Supplementary Materials for

The long-run poverty and gender impacts of mobile money

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SOM Text 1: Additional Background on M-PESA

The mobile phone represents one of the most quickly and widely adopted technologies in human history. In parts of the developing world, including Kenya, adoption amongst the adult population reached near universal levels within 15 years of the product's introduction.

Unlike in the United States, in most countries mobile phone users purchase pre-paid airtime, allowing them to make calls and send text messages. Customers typically buy scratch cards with a unique numerical code which, when entered into their mobile phones generate a credit balance. A network of airtime retailers thus replaces the need for a complex *ex post* billing system typically observed in more developed countries.

Mobile operators often allow users to share airtime, transferring it to others on the same network at zero or little cost. Kenyans learned early that this feature provided an efficient means of transferring resources over large distances. A customer, A, would purchase airtime from a retailer, send it to a user (often a relative) B, in another location, who would in turn exchange it with a proximate third user, C, for cash. C might purchase the airtime at less than face value, thereby extracting a fee for the conversion service.

Mobile money, M-PESA in Kenya, is simply the formalization and commercialization of this transfer of financial resources from A to B by the Kenyan telecommunications company, Safaricom. Instead of A purchasing airtime and B having to find a willing buyer C, customers can purchase mobile money balances, known as "e-float", and exchange it for cash, at mobile money agents, who work on commission for the mobile operator. Mobile money agents typically conduct other lines of business, and include for example airtime sellers, other retail outlets such as convenience stores and supermarkets, and petrol stations.

The success of M-PESA in Kenya was not insignificantly related to the rapid deployment of a network of such agents countrywide. These agents, with whom customers can make deposits and withdrawals, can be thought of as human ATMs, in a country that, at the time of M-PESA's launch had of the order of 1,000 real ATMs. Currently, as reported by the Communications Commission of Kenya, there are 141,542 agents, serving both M-PESA and other mobile money customers. The widespread adoption of mobile money was thus as much due to technological innovation as it was to the efficient distribution and management of cash across a vast network of agents.

The cash deposited in M-PESA accounts is held in trust accounts of the mobile operator in a small number of commercial banks in Kenya. An individual's M-PESA account is not however considered a bank account – it does not earn interest, and loans are not available to users. As a result, the mobile operator with which the mobile money account is held is not subject to the same regulations under which banks conduct business. This regulatory largesse is widely believed to have contributed to the rapid adoption of mobile money, since opening a bank account, if it was possible at all, could take weeks, while opening an M-PESA account took a matter of minutes. In other countries, mobile money accounts must be delivered in partnership with a bank, and are subject to the same regulatory requirements as traditional bank accounts.

In response to the advent and rapid growth of M-PESA, commercial banks initially lobbied the Central Bank of Kenya to restrict its operations, and to regulate it as a bank. When these efforts proved unsuccessful, the banks, which conducted business through traditional "brick and mortar" branches that were expensive to operate and reached very few customers outside of Nairobi and the larger regional centers, sought permission to deliver banking services through bank agents that could operate like M-PESA agents. Agent banking regulations, which allowed banks and other financial institutions to offer banking services such as account opening, deposits and withdrawals at non-branch agents (such as stores, gas stations, etc.), were promulgated by the Central Bank in 2010, after which banks were able to compete more directly with M-PESA.

In 2011, in a partnership between M-PESA and a local bank, the Commercial Bank of Africa (CBA), a new banking service was created, M-Shwari. An M-PESA user can now, on her mobile phone and without visiting a bank branch, open a bank account with the CBA simply by keying in a series of codes. A deposit is made into an M-Shwari account by sending balances from the individual's M-PESA account. Withdrawals are made in a similar fashion, by transferring funds from the M-Shwari account to the M-PESA account, from which a cash redemption can be made at an M-PESA agent. Balances in M-Shwari accounts earn interest, and account holders can request a loan from the CBA by choosing from a simple menu on their phones. Loan limits and eligibility are calculated based on a user's history of mobile money and airtime purchases. None of these services require smart phone technology. By April 2015, over 10 million Kenyans had an M-Shwari bank account, and for the first time had access to formal financial services (*32*).

This was followed by a similar product from Kenya Commercial Bank (KCB) called KCB M-PESA in 2015 and in the same year a large commercial bank in Kenya, Equity, purchased a license for an Mobile Virtual Network Operator (MVNO) and produced a mobile banking product called Equitel. All these mobile phone banking products that allow for savings and credit over the mobile phone all operate through agent networks and not branches. As of 2014, M-PESA's agent network has been open to all other telcos and banks so this network is used by all the banking products that are collaborations with M-PESA as well as by Equitel (though Equitel also has additional agents of its own).

This increase in mobile phone based banking products that operate through agent networks meant that areas that had initially (and randomly) seen larger concentrations of M-PESA agents subsequently experienced more competitive provision of financial services through expanded agent networks to accommodate the growth in financial products. As explained in the text, the long-run effects of M-PESA that we document are associated in part with adoption of mobile

money itself, and with the more general availability of affordable financial services that came with it. A large part of this was directly attributable to M-PESA as some of these products operate directly through M-PESA and its agent network. Figs. S1-S3 show the roll out of financial services in Kenya over 2007, 2011 and 2015 – note that the yellow service points show the mobile money agents. Up to 2011, most of the growth in financial service access points came from mobile money agents. In the years that followed, there was significant growth in bank agents as well. As a benchmark, Fig. S4 shows population density in Kenya.

In 2013, Safaricom also launched a product called Lipa-na-M-PESA that encourages retail payments over the M-PESA platform. It standardizes transaction fees at retail outlets and was an attempt to move a lot of standard small scale retail payments onto the M-PESA platform. This could provide an easy, transparent and simple way for small businesses to manage their cash both with their customers as well as with their suppliers.

SOM Text 2: Additional Information on Data, Variable Construction and Prior Results

In September 2008, we undertook a survey of 3,000 randomly selected households across most inhabited parts of Kenya. We over-sampled locations with more reported M-PESA agents, and randomly selected households using the Kenyan National Bureau of Statistics master sample from 118 locations. Follow-up surveys of the same households were administered starting in December 2009 and June 2010, each taking between 8 and 12 weeks. Attrition rates were non-trivial, and in 2009 we re-interviewed 2,017 households, while in 2010 we were able to find 1,595 of the original sample, 265 of whom were not interviewed in 2009. In our previous work (Jack and Suri, 2014 (*9*)), we used a balanced panel of the 2,017 households from rounds 1 and 2, plus a second panel of the 265 households found in rounds 1 and 3, but not in round 2. Controlling for the difference in the timing between rounds 2 and 3 we constructed a two-period panel of 2,282 households, with an attrition rate of about 24 percent. The attrition rate for areas outside of Nairobi was closer to 18 percent. These attrition rates are similar to those found in other studies that contain a heavy urban component (*9*). We also conducted a fourth round survey in 2011, to be able to track further use of M-PESA.

Table S1 shows summary statistics for the 2014 survey data used in this paper. From Table S1, daily per capita consumption in the 2014 sample is on average, about 200 KShs (about USD 2), with about 43% of households living on less than USD 1.25 per person per day and only 34% of households above the USD 2 per person per day. The value of total household (physical) assets is about KShs 400,000 on average, with 83% of households owning a radio, 60% owning a TV, 39% owning a cow. Total financial assets are on average KShs 290,000, with about 58% of households having a bank account, 23% using a SACCO (Savings and Credit Cooperative) and 66% using a ROSCA (Rotating Savings and Credit Association). On the credit side, about 19% of households have an outstanding loan, and 10% have made a loan to someone else.

