on a multivariate logit regression model. The marginal effects shown on the chart represent the percent difference in the probability of, for example, using digital credit (Model 1) for a given characteristic, such as having primary education. To use this example from Model 1, having primary or less education, decreases the probability of using digital credit by 14.6 percent, all other characteristics held constant. The base probability is the survey weighted average of the model's predicted probability for each adult in the sample.

Fig 11.2: Drivers of types of usage

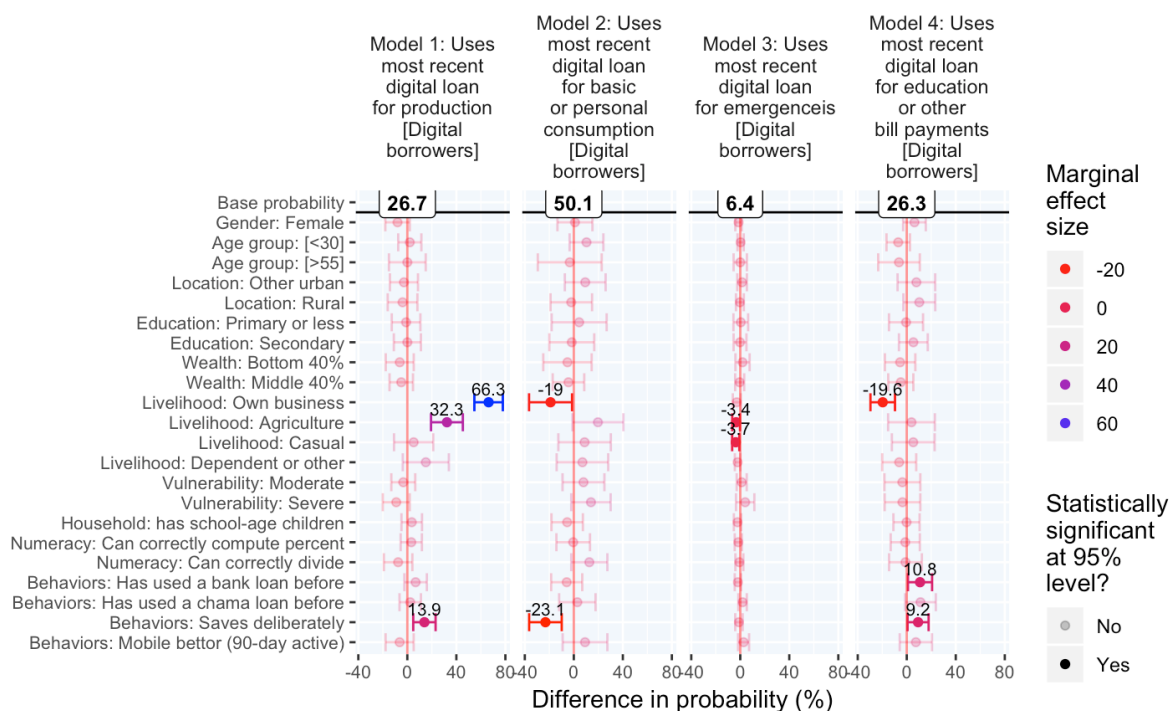
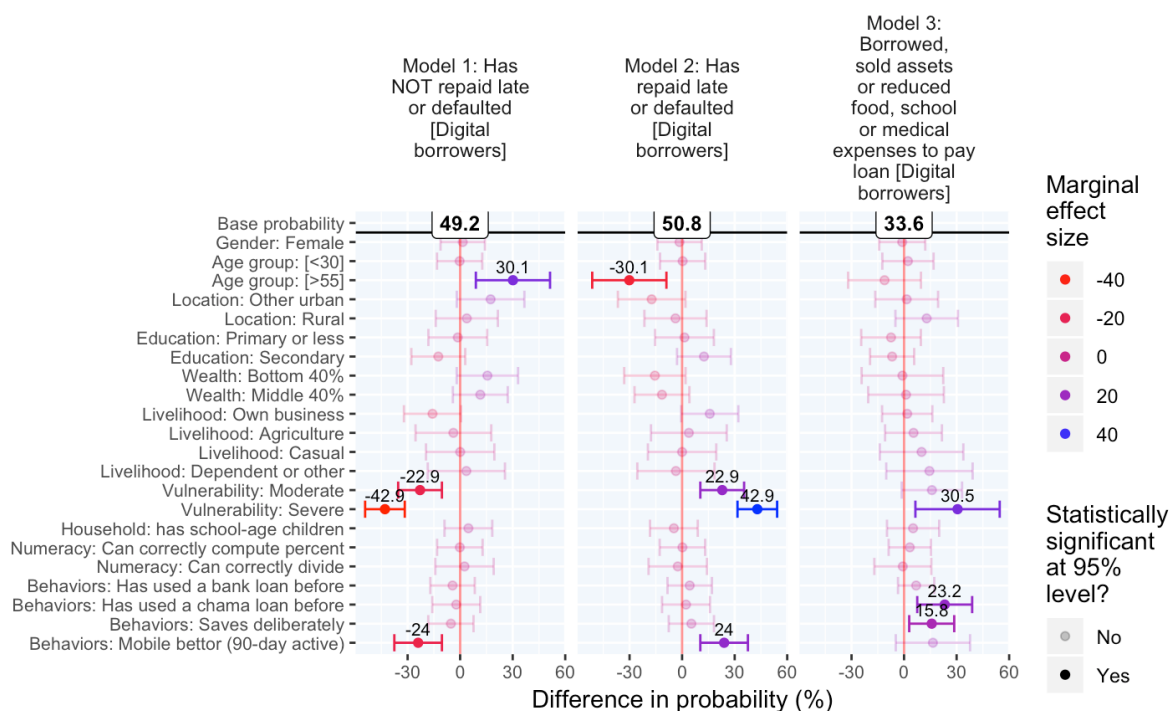


