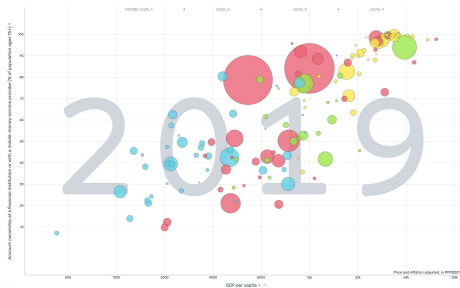


1963: GNP/cap. vs. FIR (ratio of tot. financial instrument value to wealth) (Goldsmith 1969)



Finance

Emily Breza, Harvard University

STIAS Nobel Symposium

March 2024

What Does Finance Do? (Levine 2005)

1. Mobilizes and Pools Savings
 - Overcomes costs of collection from many small households
 - Provides the trust to feel comfortable storing money at bank
2. Allocates capital, produces information ex ante about possible investments (screening), produces information ex post (monitoring)
3. Facilitates the trading, diversification, and management of risk
4. Facilitates temporal reallocation of consumption
 - Problem: Many of these functions costlier/more difficult in development country settings
 - Potentially wide-ranging and *heterogeneous* impacts on firms and HHs
 - Substantial body of research exploring barriers to expansion

1. What has prevented the financial market from expanding?

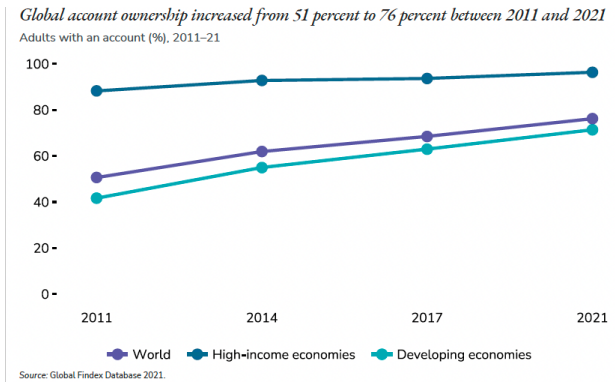
Transaction costs: Savings

Experimental evidence on household savings and formal accts

- **Reduce acct opening fees:** (Kenya) Dupas & Robinson 2013
 - 40% used account, women vendors ↑↑investment, ↑cons.
- **Increase interest rate on savings:** (Kenya) Schaner 2018
 - Short run ↑savings, 3 yrs: ↑biz. income, assets
- **Pay transfers / wages into account:** (India, Bangladesh) Vandevaille and Someville (2018), Breza et al (2024)
 - ↑ savings, shock resilience, ↓ consumption
- **Debit cards** (Mexico, Kenya) Bachas et al 2019, Schaner 2017
 - Lowers costs for user (ATM), increases monitoring (balance checks), ↑ savings, trust, ↓ consumption, barg. power mediates
- **Send reminders:** (Peru, Bolivia, Philippines) Karlan et al 2016.
 - Increases savings attainment in commitment accounts
- Metastudies: Knowles (2018), Steinert et al (2018) reducing costs ↑access, use.

Formal Deposit Account Access

Global progress in formal account access



Partly driven by government policies

- India PMJDY: ↑ bank accounts from 125.5 million to 259.8 million in under 2 years!
- Increase utilization by linking govt transfers to accts

Information Frictions: Causes of Default?

Diagnosing cause of default difficult: Hidden type vs hidden action

- Strategic (pure MH) vs distressed motives?

Blouin and Macchiavello (2019, QJE) use data from int'l coffee lender to construct clever test using variants in contract types:

- Fixed price contracts: price determined in advance
- If realized price higher than anticipated, incentive to side-sell
- Finding: 50% of default strategic

“Observing Unobservables” by Karlan and Zinman (2009, ECTA)
Classic test to further tease apart adverse selection, repayment burden, moral hazard (dynamic incentives)

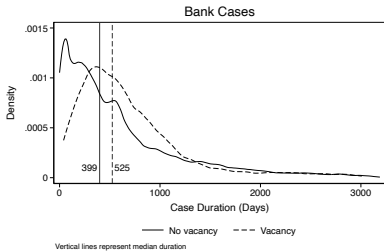
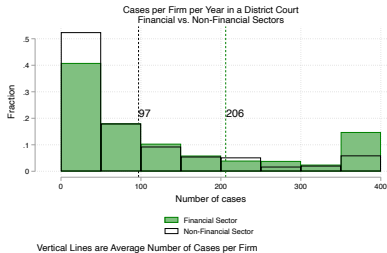
- Results: Substantial MH (dynamic incentive), limited AS.