About 30% of adults in our sample are farmers as classified by their main occupation, 12% have a business, and 33% report having a secondary occupation. About 77% of households are male-headed and 41% of households report that at least one member of their household has migrated (either temporarily or permanently) since the advent of M-PESA in 2007. Finally, regarding access

to M-PESA agents, households have on average just under 9 agents within 1km (in 2010). The average change in agent density between 2007 and 2010 was an increase of 5 agents within this 1km range. On average, households have had M-PESA for 6 years.

In addition, we used the survey data collected to create scores for the safety and the convenience of the set of financial instruments used by households in our sample. We focus only on safety and convenience as these were the primary reasons listed by households for the use of particular financial instruments. In the survey, for example, in 26% of cases, instruments are chosen for safety reasons, in 38% of cases for ease and convenience, in 3.6% cases for cost reasons, in 9% of cases for emergency and in 16% of cases because savings allows credit access. To create the safety and convenience scores, we used the questions in the survey that asked households, for each financial instrument, the most important reason they use that particular instrument. Using this, we computed the fraction of financial instruments used by the household that are used primarily for safety reasons and the fraction that are used primarily for convenience reasons. Table S1 shows that, on average, households report just over a quarter of their financial instruments as safe by this measure and just over 40% as convenient.

Previous Empirical Results

In previous work, Jack and Suri, 2014 (*9*) we estimated the impact that M-PESA had had on the ability of households to cope with risk. Using the same identification strategy as in this paper – that is, the early roll-out of M-PESA agents across the country, which was uncorrelated with individual and household characteristics – we found that access to the service was associated with more resilience to economic and other shocks.

For example, when households without access to M-PESA suffered a negative economic shock such as job loss, crop failure, or unemployment, on average their consumption fell by 7 percent. On the other hand, households with access to M-PESA facing the same negative circumstances saw no change in consumption, or even a small (but statistically insignificant) increase. Households that suffered a health shock – such as an injury or illness – saw per capita consumption *increase* by nearly 12 percent if they had access to M-PESA, but *decrease* by nearly 3 percent if they did not. Both types of household – those with and without access – incurred large medical expenditures when faced with health shocks. But while non-users of mobile money financed these expenditures by reducing food and other non-food consumption, M-PESA users financed them through remittances, and even *increased* their food and other non-food consumption.

This resilience was achieved through better access to informal networks of remittances. In particular, when faced with a shock, mobile money users received remittances from *more* individuals, received a *larger* volume of remittances, and received them from *more distant* sources. Not surprisingly, because of the very low cost of making near instantaneous transfers, the support networks of mobile money users were larger, deeper, and more responsive to unexpected needs.

SOM Text 3: Design, Identification and Robustness Checks and Additional Outcomes

Our identification assumption in this paper is the same as the one used in our earlier work (Jack and Suri, 2014 (*9*)), that the change in agent density between 2007 and 2010 was uncorrelated with household and regional characteristics that might have driven demand for the service, and future economic outcomes, as documented in Table S2A drawn from our 2014 study (reproduced here). Instead, the rollout was primarily determined by supply side factors.

In particular, in the early days of operation the mobile operator was overwhelmed by applications from prospective agents, and lacked the time or resources to actively approve applications based on local conditions. Indeed, outside of Nairobi, the company had little information on the geographic location of applicants, and cannot have based expansion decisions on the characteristics of nearby households. (In Nairobi, new agent approvals were temporarily ceased in 2009 due to a perceived over-supply.) The growth in agent numbers between 2008 and 2010 was manifest largely in an increase in the density of agents available within locations. Because of cash and e-money inventory management problems faced by individual agents, the increases in density translated into significant improvements in the access to functional M-PESA services.

The top panel of Table S2A shows the correlation of changes in a range of measures of agent density with a wide variety of socioeconomic characteristics from our survey data. These specifications control for household fixed effects, so measure the correlation between changes in agent density and changes in socioeconomic conditions over the period. We thus infer that the expansion of the agent network was not targeted to high (or for that matter, low) growth areas.

In addition to this, we look at whether the levels of socioeconomic characteristics from our survey data in 2008 correlate with the changes in agent density and report these results in Table S2B. As can be seen, subsequent changes in density were uncorrelated with initial 2008 *levels* of socioeconomic conditions.

In our earlier work (see Table 7A, Jack and Suri, 2014 (*9*), replicated as Table S3A), we presented further evidence in support of this identifying assumption by conducting a falsification test using data from a different source (Tegemeo Institute for Agricultural Policy and Development, http://www.tegemeo.org/) prior to the advent of M-PESA. These earlier data are different from our M-PESA surveys in two specific ways. First, the sample is entirely rural and has no urban component at all. Second, the survey does not collect complete consumption data but only maize consumption (purchases and own consumption), which is the main staple in the country and crop consumption (own consumption), which makes up about 40% of total consumption.

By comparing areas that would in the future experience greater increases in agent density with those that would not, we confirmed that the risk-sharing effects we had estimated between 2008 and 2010 were not present in earlier periods. We add to this for this study (see Table S3B) by showing that the levels of consumption in 2007 from these data are also uncorrelated with levels and changes in agent density.

Figs. S1-S3 show graphically that after the new agent banking regulations were adopted, new financial access points came into existence in competition with the M-PESA agent network. (These correlations are also very strong in regression analysis, results available upon request). In part, the high spatial correlation of new agent services with the initial M-PESA network came was

driven by a prohibition of exclusivity clauses in agent contracts in 2014, after which existing M-PESA agents could provide services for other banks and financial institutions.

Computing Effects for the Country

In the paper, we report two aggregate numbers that we calculated using a back of the envelope calculation on how many households moved out of poverty as a consequence of M-PESA and how many women switched occupations into business/sales. Here is how we calculated those numbers. Throughout we err on the low side so that the numbers are a lower bound.

We took the effect in the tables 1 and 3 of how a one unit change in agent density affects poverty (and occupational choice). We then used the mean change in agent density in the sample to understand how the mean change in agent density affected poverty, i.e. we multiple the coefficient by the mean change in agent density experienced in the sample, which is 4.7. We could actually do this using the change in agent density for the full sample of 3000 households (as attrition does not affect whether we can actually measure the change in agent density) – for the full sample this number is 5.23. We have stuck with the lower number in the sample just so that, if anything, we are a lower bound.

We then scaled this number by the number of households in the country (data we got from the Kenya National Bureau of Statistics Website – again this is data from the last population census which was conducted in 2009 and so will be lower than the current population). There are many ways to do this that account for attrition. The lowest bound is to assume that the effects in the non-sampled areas in the North and in Nairobi (which was dropped in later rounds of the survey) are zero. In addition, one could assume that the effects for the households that attrited are zero. Since we show that in areas with attrition as low as 17%, the effects are similar (in fact, higher) to those in areas where the attrition was higher, we use this 17% as the relevant attrition rate. When we scale up the mean effect, we therefore multiply it by the total number of households minus those in the North minus those in Nairobi and minus 17% of the remaining to account for attrition. This gives as the following numbers which we present in the paper. About 194,000 households moved out of poverty and 185,000 women switched occupations into business/sales.

Robustness

We construct measures of education, wealth and bank account access in 2008, and interact these with changes in agent density to test if the differential effect for female-headed households masks impacts of these other characteristics that correlate with the gender of the household head. For education and wealth, we create a dummy variable for whether the household head is below media education in the sample and whether the wealth of the household is below median in the sample. For bank access, we create a dummy variable for whether the household is unbanked. While these indicators do not represent pre-intervention values, since by the time of our first survey M-PESA had been operational for over a year, we believe that they would have changed little since its launch. The correlations with female household head are 0.105 (education), 0.046 (assets), and 0.104 (unbanked). We interact each of these with changes in agent density and add the main effects and the interactions to the main regression – the last coefficients reported in the tables in the main paper come from this specification.