Fig 11.3: Drivers of repayment & default



Notes: This chart displays the marginal effects of different demographic, socio-economic and behavioral characteristics on the propensity to use and repay digital credit based on a multivariate logit regression model. The marginal effects shown on the chart represent the percent difference in the probability of, for example, using digital credit (Model 1) for a given characteristic, such as having primary education. To use this example from Model 1, having primary or less education, decreases the probability of using digital credit by 14.6 percent, all other characteristics held constant. The base probability is the survey weighted average of the model's predicted probability for each adult in the sample.

12. Discussion

The long-run outlook for the adoption of digital credit will rest on the degree to which providers can address people's fears and needs. The growth of digital borrowing has been impressive - in the 4 years since 2013, the percentage of the adult mobile owning population who have ever used digital loans shot up from less than 5 to 35 percent. It seems unlikely that growth of the user base will continue at this pace and future growth may depend on whether providers place greater emphasis on understanding people's aversions to borrowing and financial needs. In 2017, two thirds of Kenya's mobile owning adult population had never used digital credit. Of these potential digital credit users, just over a third cited fear as a reason they do not take digital loans and nearly another third cited lack of need for loans. Individuals who depend on agriculture are especially likely to be fearful of digital credit. Unfortunately the FinAccess tracker survey did not shed much light on the nature of this fear, whether it is a fear of borrowing generally, a fear of technology, a misunderstanding of consequences or some other reason. Deeper qualitative research would be better positioned to give greater insight into this fear of digital credit, the kinds of stories that circulate related to its risks and what can be done to alleviate concerns and actually protect borrowers from excessive harm or disproportionate penalties. It would be similarly useful to unpack what people who have avoided digital borrowing mean when they say "I do not need a loan". Is this because they do not tend to have mismatches between cash flows and expenditure obligations, have sufficient savings to smooth consumption or really mean that they have no need for a KShs 2,000 digital loan but could really use KShs 50,000 loan for a large investment?