Inefficient Legal System Hinders Lending

Prevalence of moral hazard / strategic default \implies monitoring and enforcement technologies central for credit supply.

- However, creditor protections often weak

Rao (2023) argues that court inefficiencies in India suppress lending



- Rate of cases pending > 3 yrs per judge 5x larger India vs. US

Ponticelli and Alancar (2016) QJE show bankruptcy reforms in Brazil increase supply of secured loans.

Banks and Formal Credit Supply

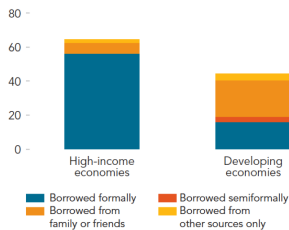
Positive effects of expansions of bank lending in India (natural experiments)

- Bank Branch Expansions:
 - Burgess and Pande (2005, AER): ↓ poverty headcounts
 - Cramer (2023) RD: improvements in health, employment, HH savings, credit to health enterprises
- Banerjee and Duflo (2014): expansion of subsidized credit supply to SMEs \implies ↑ sales and profits

However, bank loans do not reach most households

- Vast majority of retail and small business lending *secured*
- Mishra et al (2022 RFS): banks often slow to innovate, adopt new technologies (e.g., credit bureau data)

Limits to formal credit \implies informal sources dominate



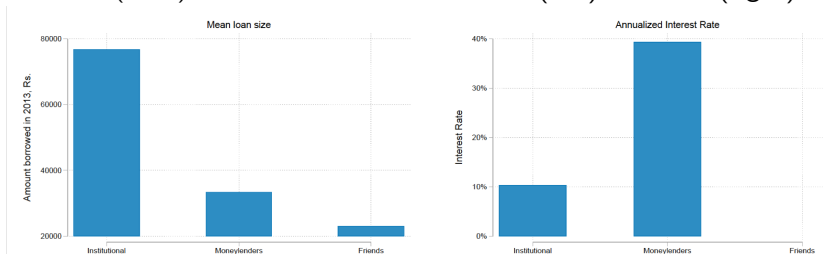
Source: Global Findex database.

	Mean (2)	SD (3)
<i>Access to credit</i>		
Loan from a bank	0.036	(0.187)
Informal loan	0.632	(0.482)
Any type of loan	0.680	(0.467)

	Mean (2)	SD (3)
<i>Amount borrowed from (in Rs)</i>		
Bank	7,438	(173,268)
Informal loan	28,460	(65,312)
Total	37,892	(191,292)

Source: Banerjee et al (2015)

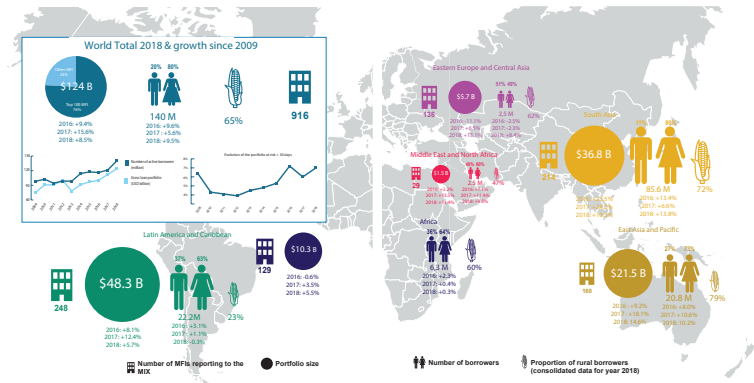
Surendra (2020), data from India. Loan size (left), Interest (right)



- Banks serve wealthier clients (larger loans, lower interest)
- Moneylenders make larger loans than friends, smaller than formal, high interest

2. Expanding and Refining Formal Credit Supply

Microcredit Rare Formal Product to Achieve Scale



Source: Microfinance Barometer 2019

- Collateral-free loans targeted to women
- Many MFIs require loans be used for business purpose
- Low default rates indicate that microfinance has found a way to “solve” the moral hazard problem

Returns to Microcredit?

