Topic 12: Financial inclusion

Main things to learn

1. **Financial inclusion:** definition and why it matters.

2. **Microcredit**:
   - Origin and motivation.
   - Impact

3. **Risk and insurance**:
   - The need for insurance.
   - Informal and formal insurance, and challenges.

4. **Savings:**
   - The impact of access to formal savings.

5. **Mobile money and remittances**:
   - Resilience to shocks, poverty and gender inclusion.

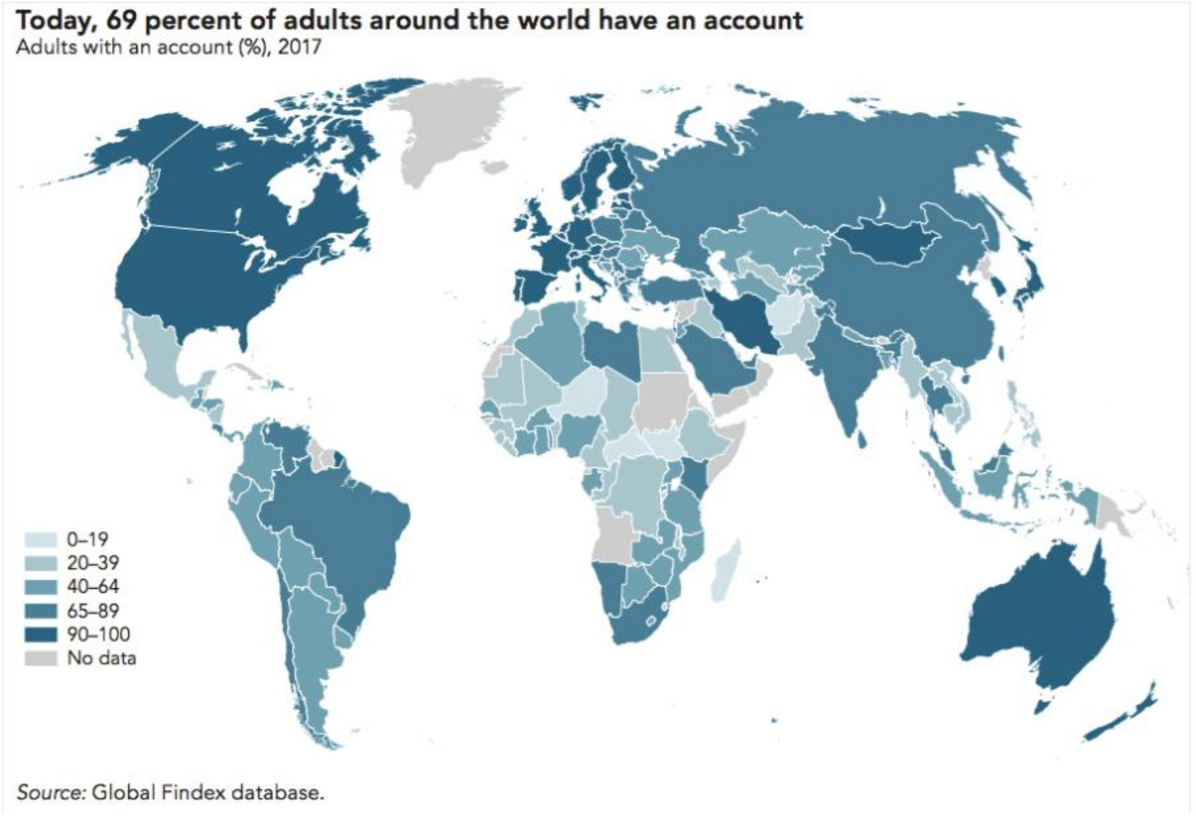
12.1. Definition and problem

Financial inclusion: definition

Financial inclusion means that individuals and businesses have access to and use affordable financial products and services that meet their needs, which are delivered in a responsible and sustainable way. Financial inclusion is a catalyst for achieving seven of the 17 Sustainable Development Goals (SDGs). 27 de xan. de 2025

World Bank
https://www.worldbank.org › topic › overview

Financial Inclusion Overview - World Bank



Financial inclusion: the problem

What do you have when there is financial inclusion

Four core essential services within financial inclusion:

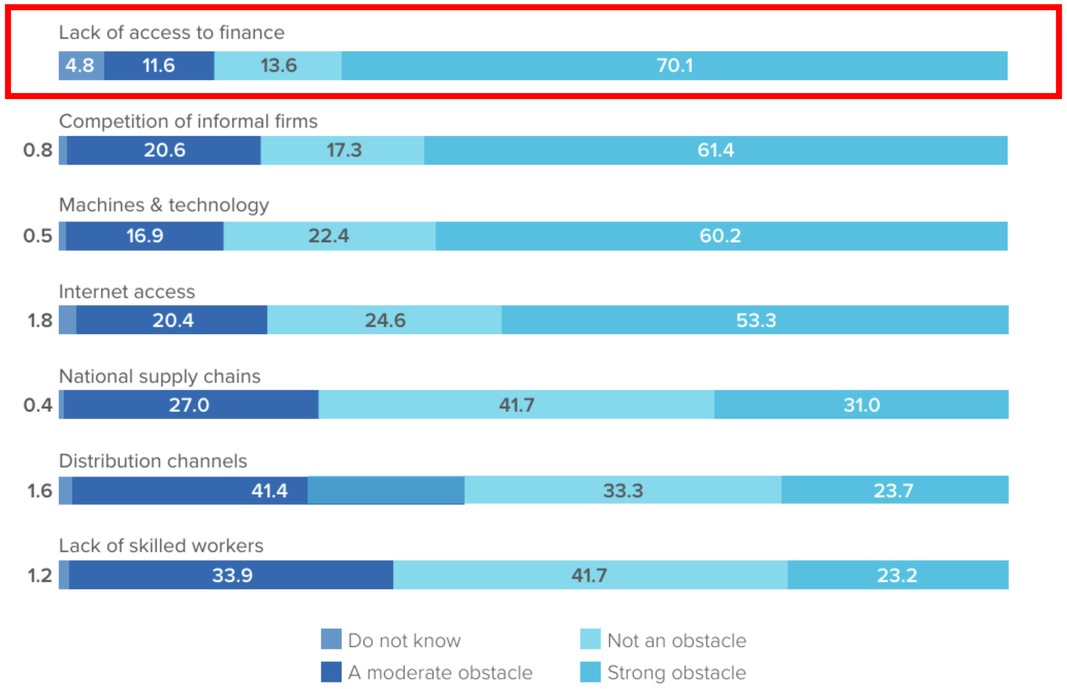
- **Savings accounts**: to securely store money.
- **Payment systems**: for safe and efficient transactions.
- **Credit facilities**: to invest in education, businesses or cover emergencies.
- **Insurance**: to protect agains risks and shocks.

The alternative:

- **Storing money in cash.**
- **Paying always in cash**.
- **Informal credit.**
- **Support network.**

Financial inclusion: the problem - businesses

Figure 10: Self-reported relevance of market-dependent bottlenecks, in percentage of respondents



[Building forward better for businesses in Guinea-Bissau, 2021]

