

ECON 256: Poverty, Growth & Inequality

Jack Rossbach

Credit Markets in Developing Countries

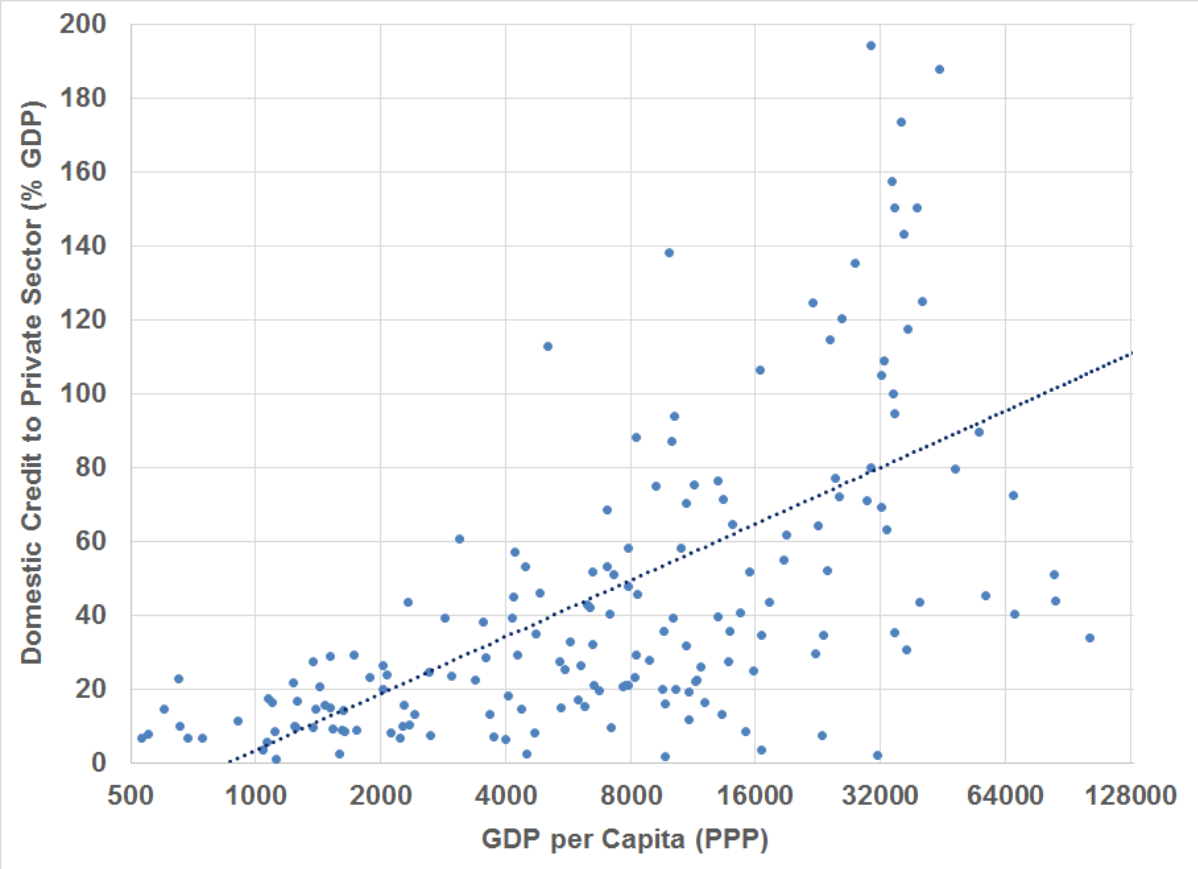
Individuals in developing countries often face large credit constraints

- Interest rates on loans are much higher in developing countries
- May have no access to credit at all

Why is credit access important?

- Credit is often needed to fund investment [e.g. startup costs for a business]
- Consumption smoothing since incomes fluctuate

Domestic Credit vs GDP per Capita (2005)



Credit Markets in Developing Countries

Why is financial access limited in developing countries?