Seven(!) RCTs launched by different researchers from 2005-2010:

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

Source: Hou, M., 2023. Microcredit: Impacts and promising innovations

- Studies primarily set up to measure causal impacts of microfinance on businesses
- Modest impacts on investment, general nulls on profits
- Similar conclusions in formal meta-analysis Meager (2019, 2022 AER)
- Borrowers must be spending loans, but after 18 mos, no lasting business or consumption benefits

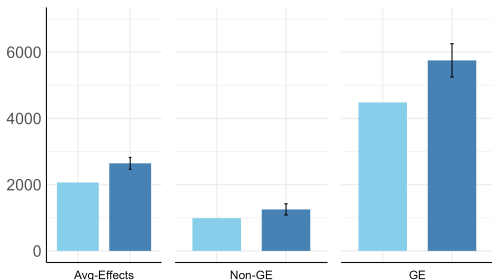
Scope for Any Transformative Impacts?

Impacts likely heterogeneous for numerous reasons

- In India study, only 49.7% of MF borrowers have *any* business
⇒ many borrow for consumption, not business growth.

Banerjee et al (2023): 6 yr follow-up of MF RCT

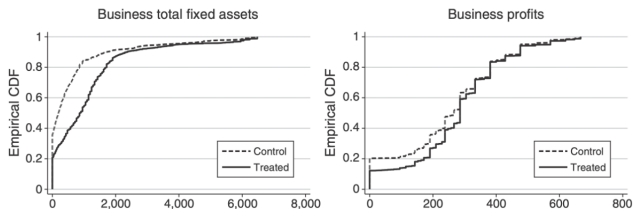
- Focus on pre-MF entrepreneurs: entered when cost of capital high – *Gung-ho entrepreneurs* (GEs)



- Argue GEs exhibit dynamics consistent with *poverty trap*
- Also show MF causes weaker businesses to enter

Refinement 1. Directing Credit to High-Return Bus.

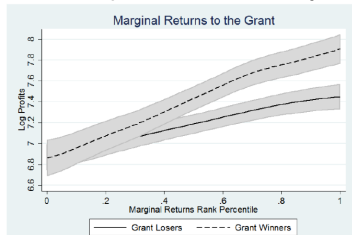
- Bryan Karlan and Osman (2022): Large loans to businesses
 - Treatment: 4x typical loan size. Control: 2x typical loan size
 - Top quartile: \uparrow 56% profits. Bottom quartile: \downarrow 52% profits
 - Consistent with substantial misallocation
- Bari et al (2024, AER): Asset-based fin. for successful MF clients
 - Status quo (control): \$500 microloan [30% take-up]
 - Hire-pay contract (treatment): asset purchase up to \$2,000, 10% down, rent-to-own payments over 18 mos. [50% take-up]



- Significant \uparrow : consumption, assets, education expenditure

Refinement 2. Prospects for Segmentation

- Self-selection: Beaman et al (2023 ECTA)
 - How about more choices? Better savings/insurance?
- Peer selection: Hussam et al (2022 AER), study with 1,345 microentrepreneurs, lottery to receive \$100 grant
 - *Who could grow their profits most if they received grant?*



Source: Hussam, Rigol and Roth 2022

- Alternate data sources (will return to this below)
 - Bryan et al (2022) Large loans study: Psychometric chars. predictive of TEs