The problems with informal finance

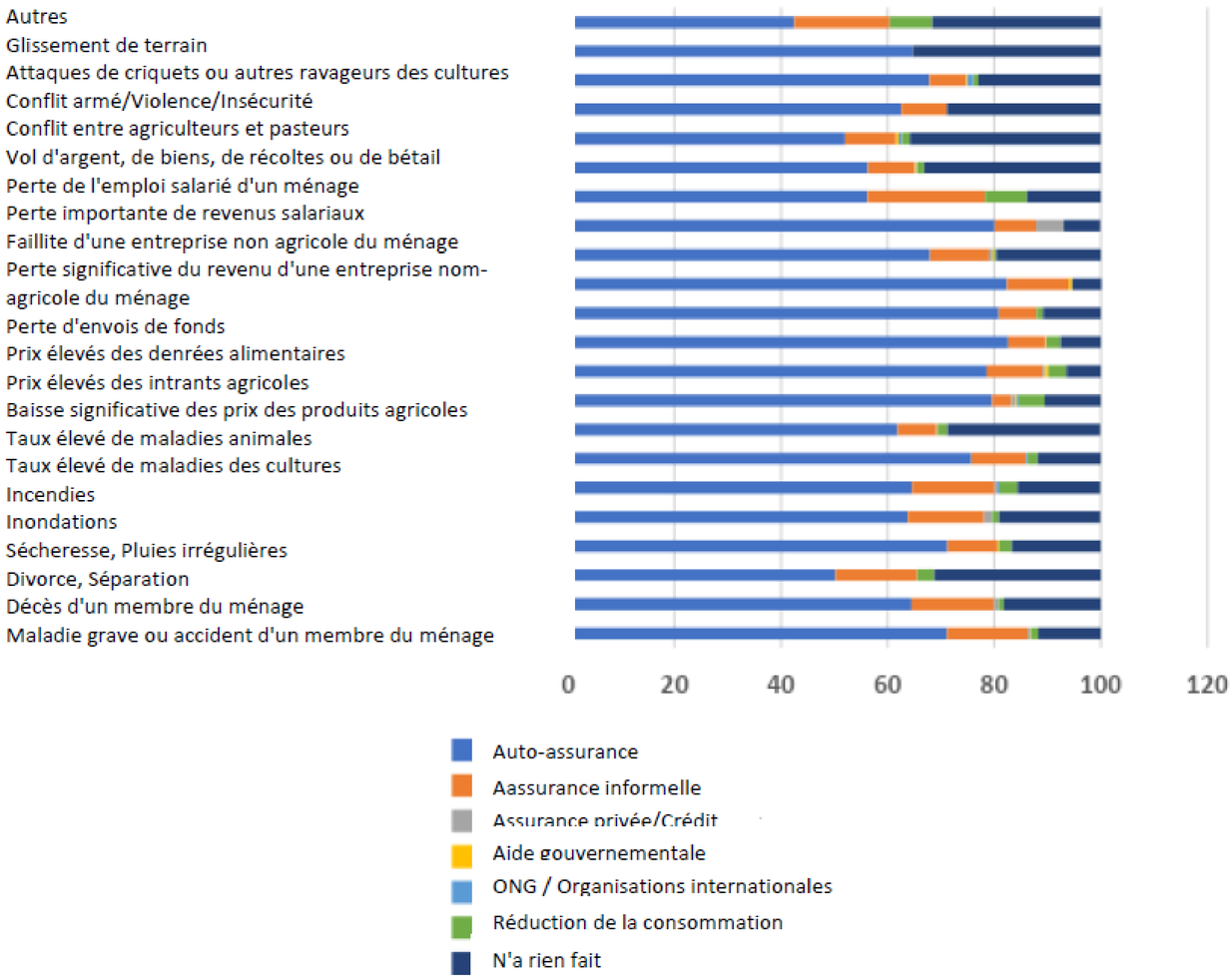
Formal and informal financing

- Social network of support => insecure and bad for savings, capital accumulation and investment.
- Bad conditions for informal loans: more later.

Guinea-Bissau, National Strategy for Financial Inclusion, Diagnostic – Informal credit study

"After obtaining (informal) credit, producers become dependent on that creditor, the producer is obliged to always strengthen that relationship. He does everything to remain faithful because he will have other future needs and will need that person's help. The creditor becomes a boss of the debtor"

Main strategies to respond to shocks, by type of shock

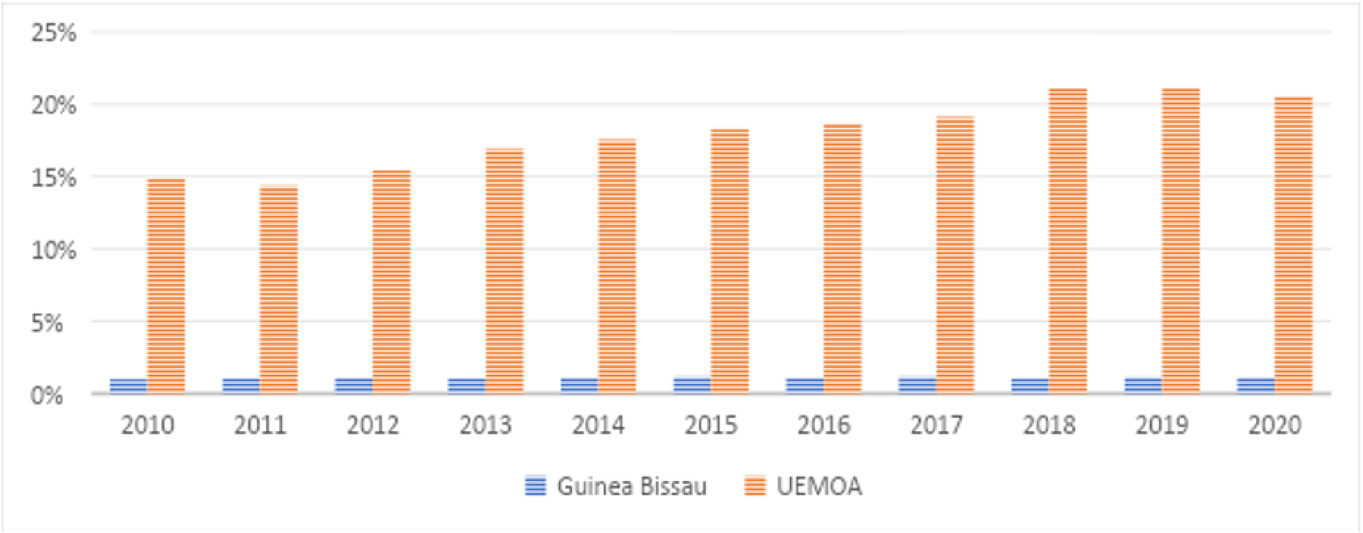


Guinea-Bissau, National Strategy for Financial Inclusion, Diagnostic – Demand side study

COMPETITION!!!

12.2. Microcredit

Figure 22: Percentage of adult population with MFI accounts (2010-2020)



Source: BCEAO (November 2021), Evolution des Indicateurs de Suivi de l'Inclusion Financiere dans l'UEMOA au Titre de l'Annee 2020.

Guinea-Bissau, National Strategy for Financial Inclusion, Diagnostic – Supply side study

Microcredit: origins

Muhammad Yunus and the Grameen Bank

GRAMEEN BANK
BANK FOR THE POOR
NOBEL PEACE PRIZE WINNER 2006

https://grameenbank.org.bd/

In Chennai, India, when the typical fruit seller reimburses the wholesaler at night for the 1000 rupees' (USD 51) worth of vegetables she got in the morning, she gives him 1047 rupees on average.

This interest payment is 4.7 percent per day!

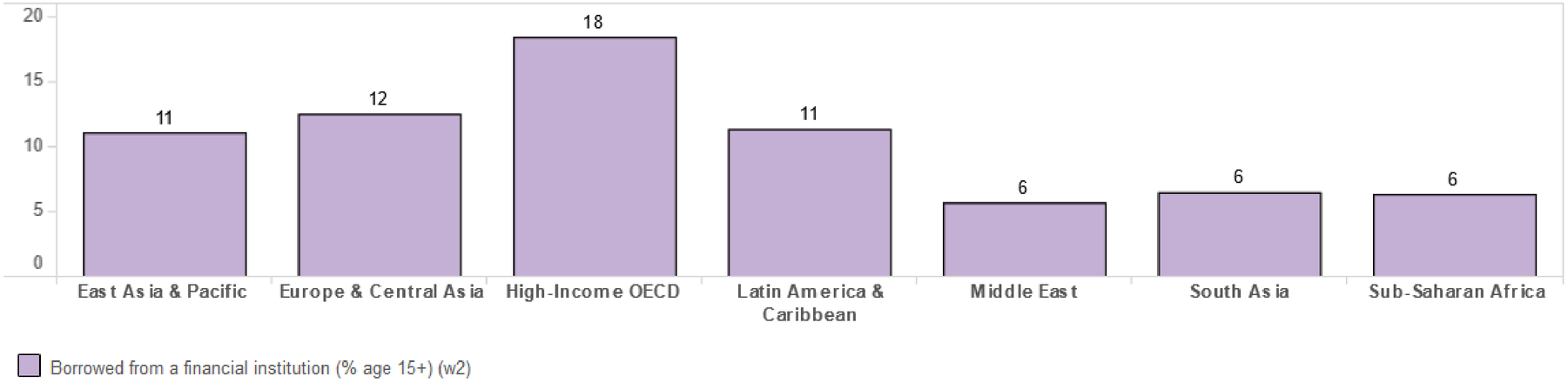
These very high interest rates were the call to action for the founders of microcredit.

Muhammad Yunus
Bangladeshi economist and founder of the Grameen Bank, an institution that provides microcredit.

In 2006, Yunus and Grameen received the Nobel Peace Prize 'for their efforts through microcredit to create economic and social development from below'.

Microcredit: problem

Borrowed from a financial institution (% age 15+). Source: Global Findex 2014.



Very few poor households get loans from proper lending institutions: in Sub-Saharan Africa 6% of adults borrow from formal financial institutions; 47% borrow informally.

Credit from informal sources tends to be expensive: in a recent survey in India, those living on less than 1USD/day pay on average 3.84%/month as interest rate (equivalent to 57%/year).

The poor pay higher interest than the rich: the rich have access to formal institutions, which are cheaper; the rich can offer collateral.

Should Government Intervene? 1

Credit constraints are a known market failure.

Many state interventions in credit markets in the 1970s and 1980s around the world. Still today.

Example: After bank nationalization in 1969, the Indian government launched an ambitious social banking program: Between 1969 and 1990, bank branches were opened in roughly 30,000 rural locations.

In 1977: to obtain a license for a branch in a location with one or more branches (banked) a bank had to open branches in four unbanked locations.

Burgess and Pande (2005) show that this bank expansion reduced poverty, through credit.

Q: Is this a good idea?

Should Government Intervene? 2

The problem with government lending programs was that they did not work well as lending programs.

Default rates were staggeringly high (40 percent during the 1980s in India).

Lending was often driven more by political priorities than by economic need (Khwaja and Mian, 2005).

In 1992, in the wave of reforms that liberalized India, the requirement to start branches in rural areas was dropped and a similar set of measures happened through most other developing countries.

Microcredit: Yunus “talking to the masses”

Banks are unwilling to touch the poor.

Into this banking void step exploitative moneylenders and traders who charge outrageously high interest rates.

Microfinance is a simple idea:
Someone who is not out to make money off the poor can enter the market, charging the poor enough in interest to be financially sustainable, and perhaps make a modest profit, but no more.

Q: What is wrong about this story?

Understanding microcredit

Microcredit must be doing more than increasing competition.

Let us step back:

Q: Why are informal loans (to poor people) charging high interest rates?

Understanding microcredit

One standard explanation for why poor people might have to pay high interest rates is that they are more likely to default.

However, rates of default on informal loans, unlike those on government-sponsored bank lending, are not very high.

Such loans are often repaid with some delay, but not repaying at all is actually rare.