Table S4 reports all the coefficients of the model with the full set of interactions (not just with gender but with education, wealth and whether the household is unbanked) – the coefficient on the female interaction is reported in Table 1 in the main text. As can be seen, the interaction of the female-headed dummy with change in agent density remains significant, though agent density potentially also has stronger effects for the unbanked (these results are not as robust). Therefore, over and above these characteristics that correlate with female headedness – education, wealth and being unbanked – there are additional effects of increases in agent access for female-headed households on consumption and poverty.

Similarly, Tables S5 and S6 report all the coefficients corresponding to the last estimate reported in Tables 2 and 3 in the main text. In Table S5, there seem to be some effects of agent density for those with low wealth on assets (perhaps because they have few assets to start with) and on having an account at a SACCO (Savings and Credit Cooperative). There also seems to be an effect of change in agent density on bank accounts for the previously unbanked, again probably because they did not have bank accounts to start, and because the exogenous M-PESA agent growth was correlated with subsequent expansion of the agent banking network and a proliferation of banking products such as M-Shwari that operate over the rails of M-PESA. In Table S6, the lower educated individuals with better agent access are more likely to be in business and less likely to be in farming. The migration results and household size results do not show any systematic patterns.

Attrition

Our sample of households covered both urban and rural areas. Over a six-year panel, attrition is to be expected, either if households move without leaving useful contact information, or if they refuse to take part. While only a small share (0.1%) of households actively declined to be interviewed in the 2014 survey, a non-negligible number could not be traced. Attrition was largest for households initially recruited in the capital city, Nairobi, as geographic mobility is much higher there than in other areas. Attrition from the non-Nairobi sample was 35% over the six-year window.

We correct for attrition in two ways. First, as per our earlier work, we restrict the sample to communities where attrition was low and show that the effects are statistically identical – see Tables S7, S9 and S11. For low attrition, we drop communities where more than 35% of the sample in the community could not be found – by doing this we drop 49.6% of households. In this restricted sample, the average attrition rate is 17%. Second, following the methodology in Fitzgerald, Gottschalk and Moffitt (1998) (*18*), we weight for attrition in the regressions, which leaves the results unchanged – see Tables S8, S10 and S12.

Looking more closely at the effects on consumption and poverty, Table S7 for low attrition communities shows very similar results to those in the main text, especially for female-headed households. Similarly, in Table S8, the results using FGM weights are also consistent, if not stronger than those in the main text, again especially for female-headed households. Considering financial outcomes, Tables S9 and S10 show similar effects for savings for female-headed households and the same effect for the overall sample on bank accounts as Table 2 in the main

text. Tables S11 and S12 show results for occupation choice and migration, again with similar effects as Table 3 in the main text, especially for female-headed households.

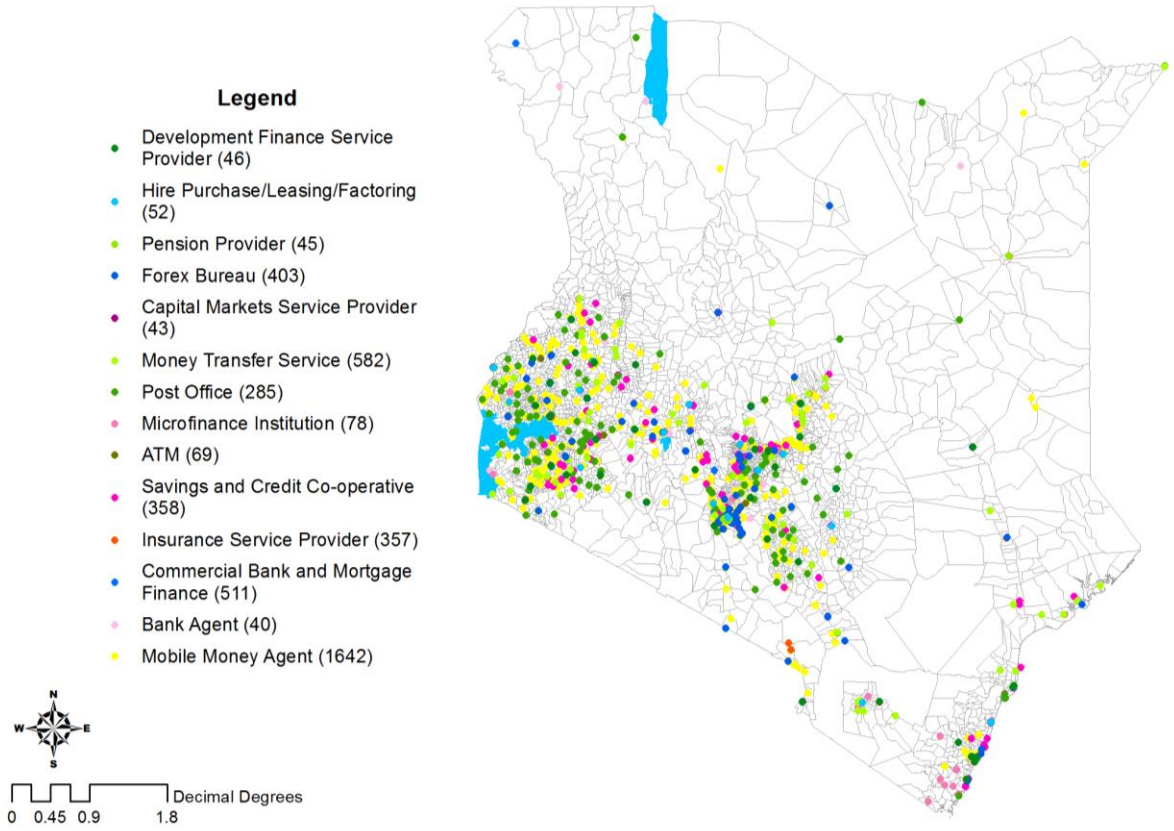
Finally, all the results in the paper are reduced form regressions on how increases in agent density affected outcomes conditional on location fixed effects. (Locations are small administrative units in Kenya with approximately 3000 households per location). Controlling for location fixed effects, we find small and mostly statistically not significant correlations between changes in agent density and attrition. From a regression with location fixed effects, the coefficient on agent density is -0.0022 (with a standard error of 0.0015) and in the sample where attrition is low, this coefficient is -0.0006 (with a standard error of 0.002).

Additional Outcomes

Table S13 reports impacts of changes in agent density on a range of other dependent variables. Female-headed households are slightly less likely to have received a loan (perhaps because they were able to use their own higher savings instead), and their dwellings appeared to be improved – they were more likely to have access to electricity, to have stone walls and a cement floor, and were less likely to use firewood as fuel.

Finally, Table S14 explores the impacts of changes in agent density on a range of measures of household composition. The effects on household size are consistent with a reduction in the number of both younger children as well as teenage children at home. This may be partly a fertility effect, but it could also be driven by increased enrollment in boarding schools, or possibly for the older children by teenagers migrating for work (although there is no statistically significant migration effect).