Refinement 3. Designing for Needs of Business

Flexibility: ↑ Profits in 4 out of 5 studies

	Country	Innovation	Profits	Income	Default
Karaivanov et al.(2020)	India	Repay Whenever	↑ 15% (INR 125) daily	-	-
Barboni et al. (2023)	India	Deferral Option	↑ (INR 5241) monthly	-	-
Battaglia et al.(2021)	Bangladesh	Deferral Option	↑ 27 % (USD 97) monthly	↑ 17% (USD 1,309) annually	↓ 35%
Brune et al.(2022)	Colombia	Deferral Option	-	-	↓ 5%
Field et al.(2013)	India	Grace Period	↑ 41 % (INR 641) weekly	↑ 19.5% monthly	↑ 213-372%

Source: Hou, M., 2023. Microcredit: Impacts and promising innovations

Products that match timing of need/CFs have had success

- Farmer loans during hungry season (Zambia Fink et al 2020, AER); Loans to delay sale of maize harvest (Kenya Burke et al 2019 QJE); Agricultural loans (Mali Beaman et al 2023 ECTA)

4. GE Impacts and Rural Labor Markets

Breza and Kinnan (2021, QJE)

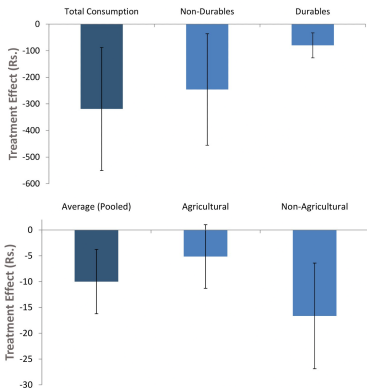
Potential GE impacts of MF:

- Business growth, job creation
- Consumption from MF loans
→ Aggregate demand

Natural experiment: Withdrawal of credit

- Equilibrium Outcomes:
 - Wages fall by 4%, $\downarrow\downarrow$ non-tradable wage
 - Consumption falls by 5%, Consumption multiplier > 2

Small loans to rural HHs can move the local economy, need for stable regulation



5. GE Impacts and Social Networks

Banerjee et al 2024, ReStud

How does MF change network?

- Data from 2 “experiments”
- Detailed social networks
(Banerjee et al 2014, Science)

Are there impacts even for non-takers?

- Classify each HH into High (H) vs. Low (L) propensity borrower



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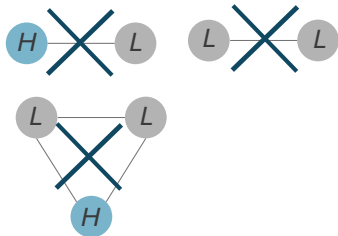
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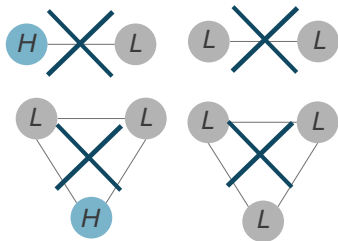
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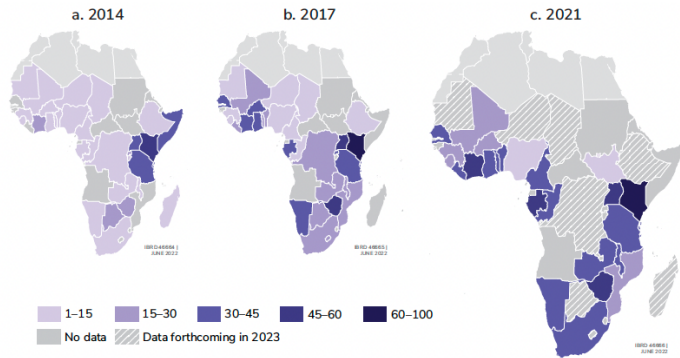
*L*s experience worse consumption smoothing, $\uparrow \text{corr}(\text{inc}, \text{cons})$

- Implications for credit policy. Direct credit toward places with less network-based credit. Bring better insurance to *L*s

3. Digital Models of Finance

Why Mobile Money and Digital Payments?