Q: So, if default is not the explanation, why are these rates high?

Understanding microcredit

The problem is that these low default rates on informal loans are anything but automatic.

Since most of the poor cannot offer collateral, lenders need to:

- Seek detailed information about the borrower;
- Visit the borrower frequently.

This is a full-time job, entailing **time and effort**, and for that reason the interest rate has to go up.

Moreover, these **costs are fixed**, with greater impact on interest rates for small loans.

Q: Who are the best people to act as lenders in these informal loans?

Understanding microcredit

It makes sense that the poor borrow from people who know them well: neighbors, employers, local moneylenders.

Like traditional moneylenders, microcredit institutions rely on their ability to keep a close check on the customer.

Q: How? What is the bright idea of microcredit?

Group lending

The typical microcredit contract involves **loans to a group of borrowers**, who are **liable for each other's loans**.

If the group defaults on the aggregate loan, all members are impeded to access new loans.

Hence, all have a reason to try to make sure the other members of their group repay through peer pressure and oversight.

Some microcredit institutions expect the borrowers to know each other when they come to borrow, whereas others bring them together by making them attend weekly meetings (when repayments happen).

Keeping track of repayments becomes cheaper and rates decrease (25 vs 50-100%).

- *Shifting towards individual lending (about 56% of total), for clients with established **credit worthiness** (history).*

Impact of Microcredit - 1

https://www.cgap.org/

An organization housed at the World Bank, with links to most donor organizations, the Consultative Group to Assist the Poor (CGAP), is dedicated to promoting microcredit. In the 2000s, it presented microcredit in the following terms: **'There is mounting evidence to show that the availability of financial services for poor households can help achieve the MDGs**.'

This includes universal primary education, child mortality, maternal health.

Rooted in the idea that **microcredit puts power in the hands of women and they care more about these issues**.

Yunus and many other people keep saying that **microcredit is a tool for fostering entrepreneurship** among the poor.

Impact of Microcredit - 2

Let us take a step back.

Q: If you were to form a group and approach a microcredit institution, who would you choose? (type of people)

Impact of Microcredit - 3

Probably I would choose relatively safe people:

- Reliable.
- Able to repay frequently.
- Routine businesses (e.g., fruit seller).

Are these your characterization of what an entrepreneur is?

Impact of Microcredit – Banerjee, Duflo, Glennerster, and Kinnan (2015- AEJ: Applied)

The miracle of microfinance? Evidence from a randomized evaluation - 1

This study reports on the **first randomized evaluation** of the effect of the canonical group-lending microcredit model.

In 2005, 52 of 104 neighborhoods in Hyderabad (India) were randomly selected for opening a branch by Spandana, a microcredit institution, while the remainder were not.

Fifteen to 18 months after the introduction of microcredit in each area, a comprehensive household survey was conducted to an average of 65 households per neighborhood, for a total of about 6,850 households.

Two years later, another survey followed the same households.

Impact of Microcredit – Banerjee, Duflo, Glennerster, and Kinnan (2015- AEJ: Applied)

The miracle of microfinance? Evidence from a randomized evaluation - 2

There was an increase in num percentage of households having a microcredit loans +8.8%

The authors examine the effect on **outcomes that directly relate to poverty** like **consumption, new business creation, business income**, as well as measures of other human development outcomes such as **education, health and women's empowerment**.

Results show significant impacts on how many new businesses get started, as well as on the purchase of durable goods, especially business durables.

There is no impact on average consumption or on any human development outcome, although there may well be a delayed positive effect.

Impact of Microcredit – Banerjee, Duflo, Glennerster, and Kinnan (2015- AEJ: Applied)

The miracle of microfinance? Evidence from a randomized evaluation - 3

TABLE 3—SELF-EMPLOYMENT ACTIVITIES: REVENUES, ASSETS, AND PROFITS (*All households*)

	Assets (stock) (1)	Investment in last 12 months (2)	Expenses (3)	Profit (4)	Has a self-employment activity (5)	Number of self-employment activities (6)	Has started a business in the last 12 months (7)	Has closed a business in the last 12 months (8)	Index of dependent variables (9)
Panel A. Endline 1									
Treated area	598	391*	255	354	0.0083	0.018	0.009	0.002	0.0357
	(384)	(213)	(1,056)	(314)	(0.0215)	(0.0380)	(0.006)	(0.008)	(0.0188)
Observations	6,800	6,800	6,685	6,239	6,810	6,810	6,757	2,352	6,810
Control mean	2,498	280	4,055	745	0.349	0.503	0.047	0.037	0.000
Hochberg-corrected *p*-value									0.175
Panel B. Endline 2									
Treated area	1,261**	−134	−530	542	0.023	0.045	−0.000	−0.000	0.0151
	(530)	(207)	(547)	(372)	(0.023)	(0.040)	(0.010)	(0.006)	(0.0186)
Observations	6,142	6,142	6,116	6,090	6,142	6,142	6,142	6,142	6,142
Control mean	5,003	1,007	5,225	953	0.418	0.561	0.083	0.053	0.000
Hochberg-corrected *p*-value									>0.999

Notes: The table presents the coefficient of a "treatment" dummy in a regression of each variable on treatment (with control variables listed in the text). Cluster-robust standard errors in parentheses. Results are weighted to account for oversampling of Spandana borrowers. The outcome variables are set to zero when the household does not have a business. Business outcomes are aggregated at the household level when the households have more than one business. Information on closing a business in the year prior to the endline 1 survey was only collected for those who had a business as of endline 1. Observations with missing or inconsistent itemized sales or revenues are dropped in columns 3 and 4. See online Appendix 1 for description of the construction of the profits, sales, and inputs variables. All monetary amounts in 2007 Rs. Column 9 presents the coefficient of a "treatment" dummy in a regression on treatment of an index of *z*-scores of the outcome variables in columns 1–8, plus revenues, number of new businesses, and number of new female-run businesses (see online Appendix Table A6, columns 1–3) for each round following Kling, Liebman, and Katz (2007). *p*-values for this regression are reported using Hochberg's step-up method to control the FWER across all index outcomes. See text for details.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Impact of Microcredit – Banerjee, Duflo, Glennerster, and Kinnan (2015- AEJ: Applied)

The miracle of microfinance? Evidence from a randomized evaluation - 3

TABLE 6—CONSUMPTION (*Per capita, per month*)

	Total (1)	Durables (2)	Nondurable (3)	Food (4)	Health (5)	Education (6)	Temptation goods (7)	Festivals and celebrations (8)	Home durable good index (9)
Panel A. Endline 1									
Treated area	10.24	19.73*	−6.50	−12.11	−3.7	−2.061	−8.785*	−14.16*	−0.051
	(37.22)	(11.35)	(31.81)	(12.06)	(11.51)	(9.865)	(4.92)	(8.09)	(0.057)
Observations	6,827	6,781	6,781	6,827	6,827	5,415	6,827	6,827	6,841
Control mean	1,419	116	1,305	525	140	168	84	69	2.37
Hochberg-corrected *p*-value	>0.999								
Panel B. Endline 2									
Treated area	−48.83	0.42	−45.45	−11.20	−22.54	12.16	−10.07	6.17	−0.0127
	(51.53)	(9.88)	(46.92)	(17.88)	(17.50)	(15.19)	(6.61)	(4.12)	(0.0426)
Observations	6,142	6,140	6,142	6,142	6,141	4,910	6,142	6,103	6,142
Control mean	1,914	131	1,755	687	187	206	118	90	2.66
Hochberg-corrected *p*-value	0.691								

Notes: Columns 1–8: Monthly per capita household expenditures. Temptation goods include alcohol, tobacco, betel leaves, gambling, and food consumed outside the home. Column 9 calculated on a list of 40 home durable goods (stock, not flow). Each asset is given a weight using the coefficients of the first factor of a principal component analysis. The index, for a household *i*, is calculated as the weighted sum of standardized dummies equal to 1 if the household owns the durable good, 0 otherwise. See online Appendix 1 for description of the construction of the consumption variables. *p*-values for the regression in column 1 (total consumption) reported using Hochberg's step-up method to control the FWER across all outcomes. See text for details.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Impact of Microcredit – Several studies

No hype anymore – mixed findings

Outcome	Bosnia and Herzegovina	Ethiopia	India	Mexico	Mongolia	Morocco	Philippines
Business ownership	↑	—	—	—	↑	—	—
Business revenue	—	—	—	↑	—	↑	—
Business inventory/assets	↑	*no data*	↑	*no data*	↑	↑	—
Business investment/costs	—	—	↑	↑	*no data*	↑	↓
Business profit	—	—	—	—	—	↑	—
Household income	—	—	—	—	—	—	—
Household spending/consumption	—	↓	—	↓	↑	—	—
Social well-being	—	—	—	↑	—	—	↓

Picture is similar across a full generation of first RCTs in different parts of the world.

Limits of Microcredit

No hype anymore – mixed findings

Limits of Standard Microcredit Models

• **Structural rigidity**: Standardized lending terms (e.g., fixed weekly payments) are often mismatched with the volatile incomes of poor borrowers.

• **Exclusionary practices**: Barriers to entry for first-time borrowers and those without social capital reduce inclusiveness.

• **Invasive enforcement**: Frequent visits or public pressure may undermine borrower dignity and autonomy.

• **Coordination risk**: The system relies on reciprocal expectations of repayment. A breakdown in trust or increased default leads to systemic unraveling.

• **Risk aversion vs. entrepreneurship:** The model is best suited to income-smoothing, not to enabling high-risk, high-reward ventures.

We still need classical banks!