- **Information Asymmetry:** Individuals have information that banks do not [e.g. how risky is their project is, do they intend to repay]
- **Commitment Problems:** Individuals can choose to not repay loans, and banks charge higher rates because of this. If individuals had to repay, would get lower rates.

These issues are present in rich countries, but institutions designed to address them

- Examples: Credit monitoring agencies, bankruptcy laws, well functioning legal system
- Lower interest rates \Rightarrow less incentive to default, so there is feedback mechanism

Risk and Liability

Loans can be for either safe or risky investment. Consider example

	Safe	Risky
Investment Required	100	100
Return (% Chance)	120 (100%)	0 (50%), 240 (50%)
Expected Value	120	120

- If agents are risk-neutral then indifferent. If risk-averse will prefer safe investment

Liability is important even when agents risk-neutral

- Suppose project fails, how much is loan taker responsible for repaying?

Risk and Liability

Suppose interest rate is 10% and borrower liability only 50% of loan if project fails:

	Safe	Risky
Investment Required	100	100
Project Return (% Chance)	120 (100%)	0 (50%), 240 (50%)
Bank Return (% Chance)	10 (100%)	-50 (50%), 10 (50%)
Expected Bank Profits	10	-40
Consumer Return (% Chance)	10 (100%)	-50 (50%), 130 (50%)
Expected Consumer Profits	10	40

- Bank prefers safe project, but consumer prefers risky project

Adverse Selection

Adverse Selection: Lenders cannot distinguish between risky and safe projects

- The loan terms lenders will offer will be based off a mix of both loan types
- These loan terms are only attractive to risky borrowers, so lose safe borrower market

Adverse Selection in Developing Countries

- Screening (e.g. credit rating agencies) can be used to mitigate adverse selection
- However, screening is expensive in developing countries due to lack of institutions
- Adverse Selection is also worse when interest rates are higher (lose more safe projects)

Adverse Selection and Moral Hazard

Moral Hazard: Consumers know they have limited liability. May choose riskier projects.

- **Extreme example:** Borrow money, go to casino. Repay loan if win, walk away if lose.
- Moral hazard is a problem since banks have high losses when risky projects fail

Moral Hazard in Developing Countries

- Collateral and monitoring are used to partially mitigate moral hazard
- Poor people in developing countries do not have collateral
- Expensive to monitor in developing countries, again due to lack of institutions