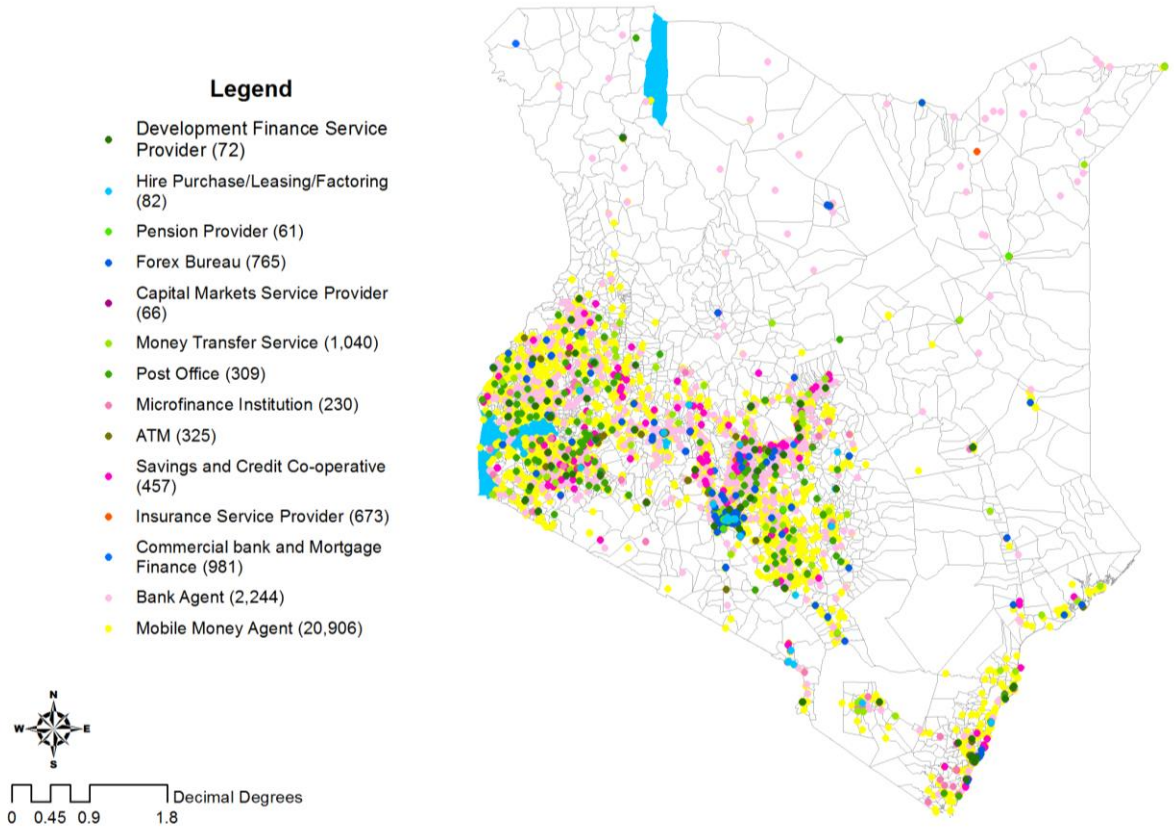
Fig. S1: Financial Service Points, 2007



Source: 2016 Finacces Geospatial Mapping

Note: This was a mapping conducted in 2016 that asked agents when they started operating their business for each product (by 2016, a lot of these businesses were agents for multiple telcos and/or banks). This allowed us to create maps for the country of how many agents there were in 2007, 2011 and 2015. These may not give the most accurate numbers for 2007 and 2011 as a lot of agents that may have been in business those years may likely have shut down by now. We therefore do not use these data in the analysis. Instead we use the data we collected in agent rollout in 2010, that accompanied our household surveys. This figure is primarily for illustration of the macro level changes in the country.

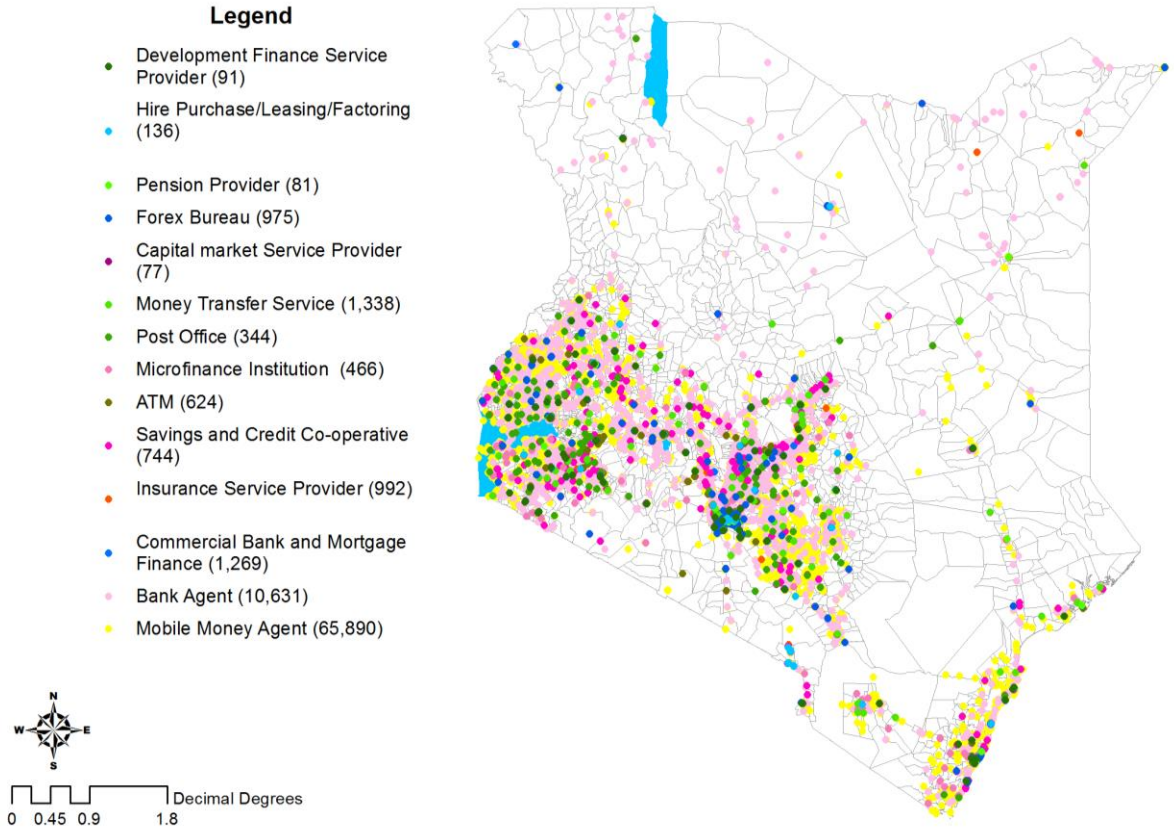
Fig. S2: Financial Service Points, 2011



Source: 2016 Finacces Geospatial Mapping

Note: This was a mapping conducted in 2016 that asked agents when they started operating their business for each product (by 2016, a lot of these businesses were agents for multiple telcos and/or banks). This allowed us to create maps for the country of how many agents there were in 2007, 2011 and 2015. These may not give the most accurate numbers for 2007 and 2011 as a lot of agents that may have been in business those years may likely have shut down by now. We therefore do not use these data in the analysis. Instead we use the data we collected in agent rollout in 2010, that accompanied our household surveys. This figure is primarily for illustration of the macro level changes in the country.

Fig. S3: Financial Service Points, 2015



Source: 2016 Finacces Geospatial Mapping

Note: This was a mapping conducted in 2016 that asked agents when they started operating their business for each product (by 2016, a lot of these businesses were agents for multiple telcos and/or banks). This allowed us to create maps for the country of how many agents there were in 2007, 2011 and 2015. These may not give the most accurate numbers for 2007 and 2011 as a lot of agents that may have been in business those years may likely have shut down by now. We therefore do not use these data in the analysis. Instead we use the data we collected in agent rollout in 2010, that accompanied our household surveys. This figure is primarily for illustration of the macro level changes in the country.