12.2. Risk and insurance

Risk and insurance

Weather and economic volatility

A high fraction of the poor run **small businesses or farms**.

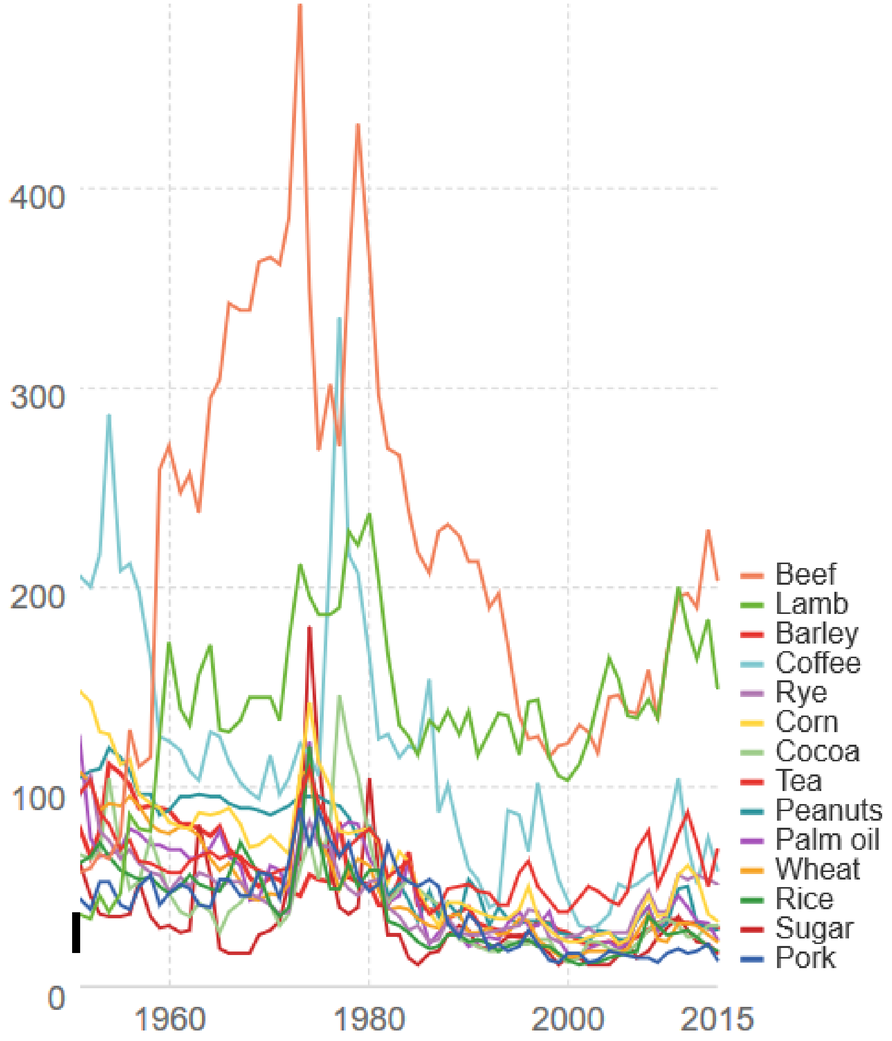
Most of the **land** farmed by the poor is **not irrigated** – this makes **farm earnings highly dependent on the weather**.

The other main form of employment for the poor is casual labor, paid by the day.

Disasters or food crisis in Africa attract media attention, but **even in normal years agricultural incomes** (driven by international prices) **vary tremendously from year to year**.

Bangladesh: in any normal year, agricultural wages could be up to 18 percent above or below their average levels.

Commodity prices of food items, 1950-2015, measured relative to real prices in 1900 (i.e. 1900 = 100).



Risk

Q: What can the poor do to cope with these risks?

Risk-coping Strategies

- **Diversify activities** – e.g., in a survey of 27 villages in West Bengal (India), even households that farmed spent only 40% of their time on that; the median family had 3 working members and 7 occupations. Efficiency losses as people tend not to specialize.

- **Diversify location** of agricultural plots, e.g., in different parts of the village. This yields some protection against infestation and differing microclimates, but...

- **Temporary (or permanent) migration** for some household members.

- **Conservative management** of the farms (e.g., no new products, technology), with efficiency losses.

- **Marriage -** in India, the woman moves to her in-laws' village.

Informal insurance

Helping each other out

- Most people live in villages or neighborhoods and have access to an **extensive network** of people who know them well: extended families, communities based on religion and ethnicity.

- Whereas some **shocks** are **aggregate**, i.e., they strike everyone in the network (e.g., a bad rainy season), others are **idiosyncratic** (e.g., death of household member).

- If **those who are doing well now help out those who are having a bad time**, in return for similar help when the roles are reversed, everyone can be better off.

Chris Udry
Professor of Economics
Northwestern University

Informal insurance – Udry (1994 – RES)

Helping each other out

First version received August 1991; *final version accepted December* 1993 (*Eds*)

Credit contracts play a direct role in pooling risk between households in northern Nigeria. Repayments owed by borrowers depend on realizations of random shocks by both borrowers and lenders. The paper develops two models of state-contingent loans. The first is a competitive equilibrium in perfectly enforceable contracts. The second permits imperfect information and equilibrium default. Estimates of both models indicate that quantitatively important state-contingent payments are embedded in these loan transactions, but that a fully efficient risk-pooling equilibrium is not achieved. The research is based on a year-long survey in Zaria, Nigeria conducted by the author.

- Udry spent an entire year living in a rural village in Northern Nigeria, close to Zaria.
- He got the villagers to record every informal loan they gave to each other, as well as terms of repayment and shocks.
- He found that at any point in time the average family owed or was owed money by 2.5 other families.
- The **terms of the loans were adjusted to reflect the situation of both the lender and the borrower**: when the borrower suffered a shock, he would reimburse less, when the lender suffered a shock, the borrower would repay more than he owed.
- The dense network of borrowing and lending did a lot to reduce the risk, but there was limit: with an idiosyncratic shock, **families still faced a drop in consumption**.

Formal Insurance

Q: Why is formal insurance a rarity for the poor?

Formal Insurance

- Government and relief interventions may be substituting formal insurance when disasters happen: however this help is a very small part of what is typically needed.

- Main problems with formal insurance:
  - Demand side: **knowledge and information -** the concept of insurance is difficult to understand – *mixed evidence*.

  - Supply side: Credibility/trust problems **-** the insurance contract requires the households to pay in advance, to be repaid in the future at the discretion of the insurer – *substantial evidence*.

- There is space for government subsidizing of insurance premia for the poor.

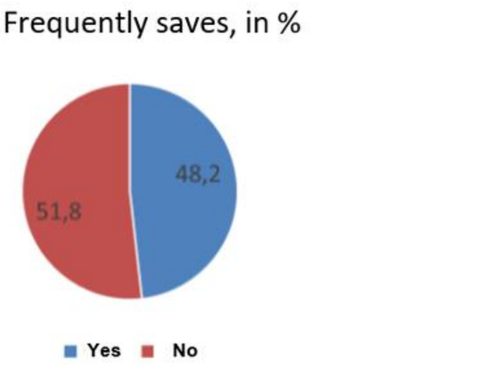
12.3. Savings

Savings

- Given that the poor have little access to credit to finance their ventures, and limited insurance to cope with risks, shouldn't they try to save as much as they can?
- But access to formal savings is still very limited in many parts of the globe:

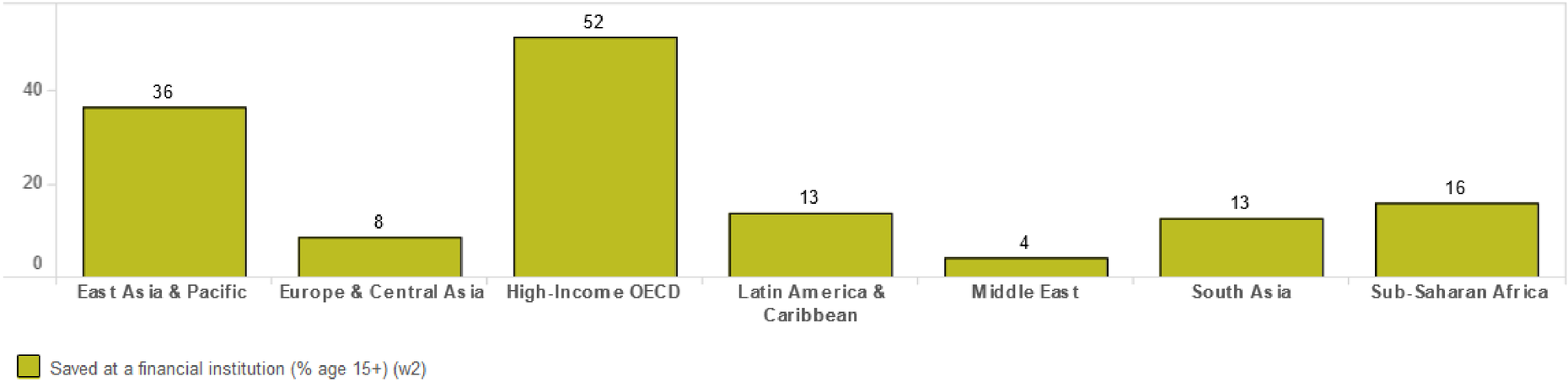
For Guinea-Bissau:

Figure 6: percentage of adults that frequently save some money at all



Source: ASM, BCEAO and INE 2020

Saved at a financial institution (% age 15+). Source: Global Findex 2014.



Q: Where do people save then?