Interest Rates and Risk Premia

Risky projects cause bigger losses to banks

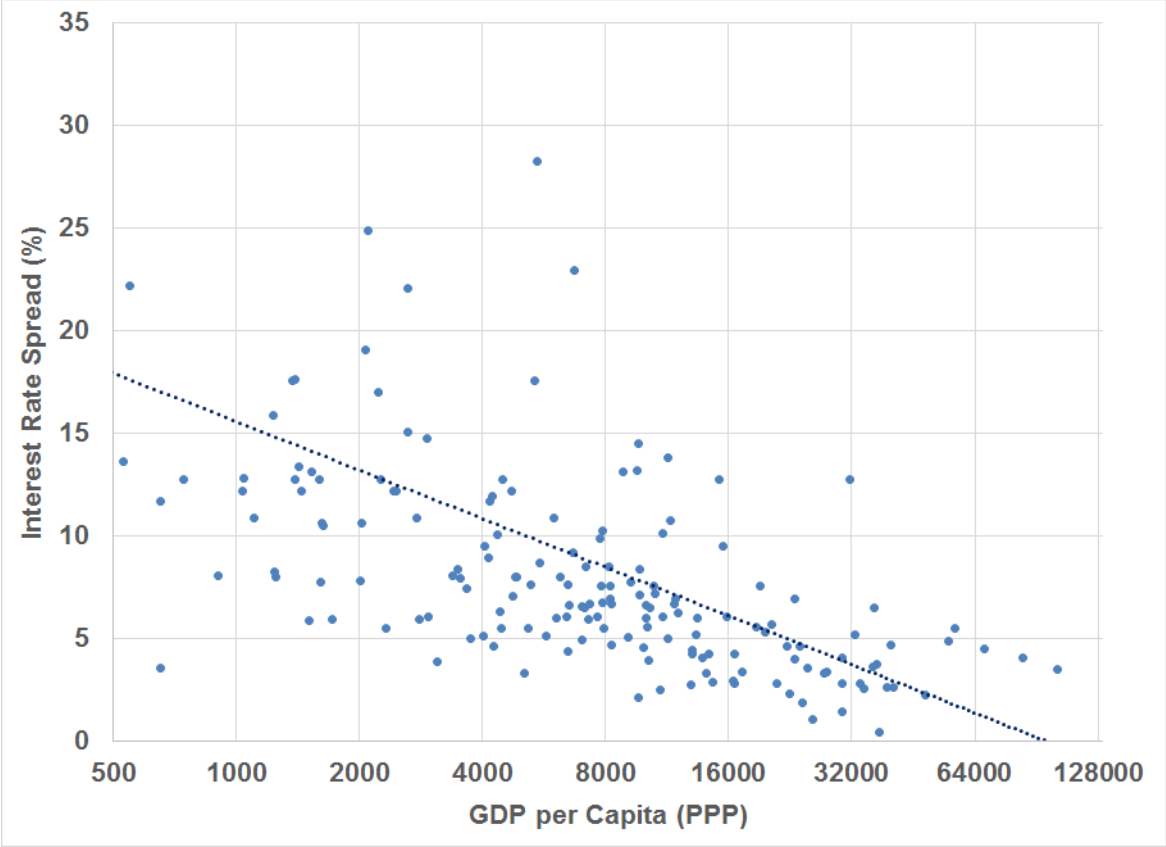
- Banks can charge higher interest rates to compensate
- Let p = % chance of repayment, i = interest rate, r = opportunity cost / risk free rate
- Suppose there is no liability for borrowers that do not pay back. To profit, bank needs

$$i \geq \frac{100 + r}{p} - 1$$

Big issue: Interest Rate affects probability of repayment.

- So have amplifying feedback mechanism that leads to extremely high interest rates
- After some point, interest rates so high nobody could repay. Credit market shuts down.

Interest Rate Spread vs GDP per Capita (2005)



Interest Rate Spread = Interest Rate on Loans – Interest Rate on Deposits

Interest Rates and Risk Premia: Generalized

Suppose there is liability for failed projects.

Borrowers pay back percentage l of their initial loan if they default. To profit bank needs

$$\underbrace{p(100 + i)}_{\text{Bank Profit if Loan Fully Repaid}} + \underbrace{(1 - p)l}_{\text{Bank Profit if Loan Defaults}} \geq \underbrace{100 + r}_{\text{Bank Profit if Don't Issue Loan}}$$

Therefore, our generalized formula is

$$i \geq \frac{(100 + r) - (1 - p)l}{p} - 100$$

- Therefore having partial liability can reduce interest rates charged by banks.
- Average "haircut" for US Corporate debt is around 64%; which gives $l \approx .36$

Alternatives to Traditional Credit Markets

Traditional credit markets have trouble serving developing countries

- Don't have access to collateral, monitoring, and screening that can reduce interest rates
- High interest rates lead to adverse selection and moral hazard, constrict credit market

Microfinance as an alternative

- Small loans provided to individuals, often to encourage entrepreneurship
- No collateral or credit history required. Use group lending and peer monitoring.
- Example: Grameen Bank, founded by Nobel Peace Prize winner [Muhammad Yunus](#)

Basics of Group Lending

Microfinance loans usually dispensed to a small group

- Group is formed voluntarily (group members choose who to group with)
- Group decides whose projects funded first; loans increase if repayment plan followed
- Repayment is frequent (weekly) and public

Joint liability: If one member defaults, all members denied future loans

- Makes borrowers responsible for screening and monitoring costs
- Encourages group members to