Fig. S4: Population Density in Kenya

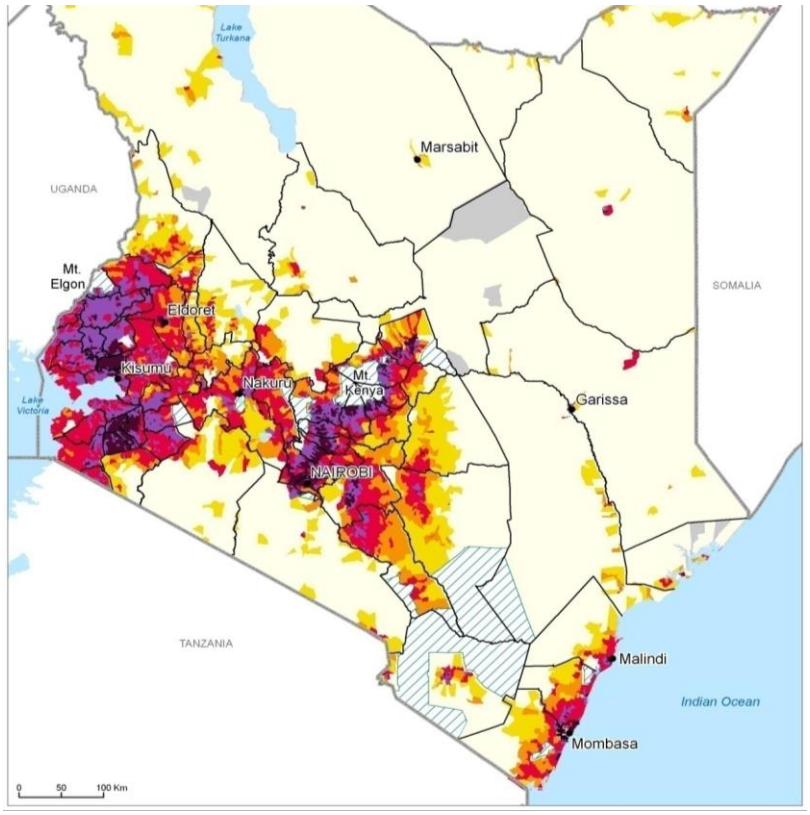


Table S1: Summary Statistics

	Mean	Standard Deviation
Consumption and Poverty		
Daily per Capita Consumption (KShs)	205.1028	298.0347
Log Daily Per Capita Consumption (KShs)	4.892924	0.889273
Under USD 1.25 a day	0.432517	0.495581
USD 1.25-USD 2 a day	0.227872	0.419591
Over USD 2 a day	0.339611	0.473726
Assets		
Total Assets (KShs)	396595.7	2387236
Log Assets (KShs)	11.1038	1.759192
Owns a Radio	0.829881	0.375856
Owns a TV	0.603264	0.489374
Owns a Cow	0.392969	0.488564
Electricity Main Source of Power	0.4871312	0.499991
Firewood Main Fuel	0.4601381	0.498565
Cement Floor	0.6779661	0.467403
Stone Walls	0.3873195	0.487291
Total Savings (KShs)	286752.8	1218323
Log Total Savings (KShs)	11.22511	1.607725
Uses Bank	0.578782	0.493909
Uses SACCO	0.233522	0.423204
Uses ROSCA	0.663528	0.472651
Uses MPESA	0.612053	0.487436
Safety of Financial Instruments	0.267	0.285
Convenience of Financial Instruments	0.409	0.324
HH has a Loan	0.191463	0.393576
HH gave a Loan	0.098556	0.298159
Occupational Choice and Demographics		
Farmer	0.29818	0.457602
Business	0.123038	0.328584
Secondary Occupation	0.325173	0.468586
Gender of HH head (Dummy for Male)	0.767734	0.422411
Migration	0.411802	0.492314
Number of Migrants	0.956686	1.686856
Access to M-PESA		
Agent Density	8.683616	16.95691
Change in Agent Density	4.675455	9.497858
MPESA Years	6.099444	1.9329

Note: Consumption and assets are reported in Kenyan Shillings (KShs).
The exchange rate at the time of the survey was approximately KShs 90 to the USD.

Table S2A: Correlates of Agent Roll Out, from Jack and Suri (2014) [Dependent variable: measures of agent density]

	Agents w/in 1km		Agents w/in 2km		Agents w/in 5km		Distance to Agent	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Log Wealth	0.0047	[0.0088]	0.0155*	[0.0093]	-0.0079	[0.0123]	0.0079	[0.0061]
Cellphone Ownership	-0.0288*	[0.0175]	0.0074	[0.0232]	-0.0184	[0.0286]	0.0040	[0.0180]
Household Size	-0.0054	[0.0067]	0.0021	[0.0076]	-0.0073	[0.0105]	-0.0056	[0.0044]
Fraction of Boys in the Household	0.0559	[0.0794]	0.1005	[0.0987]	-0.0620	[0.1313]	0.0202	[0.0507]
Fraction of Girls in the Household	0.0868	[0.0700]	0.1226	[0.0847]	0.3236*	[0.1684]	-0.0286	[0.0613]
Occupation of Head: Farmer	0.0290	[0.0189]	-0.0253	[0.0216]	0.0211	[0.0233]	0.0044	[0.0157]
Occupation of Head: Professional	0.0082	[0.0304]	0.0420	[0.0391]	-0.0037	[0.0413]	0.0184	[0.0196]
Occupation of Head: Business	-0.0409	[0.0276]	0.0232	[0.0302]	0.0226	[0.0418]	-0.0009	[0.0200]
Household Head Yrs of Education	-0.0033	[0.0021]	-0.0008	[0.0026]	0.0040	[0.0031]	-0.0018	[0.0014]
HH Has a Bank account	0.0181	[0.0184]	0.0151	[0.0238]	0.0316	[0.0300]	0.0178	[0.0111]
HH has a SACCO account	0.0011	[0.0237]	-0.0061	[0.0276]	0.0327	[0.0505]	-0.0042	[0.0185]
HH has a ROSCA	0.0172	[0.0180]	0.0238	[0.0224]	0.0019	[0.0310]	0.0149	[0.0102]
Negative Shock	0.0120	[0.0151]	0.0393**	[0.0183]	0.0492*	[0.0258]	-0.0035	[0.0120]
Illness Shock	0.0004	[0.0171]	0.0008	[0.0205]	0.0433	[0.0256]	-0.0186	[0.0125]

	Agents w/in 1km		Agents w/in 2km		Agents w/in 5km		Distance to Closest Agent	
	Period 1	Changes	Period 1	Changes	Period 1	Changes	Period 1	Changes
Distance to Nairobi	-0.0009	0.0002	0.0026	-0.0011	-0.0029	0.0028	-0.0007	-0.0003
	[0.0031]	[0.0013]	[0.0058]	[0.0028]	[0.0099]	[0.0047]	[0.0056]	[0.0011]

Note: Standard errors in brackets are clustered at the village level; *** p<0.01, ** p<0.05, * p<0.1
Distance to the closest agent is measured in log meters.
Each cell reports coefficients and standard errors from a separate regression.
In the top panel, all control for Time*Location, Time*Rural and household FE. In the bottom, all control for Location FE.

Table S2B: Correlates of Agent Roll Out, from Jack and Suri (2014) [Dependent variable: change in agent density]

	Change in Agent Density	
	Coefficient	SE
Log Wealth	-0.0042	[0.0577]
Cellphone Ownership	0.1593	[0.1459]
Household Size	-0.0558	[0.0347]
Fraction of Boys in the Household	-0.4711	[0.3998]
Fraction of Girls in the Household	-0.2477	[0.2987]
Occupation of Head: Farmer	-0.1814	[0.1546]
Occupation of Head: Professional	-0.0743	[0.1715]
Occupation of Head: Business	0.0096	[0.1977]
Household Head Yrs of Education	-0.0256*	[0.0144]
HH Has a Bank account	0.4118**	[0.1873]
HH has a SACCO account	-0.0979	[0.1598]
HH has a ROSCA	0.3194	[0.2182]
Negative Shock	0.0550	[0.1493]
Illness Shock	-0.0928	[0.1360]

Note: Standard errors in brackets are clustered at the location level; *** p<0.01, ** p<0.05, * p<0.1
Each row reports coefficients and standard errors from a separate regression. Each regression controls for location and rural fixed effects.