Age, education, economic vulnerability and prior experience with formal or informal borrowing are the strongest drivers of active usage of digital loans. Digital borrowers that exhibit signs of moderate or severe vulnerability (for example who tend to run out of money between income payments, go frequently without food or medicine or have difficulty accessing a lump sum in the case of an emergency) are 15 percent more likely to be 90-day active users than adults with low vulnerability. Digital borrowers that are over the age of 55 are also 15 percent more likely to actively use digital loans than those between the ages of 30 and 55. Borrowers with prior experience borrowing from a bank or chama are about 10 to 12 percent more likely to actively use digital loans compared to borrowers who have not used bank or chama loans before.

While digital loans have a relatively wide use-case profile (similar to the use-case profile for loans from personal social networks) the most common use-case for these loans is for basic or personal consumption. About 1 in 2 digital borrowers report using their most recent loan for basic or personal consumption (including day to day needs, the purchase of personal or household goods, airtime, entertainment and betting) (Fig 12.1). Just over a third of digital borrowers used their most recent digital loan for production (e.g. investments in a business or farm) and just under a third for an education or bill payment. Somewhat surprising is the relatively small share of digital borrowers using loans for emergencies: only 8 percent of digital borrowers reported using their last loan for an emergency. Given the high rate of late repayment, perhaps the emergency-response use-case for digital loans is suppressed because borrowers are blocked from further borrowing if a loan payment is outstanding. What this usage profile suggests is that the aggregate welfare impacts of digital credit will be most heavily weighted by the benefits generated by borrowers' enhanced ability to smooth consumption and address minor day to day shortfalls in cash, moderately weighted by the benefits to business owners and farmers through greater ability to invest or meet working capital needs and only minorly weighted by the benefits of helping people cope with emergencies. Of course, these benefits need to be weighed against the degree to which interest rate and fee costs are eroding already constrained incomes.

How digital loans are used interacts strongly with how people make a living and their savings behavior. All else equal, the use of digital loans for production is driven primarily by business owners and to a lesser degree farmers. Whether a digital borrower saves deliberately is strongly predictive of a digital loan being used for production and an education or bill payment, while also being strongly and negatively associated with using a loan for consumption. What this could suggest is that there is a segment of adults who are disciplined savers that use digital borrowing to complement their savings towards an objective - such as a business investment or a school fee payment. It appears that these savers avoid using loans for consumption, and also avoid using their savings to repay digital loans, preferring instead to using additional borrowing, sales of assets or reduced expenditures to repay (Fig 11.3 - Model 2).

Digital credit has a major problem with delinquency - economic vulnerability and mobile betting are major risk factors for late repayment. 1 in 2 digital borrowers have paid a loan late or defaulted. For digital borrowers that exhibit signs of severe vulnerability the expected probability of late payment or default is 72 percent (nearly 3 in 4 borrowers) controlling for other factors. About 1 in 3 delinquent borrowers belonging to the poorest 40% of the population default on their loans compared to 1 in 5 delinquent borrowers belonging to the wealthiest 20% of the population. For digital borrowers who admit to being active mobile bettors, the expected probability of late payment or default is 62 percent (around 3 in 5 borrowers). To the extent that digital lenders are profiting from late payment fees and other charges while not suffering from an unsustainable level of loan defaults, there may be little incentive to reduce delinquency rates.

The fact that vulnerability is both a driver of more intense adoption of digital borrowing and a risk factor for delinquency is problematic. Adults that exhibit signs of moderate or severe vulnerability make up 77 percent of all digital borrowers. Frequent, short-term borrowing does not seem like an ideal way to cope with the long-term problem of having insufficient or highly volatile income to meet basic expenditure needs, especially if the cost of servicing short-term loans increases with frequent delinquency. It may well be that the opportunity to borrow from the phone with few questions asked and no collateral requirements serves as a kind of lender of last resort for severely vulnerable individuals with limited assets who may not have extensive social support networks or opportunities to borrow from other sources. Further research would help shed light on how exactly digital loans are being used for consumption purposes.