Informal savings

- **Savings clubs**, in which each member is supposed to make sure that the others achieve their savings goals.
- **Self-help groups**, popular in parts of India, are savings clubs that also give loans to their members out of the accumulated savings in the group.
- **Rotating Savings and Credit Associations** (ROSCAs) are the most popular in Africa.
  - ROSCA (tontine, abotá) members meet at regular intervals, and all deposit the same amount of money into a common pot at every meeting; each time, on a rotating basis, one member gets the whole pot.
- Other savings arrangements: paying deposit collectors to take deposits to the bank, depositing with local moneylenders.

Impact of access to formal savings – Dupas and Robinson (2013 – AEJ: Applied) - 1

- This RCT assessed the impact of expanding access to bank accounts for a sample of small informal business owners in rural Western Kenya.
- The sample is composed of market vendors (the great majority of whom are women) and bicycle-taxi drivers (all of whom are men).
- Two main data sources are used to measure impacts: administrative data from the bank on account usage, and a dataset constructed from daily logbooks (formal and informal savings, business investment, and expenditures) which were kept by respondents.

Does limited access to formal savings services impede business growth in poor countries? To shed light on this question, we randomized access to noninterest-bearing bank accounts among two types of self-employed individuals in rural Kenya: market vendors (who are mostly women) and men working as bicycle taxi drivers. Despite large withdrawal fees, a substantial share of market women used the accounts, were able to save more, and increased their productive investment and private expenditures. We see no impact for bicycle-taxi drivers. These results imply significant barriers to savings and investment for market women in our study context. (*JEL* D14, G21, J16, J23, O12, O14, O16)

Impact of access to formal savings – Dupas and Robinson (2013 – AEJ: Applied) - 2

- Market women in the treatment group used the bank accounts quite actively, and increased their total savings on average.
- Treated bicycle-taxi drivers used the accounts much less and did not increase their total savings.
- The high account usage rate among market women is especially noteworthy because the account did not pay out any interest and included substantial withdrawal fees.
- **Market women in the treatment group substantially increased their investment in their business relative to the control group**: 38-56 percent increase in average daily investment after 4-6 months.

Table 2. Impacts on Savings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Active Bank Account Usage ("First-Stage")		Bank Savings (Ksh)		Animal Savings (Ksh)		Rosca Contributions (Ksh)	
Panel A. Intention-to-Treat Estimates (ITT)								
Sampled for Savings Account	0.41	0.40	9.36	11.39	16.79	23.26	7.81	12.57
	(0.05)***	(0.06)***	(3.43)***	(4.42)**	(10.05)*	(14.03)*	(7.02)	(10.08)
Sampled for Savings Account * *Boda*		0.06		-12.43		-20.00		-12.56
		(0.11)		(6.06)**		(17.85)		(14.10)
Observations	250	250	250	250	250	250	250	250
p-value for overall effect = 0	0.01***		0.01***		0.1*		0.27	
p-value for effect for female vendors = 0		0.01***		0.01**		0.1*		0.21
p-value for effect for *bodas* = 0		0.01***		0.82		0.75		1.00
Panel B. Instrumental Variable Estimates (ToT)								
Account is Active			22.82	28.77	40.91	58.37	19.03	31.42
			(8.51)***	(11.41)**	(24.41)*	(35.09)*	(17.08)	(25.11)
Account is Active * *Boda*				-29.35		-49.40		-30.57
				(13.88)**		(40.88)		(31.87)
Observations			250	250	250	250	250	250
p-value for overall effect = 0			0.01***		0.1*		0.27	
p-value for effect for female vendors = 0				0.01**		0.1*		0.21
p-value for effect for *bodas* = 0				0.95		0.67		0.96
Panel C. Mean and Std. Dev. of Dependent Variable in Control Group								
Entire Sample: Mean			-1.95		3.81		26.30	
Std. Dev.			30.29		9.16		35.46	
Female Vendors: Mean				-2.33		3.58		33.27
Std. Dev.				33.78		9.13		38.76
Bodas: Mean				3.96		3.66		5.07
Std. Dev.				16.61		9.01		7.25

Notes: Dependent variables are daily averages. Dependent variables expressed in Kenyan shillings. Controls include occupation, ROSCA contributions in year before baseline, marital status, number of children, age, literacy, the number of weeks in the diary data, and the wave / type stratification cells. Even-numbered colums also include an interaction term between "Sampled for Savings Account" and "Male Vendor". The first-stage for the IV estimations in Panel B are presented in Panel A, columns 1-2.

Exchange rate was roughly 70 Ksh to US $1 during the study period.

Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Impact of access to formal savings – Dupas and Robinson (2013 – AEJ: Applied) - 3

Q: Why do you think there is a positive impact only for women?

Committed savings – Ashraf, Karlan and Yin (2006)

- Field experiment to test whether individuals would open a savings account with a commitment feature that restricts their access to their funds but has no further benefits.
- Partnership with a rural bank in Mindanao in the Philippines.
- First, independently of the bank, authors administered a household survey of 1777 existing or former clients of the bank.
- Hypothetical time discounting questions were asked in order to identify individuals with time inconsistent preferences.

Committed savings – Ashraf, Karlan and Yin (2006) - 1

Time inconsistent preferences and preference reversals:

- Time-consistent individual: prefers $300 in a month over $200 now, and $300 in seven months over $200 in six.
- Time-inconsistent individual: prefers $200 now than $300 in a month, but prefers $300 in seven months than $200 in six.

Strong preference for immediate rewards over future ones => - inconsistent - **preference reversals** (hyperbolic discounting): **plans for the future with one set of preferences, but change their minds as the future becomes the present**.

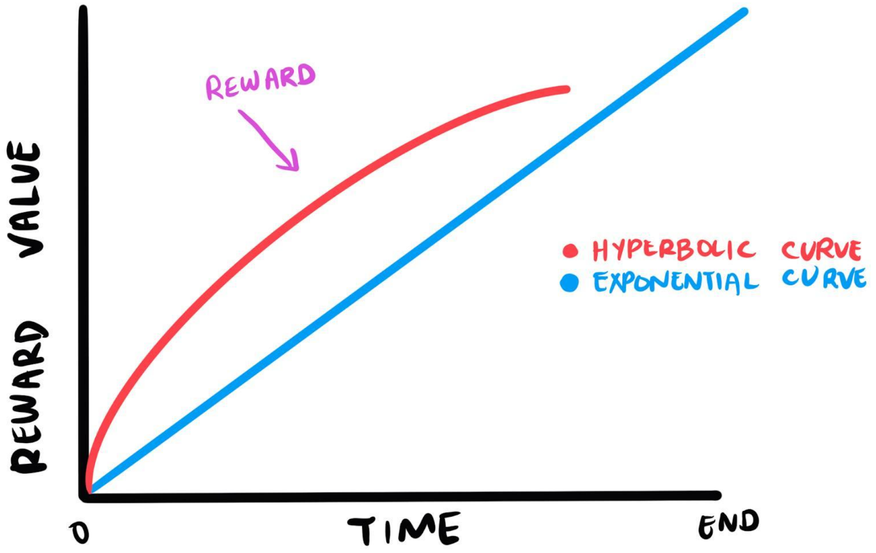


TABLE III

TABULATIONS OF RESPONSES TO HYPOTHETICAL TIME PREFERENCE QUESTIONS

			Indifferent between 200 pesos in 6 months and X in 7 months			
			Patient X < 250	Somewhat impatient 250 < X < 300	Most impatient 300 < X	Total
Indifferent between 200 pesos now and X in one month	Patient	X < 250	606 34.4%	126 7.2%	73 4.1%	805 45.7%
	Somewhat impatient	250 < X < 300	206 11.7%	146 8.3%	59 3.3%	411 23.3%
	Most impatient	300 < X	154 8.7%	93 5.3%	299 17%	546 31%
	Total		966 54.8%	365 20.7%	431 24.5%	1,762 100%

"Hyperbolic": More patient over future trade-offs than current trade-offs.
"Patient now, Impatient later": Less patient over future trade-offs than current trade-offs.
Time inconsistent (direction of inconsistency depends on answer to open-ended question).

The rows in the above table are determined by the response to #1, #2, and #3 below.

Question #1: "Would you prefer 200 pesos now or 250 pesos in one month?" If the respondent preferred 200 pesos now over 250 pesos in one month, Question #2 was asked. "X" (in above table) is assumed to be less than 250 if the person prefers 250 pesos in one month.

Question #2: "Would you prefer 200 pesos now or 300 pesos in one month?" If the respondent preferred 200 pesos now over 300 pesos in one month, Question #3 was asked. "X" (in above table) is assumed to be between 250 and 300 if the person prefers 300 pesos in one month.

Question #3: "How much would we have to give you in one month for you to choose to wait?" "X" (in the above table) is assumed to be more than 300 if the person is asked Question #3.

These three questions are then repeated in the survey (about fifteen minutes after the above three questions) but with reference to six versus seven months. The response to this second set of three questions determines the "X" used for the columns in the above table. For those in the bottom right cell, "most patient" for both the current and future trade-off, individuals were identified as "hyperbolic" if their answer to the open-ended Question #3 revealed a larger discount rate for the current relative to the future trade-off.

Committed savings – Ashraf, Karlan and Yin (2006) - 2

- Then the authors randomly chose half the clients and offered them a new account called a SEED (Save, Earn, Enjoy Deposits) account.
- This account was a pure commitment savings product that restricted access to deposits as per the client's instructions upon opening the account, but did not compensate for this restriction.
- The other half of the surveyed individuals were assigned to either a control group or a marketing group that received a visit to encourage savings using existing savings products only.