Table S3A: Falsification Test from Jack and Suri (2014) [Dependent Variable: Log Household Consumption per Capita]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Agents w/in 2km				Distance to Closest Agent			
	Maize Consumption		Crop Consumption		Maize Consumption		Crop Consumption	
	OLS	Panel	OLS	Panel	OLS	Panel	OLS	Panel
Shock*Agents	-0.009	-0.058	0.091	0.055	0.070	0.088	-0.046	-0.037
	[0.083]	[0.068]	[0.085]	[0.065]	[0.077]	[0.065]	[0.072]	[0.062]
Shock Measure (Positive Measure)	0.418***	0.412***	0.400***	0.377***	-0.175	-0.341	0.812	0.704
	[0.074]	[0.068]	[0.069]	[0.062]	[0.648]	[0.552]	[0.608]	[0.529]
Agents	-15.181		-13.537		44.036*		28.512	
	[16.855]		[16.796]		[24.018]		[21.443]	
Observations	4,736	4,736	4,736	4,736	4,736	4,736	4,736	4,736
R-squared	0.323	0.345	0.486	0.546	0.324	0.345	0.486	0.546

Note: Heteroskedasticity robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1
The shock measure used here is the deviation of main season rainfall from its long term mean. In addition, this specification controls for location and time dummies and measures of household demographics. All coefficients are multiplied by 1000.

Table S3B: Additional Falsification Test [Dependent Variable: Measures of Household Consumption in 2007]

	(1) Log Maize Consumption per Capita	(2) Log Crop Consumption per Capita
Agent Density (within 1km)	-0.052 [0.051]	-0.023 [0.085]
Agent Density (within 2km)	-0.005 [0.037]	0.002 [0.044]
Log Distance to Closest Agent	0.039 [0.056]	0.014 [0.063]
Change in Agent Density (within 1km)	-0.025 [0.046]	-0.030 [0.055]
Change in Agent Density (within 2km)	-0.008 [0.018]	-0.004 [0.023]
Change in Distance to Closest Agent	0.004 [0.015]	-0.002 [0.017]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
Each cell represents the coefficient on a regression of agent density on consumption. All specifications include location fixed effects.
The sample is entirely rural, as compared to the sample in Jack and Suri (2014). So we look at three measures of density, the agents within 1km, the agents within 2km and the distance to the closest agent.

Table S4: Effects on Consumption and Poverty, All Interactions

	(1) Log Per Capita Consumption	(2) Change in Log Per Capita Consumption	(3) Extreme Poverty (USD 1.25)	(4) Poverty (USD 2)
Change in Agent Density	0.013***	-0.005*	-0.008***	-0.007**
	[0.004]	[0.002]	[0.002]	[0.003]
Female Head*Change in Agent Density	0.016**	0.020***	-0.007**	-0.008
	[0.007]	[0.006]	[0.003]	[0.005]
Low Educ*Change in Agent Density	0.005	-0.009	-0.002	-0.001
	[0.005]	[0.006]	[0.003]	[0.004]
Low Wealth*Change in Agent Density	0.010	0.003	-0.004	0.001
	[0.007]	[0.006]	[0.005]	[0.005]
Unbanked*Change in Agent Density	0.016**	0.005	-0.007*	-0.009**
	[0.006]	[0.006]	[0.004]	[0.004]
Effect of Agent Density for Female Headed	0.030***	0.015**	-0.015***	-0.015***
	[0.006]	[0.006]	[0.003]	[0.004]
Sidak-Holm p-value	0.00	0.02	0.00	0.00
Observations	1587	1587	1587	1587

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
The effect of agent density for the female headed is overall effect of gender, including evaluating the effects of education, wealth and unbanked for female headed households. The text describes how this is computed in more detail.

Table S5: Effects on Assets, All Interactions

	(1) Log Assets	(2) Log Savings	(3) Safety	(4) Convenience	(5) Bank Account	(6) SACCO	(7) ROSCA	(8) M-PESA
Change in Agent Density	0.010	0.025***	0.002	-0.001	0.009***	0.003	0.001	0.001
	[0.008]	[0.009]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]	[0.003]
Female Head*Change in Agent Density	0.002	0.010	-0.004	-0.002	-0.005	-0.000	-0.001	-0.001
	[0.013]	[0.015]	[0.003]	[0.003]	[0.004]	[0.004]	[0.005]	[0.005]
Low Educ*Change in Agent Density	-0.006	-0.004	0.001	0.002	0.004	0.003	0.002	0.003
	[0.010]	[0.013]	[0.003]	[0.002]	[0.004]	[0.004]	[0.003]	[0.004]
Low Wealth*Change in Agent Density	0.032**	-0.002	0.003	-0.004	0.005	0.006**	0.008	-0.002
	[0.014]	[0.019]	[0.003]	[0.003]	[0.004]	[0.003]	[0.005]	[0.005]
Unbanked*Change in Agent Density	-0.011	0.026	-0.002	0.002	0.011***	-0.000	0.000	0.006
	[0.015]	[0.016]	[0.002]	[0.003]	[0.004]	[0.003]	[0.004]	[0.004]
Effect of Density for Female Headed	0.012	0.035**	-0.002	-0.003	0.004	0.002	-0.001	-0.000
	0.012	0.015	0.003	0.003	0.004	0.003	0.005	0.005
Sidak-Holm p-value	0.95	0.20	0.95	0.95	0.95	0.95	0.98	0.98
Observations	1574	1479	1513	1513	1587	1587	1587	1587

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
The effect of agent density for the female headed is overall effect of gender, including evaluating the effects of education, wealth and unbanked for female headed households. The text describes how this is computed in more detail.

Table S6: Effects on Occupational Choice, Migration & Household Composition, All Interactions

	(1) Business/ Sales	(2) Semi Skilled	(3) Farming	(4) Secondary	(5) Migration	(6) No. Migrants	(7) HH Size
Change in Agent Density	0.002	0.001	-0.003***	0.000	0.001	0.007	-0.017*
	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]	[0.008]	[0.010]
Female Head*Change in Agent Density	0.001	-0.000	-0.002*	-0.002**	-0.003	0.003	-0.011
	[0.001]	[0.001]	[0.001]	[0.001]	[0.006]	[0.020]	[0.021]
Low Educ*Change in Agent Density	0.003**	-0.000	-0.005***	0.002	0.002	0.006	-0.029*
	[0.001]	[0.001]	[0.001]	[0.001]	[0.004]	[0.017]	[0.015]
Low Wealth*Change in Agent Density					0.003	-0.008	-0.008
					[0.004]	[0.017]	[0.023]
Unbanked*Change in Agent Density					-0.001	0.001	0.004
					[0.004]	[0.015]	[0.022]
Effect of Density for Female Headed	0.003*	0.000	-0.005***	-0.002**	-0.002	0.010	-0.028
	[0.001]	[0.001]	[0.001]	[0.001]	[0.005]	[0.022]	[0.018]
Sidak-Holm p-value	0.25	0.96	0.00	0.10	0.96	0.96	0.38
Observations	4723	4723	4723	4723	1587		

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
The effect of agent density for the female headed is overall effect of gender, including evaluating the effects of education, wealth and unbanked for female headed households. The text describes how this is computed in more detail.