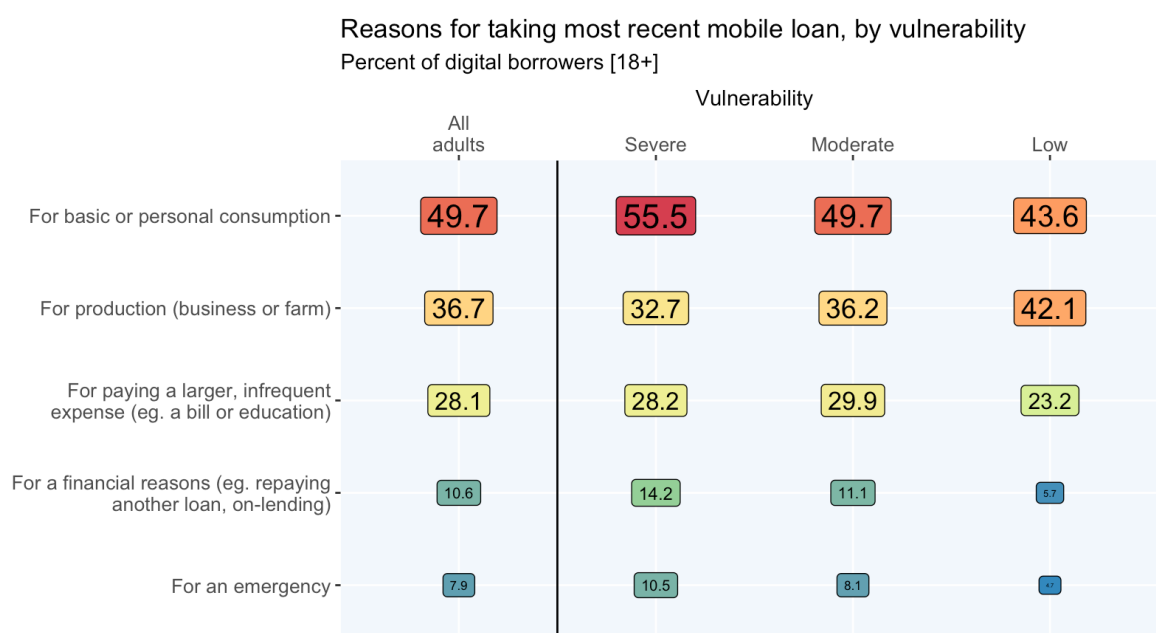
Similarly, mobile betting is both a strong factor driving the adoption of digital borrowing and a risk factor for delinquency. Active mobile bettors make up 20% of all digital borrowers. These individuals are about 20 percent more likely to have taken a digital loan at some point in the past than other adults, all else equal. As discussed previously, they are also about 25 percent more likely to repay late or default on a digital loan compared to other (non-mobile betting) adults. It could be that financing bets is a key digital credit use-case for these individuals (though in the data only 2.5 percent of digital loans are reportedly used for betting). It may also be that mobile bettor's higher tolerance for taking risks drives strategic default or late repayment. Given that social desirability bias is likely causing under-reporting of both mobile-betting related default and use of loans for placing bets, use of transaction data would provide a much more precise basis on which to diagnose the degree to which mobile betting is driving negative high delinquency rates.

It is increasingly common to hear laments along the lines of "For all the talk about the wonders of digital finance, are 10 dollar loans over the phone really the best we can do?". Digital credit may not be the type of solution Kenyans need to lift themselves out of vulnerable livelihoods, but it does seem to be the kind of credit facility people want. There is no getting around the fact that private, quick and convenient formal loans are valued by borrowers. For a majority, that value may just be in helping them cope a bit better with livelihoods that are only able to generate small or infrequent cash flows. For others involved in running a business or a farm, that value may be about helping them manage and sustain those income earning activities a bit better. Surely, more research

is needed to precisely quantify the positive and negative impacts of digital credit on borrowers and to understand digital credit debt and its consequences. In an economic context which struggles to provide decent earning opportunities and social protections for the majority, it is perhaps no surprise that digital loans with its offers of quick cash have seen rapid adoption. Just as M-PESA revealed the vast informal inter-personal exchanges that take place between social networks, it seems that digital credit products are revealing just how 'starved for cash' many Kenyans are. A goal for digital lenders and regulators in the coming months and years, should be to understand more clearly the financial health and welfare impacts of digital credit and design product enhancements, guidelines and rules based on the evidence that minimize the harms and maximize the benefits of these loans.