Committed savings – Ashraf, Karlan and Yin (2006) - 3

Results:

The study finds that **women who exhibit time inconsistent preferences were more likely to take up the offer to open a commitment savings product**. A similar, but insignificant, effect for men was found.

Further, the authors find after twelve months that average bank account savings for the treatment group increased relative to the control group.

This increase represents an **81 percentage point increase in pre-intervention savings levels**.

TABLE V
DETERMINANTS OF SEED TAKE-UP
PROBIT

	(1) All	(2) All	(3) Female	(4) Male
Time inconsistent	0.125*	0.005	0.158*	0.046
	(0.067)	(0.080)	(0.085)	(0.098)
Impatient, now versus 1 month	−0.030	−0.039	−0.036	−0.041
	(0.050)	(0.050)	(0.062)	(0.075)
Patient, now versus 1 month	0.076	0.070	0.035	0.119
	(0.072)	(0.072)	(0.089)	(0.110)
Impatient, 6 months versus 7 months	0.097	0.108*	0.124	0.078
	(0.065)	(0.065)	(0.087)	(0.091)
Patient, 6 months versus 7 months	0.015	0.022	0.057	−0.021
	(0.064)	(0.064)	(0.081)	(0.093)
Female	0.099	0.070		
	(0.137)	(0.138)		
Female X time inconsistent		0.191**		
		(0.090)		
Married X female	−0.113	−0.117		
	(0.091)	(0.090)		
Married	0.049	0.050	−0.080	0.054
	(0.077)	(0.076)	(0.051)	(0.068)
Some college	0.083**	0.081**	0.081	0.079
	(0.038)	(0.038)	(0.050)	(0.055)
Number of household members	0.000	−0.000	0.003	−0.006
	(0.008)	(0.008)	(0.010)	(0.011)
Unemployed	0.040	0.033	0.039	0.059
	(0.109)	(0.108)	(0.115)	(0.290)
Age	−0.002	−0.002	−0.001	−0.003
	(0.001)	(0.001)	(0.002)	(0.002)
Lending client from bank	−0.014	−0.014	−0.059	0.036
	(0.036)	(0.036)	(0.046)	(0.053)
Lending client with default	−0.032	−0.036	−0.019	−0.057
	(0.072)	(0.071)	(0.088)	(0.103)
Total household income	0.049	0.050	0.136***	−0.026
	(0.031)	(0.031)	(0.045)	(0.043)
Total household monthly income—squared	−0.008*	−0.008*	−0.024***	0.001
	(0.004)	(0.004)	(0.008)	(0.004)
Female X Income share > 0 & <= 25%	0.015	−0.000		
	(0.182)	(0.175)		
Female X Income share > 25 & <= 50%	0.048	0.037		
	(0.169)	(0.164)		
Female X Income share > 50 & <= 75%	0.135	0.110		
	(0.182)	(0.175)		
Female X Income share > 75 & <= 100%	0.018	−0.002		
	(0.155)	(0.148)		
Income share > 0 & <= 25%	−0.011	0.007	−0.020	0.046
	(0.154)	(0.155)	(0.090)	(0.172)
Income share > 25 & <= 50%	−0.047	−0.038	−0.035	0.027
	(0.141)	(0.139)	(0.071)	(0.160)
Income share > 50 & <= 75%	−0.034	−0.019	0.061	0.024
	(0.139)	(0.138)	(0.084)	(0.156)
Income share > 75 & <= 100%	0.025	0.036	0.020	0.062
	(0.142)	(0.139)	(0.076)	(0.148)
Active	−0.036	−0.040	−0.033	−0.033
	(0.034)	(0.034)	(0.043)	(0.052)
Observations	715	715	429	286
Mean dependent variable	0.28	0.28	0.31	0.24

Robust standard errors are in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

"Time inconsistent" is defined with respect to "money" questions. Full details are in the notes to Table III.

TABLE IX
TESTS FOR NEW SAVINGS
OLS

FULL SAMPLE OF CLIENTS	12 months	
Dependent variable	Change in Non-SEED balance (1)	Change in total balances (2)
Commitment-treatment	220.776	411.466*
	(227.501)	(244.021)
Marketing-treatment	120.705	123.891
	(153.437)	(153.440)
Constant	63.690	65.183
	(124.234)	(124.215)
Observations	1777	1777
R^2	0.00	0.00

Robust standard errors are in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. The dependent variable in the regressions in column (1) is the change in savings in all non-SEED savings accounts held at the institution. Exchange rate is 50 pesos for U.S. $1.

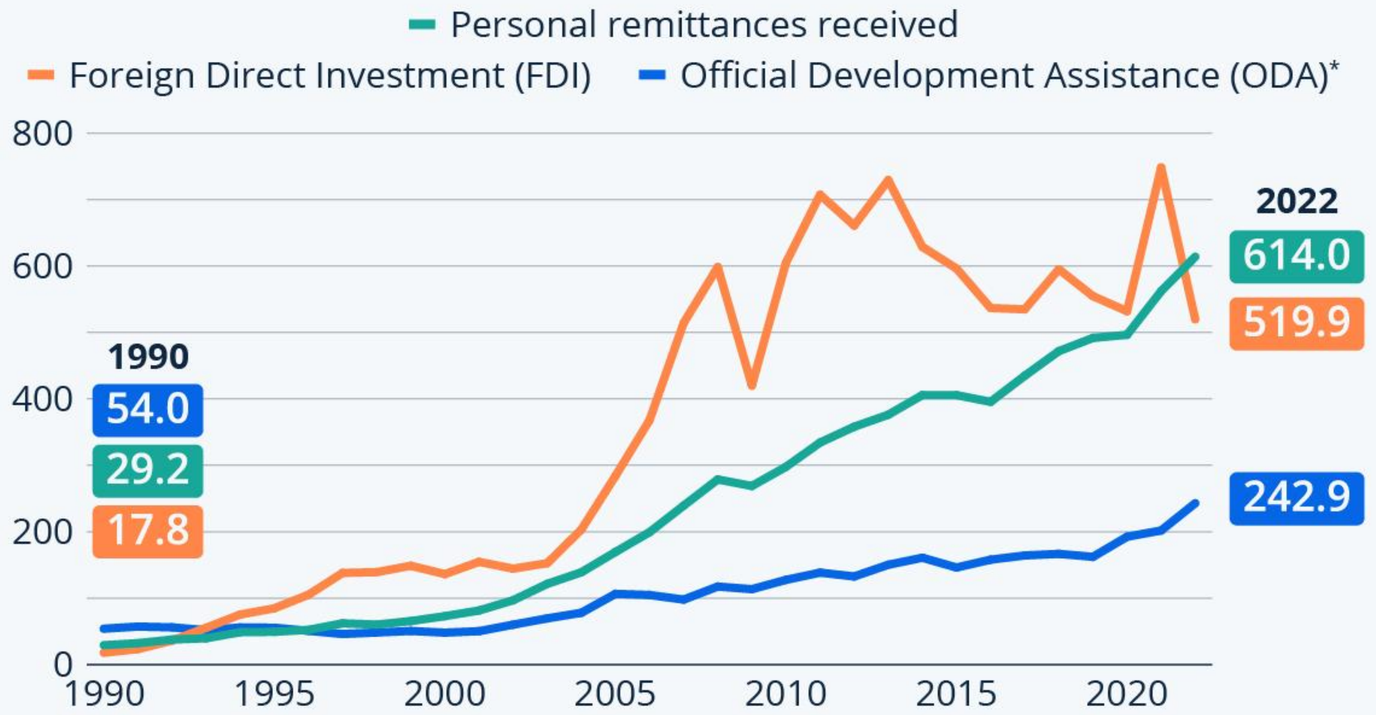
Committed savings – Ashraf, Karlan and Yin (2006) - 4

- About 50% of SEED users made additional deposits after opening the account.
- The majority chose date-based goals, often tied to predictable expenses (e.g., school fees, fiestas).
- **Most SEED users did not withdraw their savings even after maturity**—many rolled over into new accounts.
- The **effect of the commitment device was strongest among previously inactive savers**—suggesting it activated new saving behavior rather than just shifting savings from other accounts.

Remittances

Remittances to LMICs Overtake FDI for First Time

International remittance, FDI and ODA flows to low- and middle-income countries (in billion U.S. dollars)



* ODA is defined here as government aid designed to promote the economic development and welfare of developing countries.

Source: World Bank

Remittances – Yang (EJ 2008) - 1

- A non-negligible fraction of households in the Philippines had **one or more members working overseas** at any one time (6% in June 1997);
- **Natural experiment**: **changes in exchange rates in different countries of residence** due to the 1997 Asian financial crisis.
- The result was **large variation in the size of the exchange rate shock** experienced by migrants across source households.