Table S7: Effects on Consumption and Poverty, Sample of Low Attrition Communities

	(1) Log Per Capita Consumption	(2) Change in Log Per Capita Consumption	(3) Extreme Poverty (USD 1.25)	(4) Poverty (USD 2)
Overall Effects				
Change in Agent Density	0.031***	0.005	-0.017***	-0.016***
	[0.008]	[0.005]	[0.004]	[0.005]
Effects by Gender of Household Head				
Change in Agent Density	0.028***	0.001	-0.016***	-0.015***
	[0.008]	[0.005]	[0.005]	[0.005]
Female Head*Change in Agent Density	0.018	0.023*	-0.006	-0.005
	[0.013]	[0.013]	[0.009]	[0.008]
Female head	-0.060	-0.076	-0.004	0.056
	[0.088]	[0.096]	[0.051]	[0.043]
Effect of Agent Density for Female Headed	0.045***	0.024*	-0.021***	-0.020**
	[0.012]	[0.013]	[0.006]	[0.008]
Effect for Female Headed, 25th-75th Percentile	0.135	0.071	-0.064	-0.060
Observations	1055	1055	1055	1055
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account				
Effect of Agent Density for Female Headed	0.043***	0.015	-0.020***	-0.020**
	[0.011]	[0.012]	[0.006]	[0.008]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
The last estimates in the table are from specifications that include interactions of the change in agent density with education of the household head, wealth and whether the household had a bank account, all measured in 2008 (the complete estimates are shown in Tables S1-S3, the text describes how this is computed).

Table S8: Effects on Consumption and Poverty, FGM Weights

	(1) Log Per Capita Consumption	(2) Change in Log Per Capita Consumption	(3) Extreme Poverty (USD 1.25)	(4) Poverty (USD 2)
Overall Effects				
Change in Agent Density	0.012***	-0.002	-0.007***	-0.007**
	[0.005]	[0.003]	[0.002]	[0.003]
Effects by Gender of Household Head				
Change in Agent Density	0.009**	-0.005	-0.006***	-0.005*
	[0.004]	[0.003]	[0.002]	[0.003]
Female Head*Change in Agent Density	0.021***	0.018***	-0.008**	-0.009
	[0.008]	[0.006]	[0.004]	[0.006]
Female head	-0.066	-0.106	0.025	0.020
	[0.077]	[0.069]	[0.042]	[0.036]
Effect of Agent Density for Female Headed	0.030***	0.014**	-0.014***	-0.014**
	[0.008]	[0.006]	[0.004]	[0.006]
Effect for Female Headed, 25th-75th Percentile	0.181	0.081	-0.085	-0.084
Observations	1583	1583	1583	1583
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account				
Effect of Agent Density for Female Headed	0.032***	0.015**	-0.015***	-0.016***
	[0.006]	[0.006]	[0.003]	[0.005]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
FGM weights are weights that account for attrition, based on methodology in Fitzgerald, Gottschalk and Moffitt (1998) (*18*).

Table S9: Effects on Assets, Sample of Low Attrition Communities

	(1) Log Assets	(2) Log Savings	(3) Safety	(4) Convenience	(5) Bank Account	(6) SACCO	(7) ROSCA	(8) M-PESA
Overall Effects								
Change in Agent Density	0.010	0.039***	0.002	-0.004	0.014***	0.003	0.001	-0.002
	[0.021]	[0.010]	[0.002]	[0.003]	[0.004]	[0.004]	[0.004]	[0.004]
Effects by Gender of Household Head								
Change in Agent Density	0.010	0.034***	0.003	-0.005*	0.015***	0.004	0.003	-0.002
	[0.020]	[0.010]	[0.002]	[0.003]	[0.004]	[0.005]	[0.005]	[0.004]
Female Head*Agent Density	0.002	0.029	-0.008	0.006	-0.010	-0.007	-0.011	-0.001
	[0.027]	[0.023]	[0.007]	[0.008]	[0.008]	[0.008]	[0.007]	[0.006]
Female Head	-0.714***	-0.517***	-0.010	0.061	-0.127**	-0.055	0.044	-0.038
	[0.198]	[0.189]	[0.039]	[0.048]	[0.051]	[0.047]	[0.050]	[0.050]
Effect of Density for Female Headed	0.012	0.063***	-0.005	0.001	0.006	-0.003	-0.008	-0.003
	[0.034]	[0.021]	[0.006]	[0.008]	[0.007]	[0.006]	[0.005]	[0.006]
Effect for Female Headed, 25-75 Pctile	0.036	0.190	-0.014	0.002	0.017	-0.008	-0.025	-0.010
Observations	1044	977	996	996	1055	1055	1055	1055
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account								
Effect of Density for Female Headed	0.007	0.065***	-0.009*	0.003	0.003	0.000	-0.006	-0.002
	[0.024]	[0.023]	[0.005]	[0.007]	[0.007]	[0.005]	[0.007]	[0.009]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
Safety and convenience refer to the safety and convenience scores of the financial instruments a household uses (see supplementary text for the full definitions).

Table S10: Effects on Assets, FGM Weights

	(1) Log Assets	(2) Log Savings	(3) Safety	(4) Convenience	(5) Bank Account	(6) SACCO	(7) ROSCA	(8) M-PESA
Overall Effects								
Change in Agent Density	0.010	0.023***	0.001	-0.002*	0.006***	0.001	-0.001	-0.000
	[0.010]	[0.009]	[0.001]	[0.001]	[0.002]	[0.001]	[0.002]	[0.002]
Effects by Gender of Household Head								
Change in Agent Density	0.009	0.023**	0.002	-0.001	0.007***	0.001	-0.001	-0.000
	[0.010]	[0.009]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]	[0.002]
Female Head*Agent Density	0.009	0.006	-0.003	-0.003	-0.003	0.001	0.002	-0.000
	[0.014]	[0.018]	[0.003]	[0.003]	[0.005]	[0.004]	[0.005]	[0.006]
Female Head	-0.690***	-0.512***	-0.001	0.072**	-0.122***	-0.061	0.019	-0.037
	[0.163]	[0.155]	[0.027]	[0.034]	[0.043]	[0.037]	[0.044]	[0.044]
Effect of Density for Female Headed	0.018	0.029	-0.002	-0.005	0.004	0.002	0.001	-0.001
	[0.013]	[0.018]	[0.003]	[0.003]	[0.005]	[0.004]	[0.005]	[0.006]
Effect for Female Headed, 25-75 Pctile	0.107	0.173	-0.009	-0.027	0.024	0.013	0.004	-0.004
Observations	1571	1476	1510	1510	1583	1583	1583	1583
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account								
Effect of Density for Female Headed	0.012	0.033**	-0.002	-0.003	0.005	0.002	0.000	0.001
	[0.013]	[0.015]	[0.003]	[0.003]	[0.004]	[0.003]	[0.005]	[0.005]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
Safety and convenience refer to the safety and convenience scores of the financial instruments a household uses (see supplementary text for the full definitions).
FGM weights are weights that account for attrition, based on methodology in Fitzgerald, Gottschalk and Moffitt (1998) (*18*).

Table S11: Effects on Occupational Choice, Migration and Household Composition, Sample of Low Attrition Communities

	(1) Business/ Sales	(2) Semi Skilled	(3) Farming	(4) Secondary	(5) Migration	(6) No. Migrants	(7) HH Size
Overall Effects							
Change in Agent Density	0.012***	-0.001	-0.013***	-0.001	0.002	0.007	-0.046*
	[0.002]	[0.002]	[0.002]	[0.002]	[0.005]	[0.012]	[0.024]
Effects by Gender of Household Head							
Change in Agent Density	0.010***	-0.001	-0.011***	-0.001	0.001	0.009	-0.044
	[0.002]	[0.003]	[0.002]	[0.002]	[0.005]	[0.014]	[0.030]
Female Head*Change in Agent Density	0.003	-0.000	-0.003	-0.001	0.010	-0.014	-0.009
	[0.003]	[0.002]	[0.002]	[0.002]	[0.008]	[0.017]	[0.053]
Female head	0.075***	-0.138***	0.093***	-0.015	0.028	-0.034	-0.656**
	[0.016]	[0.014]	[0.015]	[0.018]	[0.045]	[0.106]	[0.287]
Effect of Agent Density for Female Headed	0.013***	-0.001	-0.014***	-0.002	0.010	-0.004	-0.053
	[0.002]	[0.002]	[0.003]	[0.002]	[0.008]	[0.014]	[0.036]
Effect for Female Headed, 25th-75th Pctile	0.039	-0.003	-0.042	-0.005	0.031	-0.013	-0.159
Observations	3173	3173	3173	3173	1055	1055	1055
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account							
Effect of Agent Density for Female Headed	0.013***	-0.001	-0.014***	-0.002	0.012	-0.003	-0.040
	[0.003]	[0.002]	[0.003]	[0.002]	[0.009]	[0.019]	[0.044]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
Business or Sales refers to individuals who report their main occupation to be a business, sales or retail.
Semi Skilled refer to individuals reporting being one of: carpenter, mason, conductor, waiter, cook, driver, electrician, mechanic, watchman, secretary, tailor. Secondary refers to a dummy for the individual holding more than one occupation.