A simplified profile of how digital loans are used

Fig 12.1: Uses of digital loans by vulnerability



Source: 2017 FinAccess tracker, based on a sub-sample of 3,100 of the adults who participated in nationally representative 2016 FinAccess survey. Multiple responses were allowed.

13. Ideas & recommendations

The evolution of the market for digital credit needs to recognize that the average borrower has a vulnerable economic profile (i.e. faces cash flow challenges but is not necessarily so poor or destitute that they should not be borrowing). As such lenders need to be more sensitive to the uncertainty and volatility that borrowers face. Doing so will strengthen the value proposition of digital credit for current and future borrowers.

FOR PROVIDERS	FOR REGULATORS
Provide a warm welcome Establish a learning window for new borrowers 1 in 5 mobile owners who need credit don't use digital credit out of fear. Providers can help borrowers overcome this fear by offering a 'reduced' risk trial for one or two loan cycles during which a higher level of customer engagement, negotiability and support is offered. This would also be an opportunity for lenders to learn more about the profile and needs of new borrowers and use that data to offer greater customization down the line.	Establish rules that protect borrowers from excessive and long-term harm An appropriate regulatory framework needs to be developed that disincentivize defaults while avoiding disproportionate penalties that overburden already vulnerable households. Almost 1 in 2 digital borrowers have repaid their loans late. Vulnerable households who borrow small amounts often face the difficult choice between hefty penalties (often at the expense of consumption) or negative reporting to the credit bureau (at the expense of future access to financial services). To strike a better balance between the need to limit defaults and the need to minimize long term harm to borrowers, regulators could consider a variety of interventions, including: (1) reducing the length of time negative CRB listings stay on the credit record, which is currently 5 years, (2) establishing simpler and more affordable ways for borrowers to remove listings from the bureau. The cost of clearance certificates is well above KSh2000 which is often multiple times the amounts borrowed through digital credit, (3) establishing clear rules on how providers can add penalties on late repayment in the context of microloans.
Accommodate, do not exacerbate, vulnerability Experiment with longer default repayment periods or provide more flexible, less punitive, repayment terms.	Improve oversight Modify existing reporting requirements so that the volumes, values, number of unique borrowers and portfolio quality of digital credit can be disaggregated from other (non-digital) loan products.