*Between the year ending July 1997 and the year ending October 1998, the **US dollar and currencies in the main Middle Eastern destinations of Filipino workers rose 50%** in value against the Philippine peso; over the same time period, by contrast, the **currencies of Taiwan, Singapore and Japan rose by only 26%, 29% and 32%; those of Malaysia and Korea actually fell slightly (by 1% and 4%, respectively) against the Philippines' peso**.*

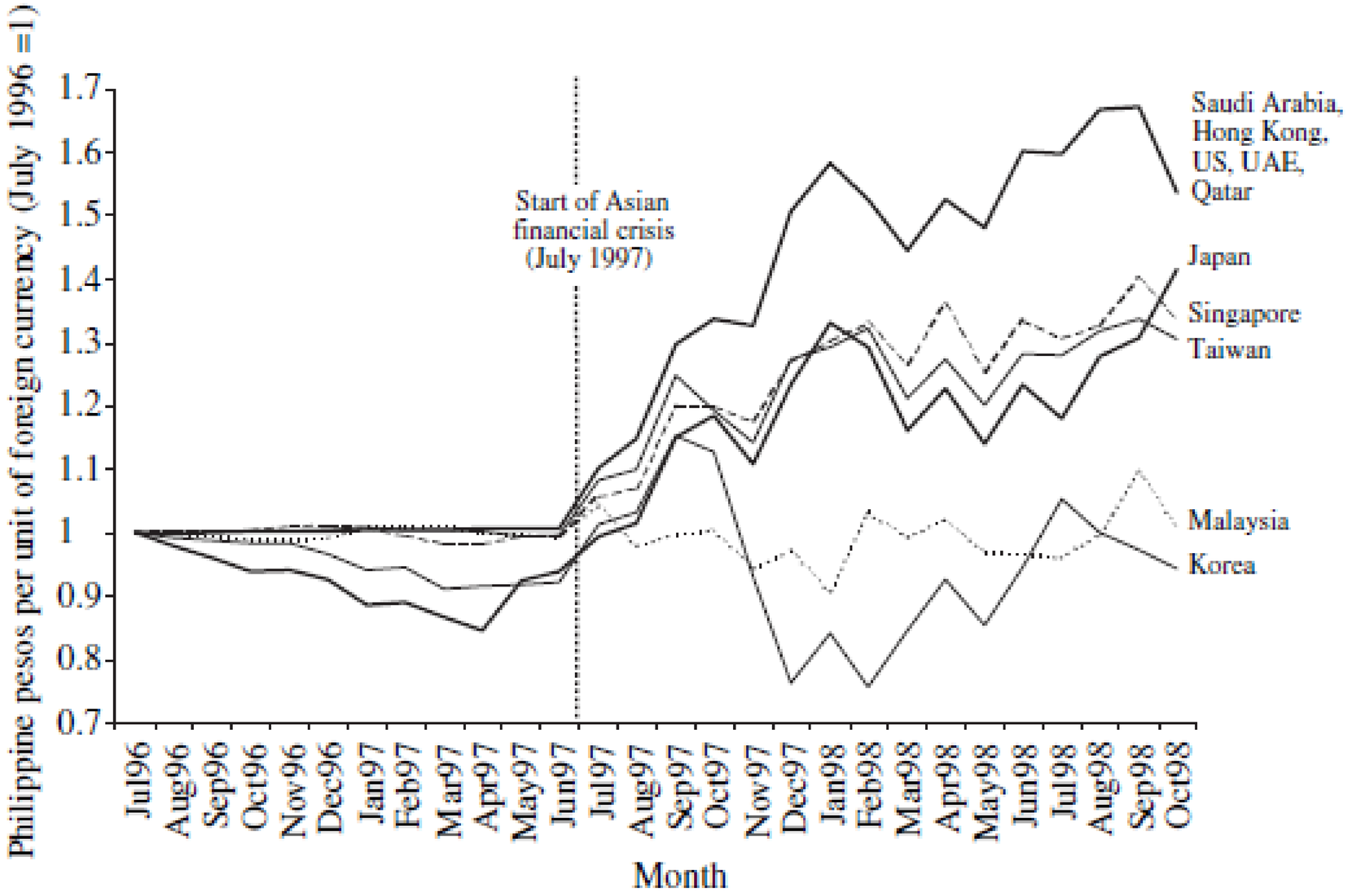


Fig. 2. *Exchange Rates in Selected Locations of Overseas Filipinos, July 1996 to October 1998*
(Philippine pesos per unit of foreign currency, normalised to 1 in July 1996)
Notes: Exchange rates are as of last day of each month. Data source is Bloomberg L.P.

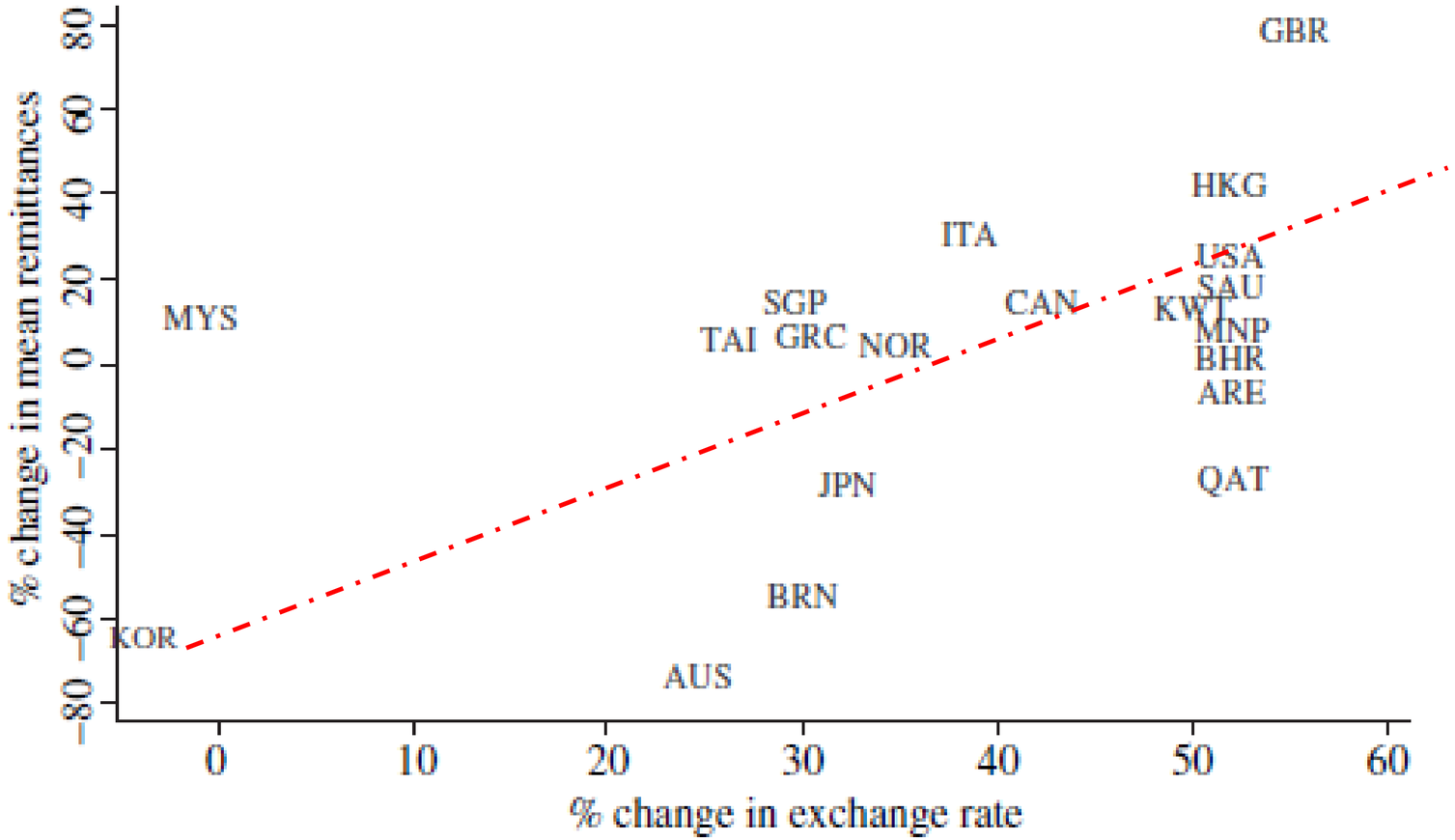


Fig. 1. *Impact of Migrant Exchange Rate Shocks on Philippine Household Remittance Receipts* (1997–1998)

(Line by Brais)

Remittances – Yang (EJ 2008) - 2

Results:

- These **exogenous increases in migrant resources were used primarily for investment** in origin households, rather than for consumption.

- Households experiencing more favourable exchange rate shocks raise their non-consumption disbursements in several areas likely to be investment-related:
  - Child schooling and educational expenditure rise, while child labour falls.
  - Households raise hours worked in self-employment and become more likely to start relatively capital-intensive household enterprises (transportation/communication services and manufacturing).

- By contrast, there is no large or statistically significant effect of the exchange rate shocks on current household consumption.

Table 4

Impact of Migrant Exchange Rate Shocks, 1997–8

OLS regressions of change in outcome variable on exchange rate shock. Columns 1 and 2 report coefficients (standard errors) on exchange rate shock.