Table S12: Effects on Occupational Choice, Migration and Household Composition, FGM Weights

	(1) Business/ Sales	(2) Semi Skilled	(3) Farming	(4) Secondary	(5) Migration	(6) No. Migrants	(7) HH Size
Overall Effects							
Change in Agent Density	0.002**	0.000	-0.004***	-0.001	-0.000	0.009	-0.016*
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.009]	[0.009]
Effects by Gender of Household Head							
Change in Agent Density	0.001	0.000	-0.003***	0.000	-0.000	0.008	-0.013
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.009]	[0.010]
Female Head*Change in Agent Density	0.002	-0.000	-0.003***	-0.002**	-0.001	0.004	-0.021
	[0.001]	[0.001]	[0.001]	[0.001]	[0.005]	[0.023]	[0.019]
Female head	0.093***	-0.143***	0.091***	-0.020	0.058	-0.056	-0.535**
	[0.015]	[0.011]	[0.012]	[0.014]	[0.039]	[0.112]	[0.228]
Effect of Agent Density for Female Headed	0.003**	-0.000	-0.006***	-0.002**	-0.001	0.012	-0.034**
	[0.001]	[0.001]	[0.001]	[0.001]	[0.005]	[0.022]	[0.017]
Effect for Female Headed, 25th-75th Pctile	0.020	-0.000	-0.033	-0.012	-0.006	0.071	-0.205
Observations	4742	4742	4742	4742	1583	1583	1583
Overall Effects of Gender when Controlling for Interactions with Education, Wealth and Bank Account							
Effect of Agent Density for Female Headed	0.003**	-0.000	-0.005***	-0.002**	-0.001	0.011	-0.031*
	[0.002]	[0.001]	[0.001]	[0.001]	[0.005]	[0.022]	[0.018]

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.
Business or Sales refers to individuals who report their main occupation to be a business, sales or retail.
Semi Skilled refer to individuals reporting being one of: carpenter, mason, conductor, waiter, cook, driver, electrician, mechanic, watchman, secretary, tailor. Secondary refers to a dummy for the individual holding more than one occupation.
FGM weights are weights that account for attrition, based on methodology in Fitzgerald, Gottschalk and Moffitt (1998) (*18*).

Table S13: Effects on Other Outcomes

	(1) Got Loan	(2) Gave Loan	(3) Radio (Hrs)	(4) TV (Hrs)	(5) Electricity	(6) Stone Walls	(7) Cement Floor	(8) Firewood as Fuel
Overall Effects								
Change in Agent Density	0.001	0.001	-0.003	0.006	0.009***	0.005**	0.003	-0.009***
	[0.002]	[0.001]	[0.008]	[0.011]	[0.002]	[0.002]	[0.003]	[0.003]
Effects by Gender of Household Head								
Change in Agent Density	0.002	0.001	-0.005	0.006	0.008***	0.004*	0.003	-0.008***
	[0.002]	[0.001]	[0.007]	[0.009]	[0.002]	[0.002]	[0.003]	[0.002]
Female Head*Agent Density	-0.008**	0.001	0.016	0.004	0.009*	0.004	0.008*	-0.010**
	[0.004]	[0.004]	[0.024]	[0.026]	[0.005]	[0.004]	[0.004]	[0.005]
Female Head	0.046	0.050	-0.488***	-0.172	-0.059	-0.052	-0.067*	0.021
	[0.033]	[0.031]	[0.188]	[0.175]	[0.042]	[0.036]	[0.040]	[0.031]
Effect of Density for Female Headed	-0.006*	0.003	0.011	0.010	0.017***	0.008*	0.011***	-0.018***
	[0.003]	[0.004]	[0.027]	[0.032]	[0.005]	[0.004]	[0.004]	[0.005]
Effect for Female Headed, 25-75 Pctile	-0.037	0.016	0.064	0.061	0.100	0.051	0.063	-0.108
Observations	1593	1593	1589	1592	1593	1593	1593	1593

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.

Table S14: Effects on Household Composition

	(1) Household Size	(2) No of Children	(3) No of Children, 10-18	(4) No of Girls	(5) No of Girls, 10-18
Overall Effects					
Change in Agent Density	-0.017*	-0.017**	-0.008*	-0.007	-0.004
	[0.009]	[0.007]	[0.004]	[0.004]	[0.003]
Effects by Gender of Household Head					
Change in Agent Density	-0.014	-0.014*	-0.007*	-0.004	-0.003
	[0.010]	[0.007]	[0.004]	[0.004]	[0.003]
Female Head*Agent Density	-0.020	-0.024*	-0.008	-0.022***	-0.009
	[0.019]	[0.014]	[0.011]	[0.008]	[0.007]
Female Head	-0.537**	-0.254*	-0.109	-0.075	-0.039
	[0.223]	[0.150]	[0.124]	[0.095]	[0.078]
Effect of Density for Female Headed	-0.035**	-0.038***	-0.015	-0.026***	-0.012*
	[0.017]	[0.014]	[0.011]	[0.008]	[0.007]
Effect for Female Headed, 25-75 Pctile	-0.207	-0.227	-0.092	-0.154	-0.074
Observations	1593	1593	1593	1593	1593

Note: Standard errors in brackets clustered at the location level. * p<0.1, ** p<0.05, *** p<0.01.
All specifications include location fixed effects and controls for gender, age and age squared of the household head.

References and Notes

1. Two large mobile network operators, Vodacom and MTN, recently shut down their mobile money services in South Africa because of high operating costs and a high prevalence of bank accounts. See the relevant press articles at www.fin24.com/Tech/Companies/why-vodacom-m-pesa-has-flopped-in-sa-20160509 and www.businessdailyafrica.com/Corporate-News/MTN-scraps-mobile-money-business-in-South-Africa/539550-3382710-13vftp7z/.

2. See supplementary text for more background and detail on mobile money in Kenya.

3. Communications Commission of Kenya, Annual Report for the Financial Year 2014–2015; www.ca.go.ke/index.php/annual-reports.

4. The number of ATMs was 2698 in June 2015. In June 2014 it was 2618, and in June 2010 it was 1943. These data come from the Central Bank of Kenya Statistics, www.centralbank.go.ke/national-payments-system/payment-cards/number-of-atms-atm-cards-pos-machines/.

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11. See supplementary text and (*9*) for more detail on the survey data collected.

12. About 1027 households are covered in all five rounds, but (excluding 2011) 1299 households are covered in the four rounds.

13. One level of local administrative units in Kenya are referred to as “locations,” each with a population of 3000 households on average.

14. We focus on safety and convenience as these are the most commonly cited reasons for using one financial instrument over any other (cost is only mentioned in 3.6% of cases).

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18. Over such a long panel in this kind of environment, this rate of attrition is not unusually high. For example, see footnote 19 in (*9*), which provides a list of studies that have comparable attrition rates.

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