FOR PROVIDERS	FOR REGULATORS
80 percent of digital borrowers show signs of moderate or severe cash flow related vulnerability, these borrowers are between 20 and 40 percent more likely to repay late or default than borrowers with low vulnerability. In addition, 1 in 4 digital borrowers find the repayment period on digital loans too short. Rather than doubling down on SMS reminders to encourage repayment, lenders could explore other ways to help more borrowers repay and avoid default. Extending the default loan term, for example, might give more vulnerable borrowers that do not depend on predictable monthly or bi-monthly wage payments the extra time they need to make a payment.	Currently there is no disaggregated supply-side data to monitor trends and quality of the portfolio in the digital credit market. As the digital credit market is expanding, there is a growing need to understand the trends in the market and the emerging risks, however supply-side data is scarce. On the one hand, many fintechs operate beyond the purview of financial regulators, and therefore the volume and value of their portfolio is not known. On the other, the data returns developed in the prudential guidelines at the moment do not require banks to disaggregate data on digital and non-digital credit. This makes it difficult to track the trends, uptake and quality of the digital credit portfolio. More granular data will help regulators understand the extent to which digital loans are contributing to rising NPLs.
Communicate clearly Be transparent with pricing, fees and other charges and find ways to help customers comprehend terms and conditions. 1 in 5 digital borrowers reported being charged unexpected fees or not fully understanding the costs of loans. In addition, individuals with limited numeracy are 14 percent less likely to use digital credit. Lenders need to do a better job of disclosing and explaining key loan features so that borrowers have clear expectations about the price of the loan, when payments are due and the consequences of late repayment and default. Experimental evidence suggests that simple strategies such as stating interest payments separately and in absolute - rather than percentage terms - as well as providing brief summaries of the terms and conditions helps improve borrowing decisions and reduces rates of default.	Measure over-indebtedness through improved credit bureau reporting Measure and monitor the debt and financial health of borrowers Financial institutions submit data to the credit bureaus once a month. This is far too slow to track over-indebtedness in the digital credit market In order to track more effectively over-indebtedness and financial health of digital credit borrowers, the use of credit bureaus can be improved. At the moment, customers can obtain digital loans from dozens of providers on the same day, and there is no way for lenders to know that this heavy borrowing activity is happening. The current structure of credit information sharing in Kenya require lenders to submit data once a month. In order to adequately monitor digital borrowers' behaviors, data submission needs to be real-time.
Encourage borrowing for growth Reward goal-oriented savers as well as business owners and farmers who are leveraging digital loans for investment purposes.	

FOR PROVIDERS	FOR REGULATORS
Business owners are 66 percent more likely than employed adults to use digital loans for production and deliberate savers are 9 percent more likely to use digital loans for education than adults who either do not save at all or don't save deliberately. Conditional on a successful borrowing history, lenders can offer these segments one or a combination of the following: higher-value loan limits, lower interest rates, longer loan terms or deals (such as seeds or fertilizers at a discount). The societal benefits of digital credit will likely only be maximized if more digital loans are structured appropriately for human capital or productivity-enhancing investments.	

References

Links to reports, blogs and other publications that discuss different elements of the provision, regulation, usage and impact of digital credit are provided below:

Publications based on the 2017 Kenya FinAccess tracker survey conducted by CGAP and FSD Kenya:

[The digital credit revolution in Kenya: an assessment of market demand, 5 years on](#)
[A Digital Credit Revolution: Insights from Borrowers in Kenya and Tanzania](#)

Overview and framing of key issues in digital credit:

[Digital credit: A snapshot of the current landscape and open research questions \(Digital credit observatory\)](#)

[Instant, Automated, Remote: The Key Attributes of Digital Credit\)](#)

[How M-Shwari works, the story so far \(CGAP & FSD Kenya\)](#)

[Big data, small credit \(Omidyar network\)](#)

[Digital credit's evolving landscape: 3 things you need to know \(CGAP\)](#)

Competition and product comparisons:

[M-Shwari vs KCB M-Pesa: convergence or divergence? \(FSD Kenya\)](#)

[Competition in the Kenyan digital financial market \(3 part series\) \(Helix Institute for Digital Finance\)](#)

Consumer protection issues:

[Consumer protection in digital credit \(CGAP\)](#)

[Digital credit in Kenya: Time for celebration or concern? \(CGAP\)](#)

Demand-side survey findings:

[Kenya's digital credit revolution five years on \(CGAP & FSD Kenya\)](#)

[Quicksights report fourth annual FII tracker survey \(InterMedia\)](#)

[Value added financial services in Kenya: M-Shwari \(InterMedia\)](#)

[Where credit is due - customer experience of digital credit in Kenya \(Microsave\)](#)

Applied experimentation and product design:

[Digital consumer credit: Four ways providers can improve customer experience \(CGAP\)](#)

[Can digital savings reduce risks in digital credit? \(CGAP\)](#)

Impact evaluations:

Forthcoming: Can digital loans deliver? Take up and impacts of digital loans in Kenya (MIT & FSD Kenya)