- 2017 Global Findex: 1.7bn adults did not have financial account, $\frac{2}{3}$ of them had mobile phone.
- Past decade, global account ownership: 51% to 76%
- Mobile money 8pp of this gap, esp. important in SSA



Mobile Money Impacts

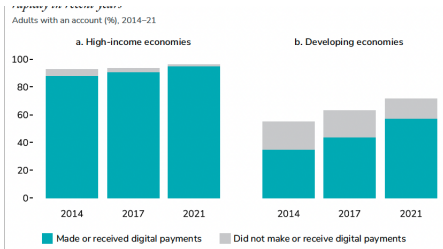
Kenya's M-PESA is global MMO leader. Initial capabilities:

- Mobile wallet linked to SIM card
- Cash in/out at network of agents
- Low cost P2P transfers. Lowers the costs of sending money to network, informal risk sharing

Jack and Suri (2014, AER) document benefits of M-PESA for risk sharing

- HHs less likely to cut consumption after shock
- *Expansion* of risk sharing network.

Broader expansion in digital payments.



Mobile payments + Add to myFT

Brazil counts success with Pix payments tool

State-backed instant transfer service is credited with helping to widen financial inclusion

Payments record Pix hit a single-day high of 103m transactions that reached \$176m (\$15.7m) in September 2021 © Rafael Henrique/Zuma Press/Alamy

Where Digital Payments, Even for a 10-Cent Chai, Are Colossal in Scale

Indian homegrown instant payment system has reshaped commerce and pulled millions into the formal economy.



A QR code at a roadside food stall in Mumbai, India, allows customers to make instant payments with their phones. *And Luke for The New York Times*

Digital Finance

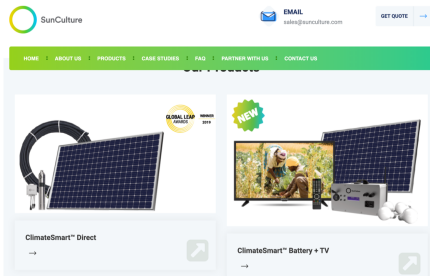
Can revisit frictions limiting scale of finance:

- Direct debit from mobile wallet/digital account for payments
- Data for Screening and Monitoring: Digital footprints (Berg et al 2018), Account data, Telco data
 - Björkegren and Grissen (2020): mobile data predicts repayment
- New mechanisms for data sharing (Open Banking, Account Aggregators)
- Increased pledgeability of assets (next slide)

Rise of instant, high interest rate credit from MMOs / Fintechs

- Kenya: Suri, Bharadwaj and Jack (2021), Malawi: Brailovskaya et al (2021); Nigeria: Björkegren et al (2022).
- Expansion of credit access, modest improvements in resilience or subjective well-being. High rates of default, low consumer knowledge.
- Borrowers have particularly bad outside options?

Digital Collateral



- Sun Culture: Pay for asset over time via mobile money, *disconnect asset remotely* in case of non-payment
- Once repaid, asset can collateralize consumption loans

Solar-powered pump (left), battery w/ TV and lights (right)

Gertler et al (2024 QJE) Digital collateral \implies default \downarrow 19pp

- But high levels of lockout: median borrower shut off $\frac{1}{3}$ of days.

How to design these products to expand lending but reduce harms from lockout? (US starter interrupter switches)

Digital Finance: Looking Ahead

Degree of digitization very new, wide open research space

- Credit impacts on lending to entrepreneurs. Does digital credit improve allocation of loans to productive users?
 - PIX/UPI: customer payments into accounts, reflects revenues
- Scope for distributing insurance? Increasing savings?
- How to reduce gender gaps (often men own smartphone, more numerate)?
- Scope for government intervention?
 - Challenge: regulatory framework that lets these platforms grow but also protects consumers, data privacy
 - Policies to support certain types of products?
 - Private market moves along profit-maximizing gradient, preference for credit over savings, insurance
- Will we see CF-based products, moves toward equity structures?
 - Problem: strategic diversion (switch revenues to brother's acct)
- Pros and cons of MMO-based model vs. public infrastructure
 - MMOs, Brunnermeier et al (2023): trade-off fees vs. access
 - Guidance for countries still in early stages of “digital journeys”