	Initial mean of outcome	*Mean (std.dev.) of change in outcome*	*Regressions* (1)	*Regressions* (2)	*Implied elasticity* (coefficient in col. 2 divided by initial mean)
(*a*) *Remittances, migrant returns*					
Remittance receipts	0.395	0.151	0.175	0.238	0.60
		(0.022)	(0.119)	(0.086)***	
Migrant return rate (over 15 months)	*n.a.*	0.136	−0.155	−0.125	
		(0.008)	(0.048)***	(0.064)*	
(*b*) *Income and consumption*					
Household income	1.000	0.251	0.258	0.26	0.26
		(0.030)	(0.162)	(0.126)**	
Wage and salary income	0.234	0.063	0.027	−0.008	−0.03
		(0.010)	(0.044)	(0.049)	
Entrepreneurial income	0.166	0.023	0.041	0.029	0.17
		(0.007)	(0.034)	(0.041)	
Other sources of income (includes remittances)	0.6	0.165	0.189	0.239	0.40
		(0.023)	(0.137)	(0.100)**	
Household consumption	1.000	0.093	−0.063	−0.083	−0.08
		(0.012)	(0.068)	(0.074)	
(*c*) *Non-consumption disbursements*					
Disbursements, potentially investment-related	0.178	0.066	0.235	0.244	1.37
		(0.012)	(0.124)*	(0.130)*	
Educational expenditures	0.066	0.018	0.023	0.036	0.55
		(0.002)	(0.013)*	(0.016)**	
Purchases of real property	0.019	0.01	0.13	0.13	6.84
		(0.006)	(0.101)	(0.100)	
Repayments of loans	0.024	0.001	0.027	0.009	0.38
		(0.004)	(0.025)	(0.020)	
Bank deposits	0.069	0.036	0.055	0.069	1.00
		(0.008)	(0.040)	(0.044)	
Other non-consumption disbursements	0.071	0.042	−0.003	−0.003	−0.04
		(0.013)	(0.071)	(0.059)	
Specification:					
Region × Urban controls			–	Y	
Controls for pre-crisis household and migrant characteristics			–	Y	
Number of observations in all regressions:			1,646		

*significant at 10%; **significant at 5%; ***significant at 1%

Table 7

Impact of Migrant Exchange Rate Shocks on Entrepreneurship, 1997–8

OLS regressions of outcome variable on exchange rate shock. Table reports coefficients (standard errors) on exchange rate shock.

(*a*) *Entrepreneurial activities in general* (Regression outcomes are changes in given variable.)

	Initial mean of outcome	*Mean (std. dev.) of change in outcome*	Regressions (1)	Regressions (2)
Entrepreneurial income (as share of initial hh income)	0.17	0.023 (0.007)	0.041 (0.034)	0.029 (0.041)
Entrepreneurial activity (indicator)	0.50	0.014 (0.013)	0.084 (0.050)*	0.061 (0.051)
Specification:				
Region × Urban controls			–	Y
Controls for pre-crisis household and migrant characteristics			–	Y
Number of observations in all regressions:			1,646	1,646

(*b*) *Entry into new entrepreneurial activities and exit from old ones*

Outcomes	*Mean of outcome variable*	Regressions (1)	Regressions (2)
Entry into a new entrepreneurial activity (indicator)	0.237	0.111 (0.070)	0.14 (0.046)***
Exit from an old entrepreneurial activity (indicator)	0.222	−0.094 (0.061)	−0.042 (0.069)
Specification:			
Region × Urban controls		–	Y
Controls for pre-crisis household and migrant characteristics		–	Y
Number of observations in all regressions:		1,646	1,646

12.4. Digital payments

Technology to Increase Financial Inclusion

Q: What is Mobile Money?

Mobile money – 1

- In March 2007, the leading cell phone company in Kenya, Safaricom, formalized the launch of M-PESA, the first mobile money platform.
- Mobile money: an SMS-based money transfer system that allows individuals to deposit, send, and withdraw funds using their cell phone.
- System works through local shopkeepers (agents).
- M-PESA grew rapidly, reaching approximately 65 percent of Kenyan households by the end of 2009 (with over 7.7 million M-PESA accounts), a clear success story.
- Regulation: typically, 100% reserves in a fully-fledged bank.

Mobile money - 2

- The predominant use of M-PESA / mobile money has been person to person remittances.
- Before the technology was available, most households delivered remittances via hand or informally through friends or bus drivers.
- This process was expensive, fraught with delays, and risky.
- The introduction of mobile money meant substantial reductions in the transaction costs of sending and receiving money.
- **Q**: Which are the impacts of mobile money?

Mobile money - Jack and Suri (2013) - 1

- Analyze data from a large household panel survey designed and administered over an eighteen-month period between 2008 and 2010 in Kenya.
- Per capita consumption falls for a non-user household when they face a negative income shock, as it does for households who lack good access to the agent network; **M-PESA user households experience no such fall in per capita consumption**.
- These effects are at least partially due to **improved risk sharing**; users of M-PESA achieve some of these improvements in their **ability to smooth risk via remittances**.
- In related work (Jack and Suri, 2016), they find positive impacts on poverty mediated by changes in women's occupations (from agriculture to business).

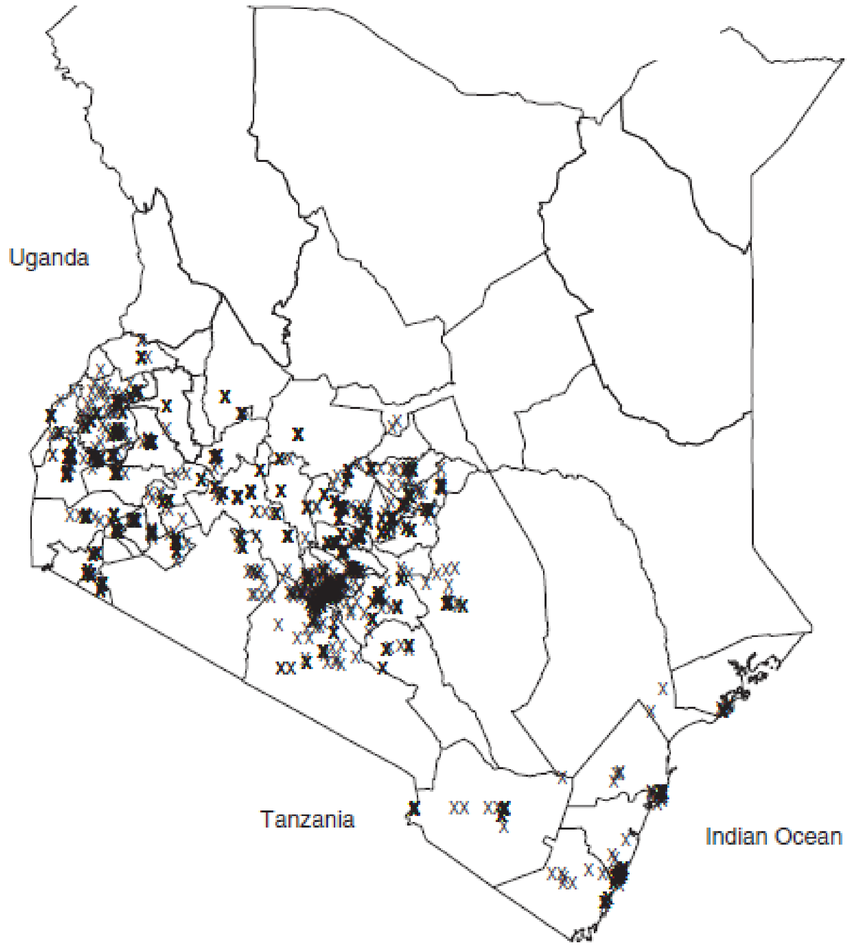


FIGURE 4. LOCATION OF SAMPLED HOUSEHOLDS ACROSS KENYA

TABLE 4A—BASIC DIFFERENCE-IN-DIFFERENCES RESULTS

	Total consumption Full sample				
	OLS (1)	Panel (2)	Panel (3)	Panel (4)	Panel (5)
M-PESA user	0.5730***	0.0520	0.0456	−0.0223	−0.0088
	[0.0377]	[0.0481]	[0.0469]	[0.0484]	[0.0449]
Negative shock	−0.2111***	−0.0668	−0.0727	0.2872	0.2673
	[0.0381]	[0.0491]	[0.0468]	[0.1762]	[0.1799]
User × negative shock	0.0917*	0.1093*	0.1320**	0.1749***	0.1483**
	[0.0506]	[0.0616]	[0.0594]	[0.0663]	[0.0599]
Demographic controls			Yes	Yes	Yes
Controls + interactions				Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
Time × location FE		Yes	Yes		Yes
Observations	4,562	4,562	4,562	4,545	4,545
Negative shock	−0.1593***	−0.0050	0.0019	0.0022	−0.0059
	[0.0252]	[0.0305]	[0.0292]	[0.0286]	[0.0280]
Shock, users	−0.1194***	0.0425	0.0592	0.0518	0.0460
	[0.0335]	[0.0379]	[0.0370]	[0.0383]	[0.0355]
Shock, nonusers	−0.2111***	−0.0668	−0.0727	−0.0626	−0.0737*
	[0.0381]	[0.0491]	[0.0468]	[0.0447]	[0.0429]
Shock, nonusers$\|_{\text{user } X_S}$				−0.1230**	−0.1024**
				[0.0549]	[0.0502]
Mean of user	0.5656	0.5656	0.5656	0.5661	0.5661

Mobile money – main findings

- Financial Inclusion Boost.
- Resilience & Poverty Reduction: Improved **consumption smoothing** and reduced poverty.
- Person to person (P2P) **Remittances Dominant**: Few successful innovations beyond basic transfers.
- **Entrepreneurship Gains**: Supported small businesses, reduced theft losses, improved capital use—especially **empowering for women** – some structural transformation *(from agriculture to entrepreneurship - women)*

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+ mobile money 2.0

Financial inclusion – summary

- **Microcredit was born out of a great idea**: group-lending, which keeps interest rates down at the expense of low risks.
- Evidence of **solid effects on business creation and investment in durables**; no effects on human development (not a miracle).
- **Insurance mostly** limited to idiosyncratic risk (**informal**); a lot to be done to expand formal insurance.
- **Savings**: many informal ways, but bank accounts, as a way to help commitment, have **clear benefits**. **Women**!
- **Remittances**: clear effects of remittances on household outcomes, namely **education and entrepreneurship**.
- **Technology (mobile money) may help financial inclusion** by **expanding risk-sharing** and accelerating structural development: from agriculture into retail.

+ mobile money 2.0

Thanks for your attention and contributions!