Alternatives to Traditional Credit Markets

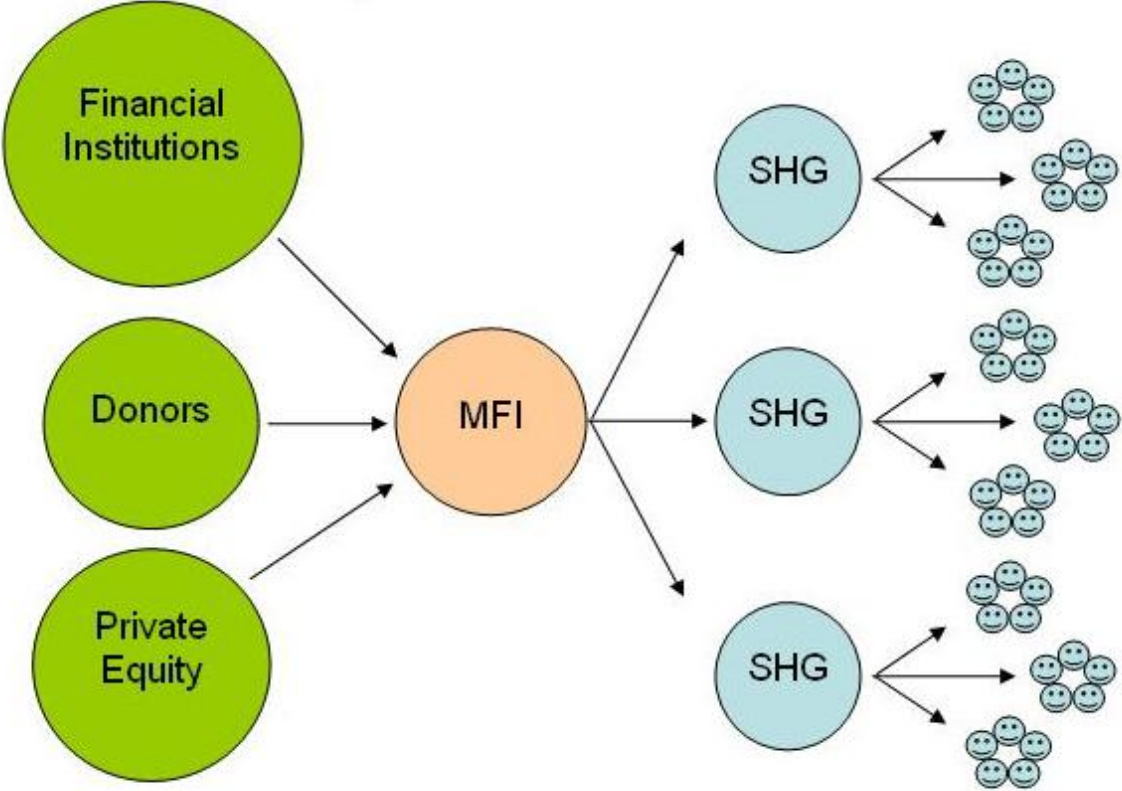
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Diagram of Microfinance Lending



SHG stands for Self Help Group (10-15 women)

Microfinance in Developing Countries

Microfinance has successfully expanded credit to many people

- Number of microfinance borrowers increasing by 40% per year. 90 million in 2011.
- Average interest rates (20%) much lower than from informal moneylenders (120%)
- Average default rates (2-5%) much lower than traditional banks (60+%)

Drawbacks:

- Transfers risk from bank to borrowers. Group may repay loans of person who defaulted.
- Social sanctions may be severe. Borrowers may default through no fault of own.
- Not clear it scales well to large loans required for major investment

Microfinance and Women

Most Microfinance loans are given to women (>90%)

- Deliberate targeting, meant to improve social status of women in developing countries
- Women lack traditional opportunities, so loans important to allow entrepreneurship

Evidence that microfinance may work better with women

- The peer effects of group lending may be stronger when groups are only women
- Evidence that women invest more in their children, where social returns are high

Comparison of Microfinance Institutions

	Grameen Bank, Bangladesh	BancoSol, Bolivia	Bank Rakyat, Indonesia, Unit Desa	Badan Kredit Desa, Indonesia	FINCA Village Banks
Membership	2.4 million	81,503	2 million borrowers; 16 million depositors	765,586	89,986
Average loan balance	\$134	\$909	\$1007	\$71	\$191
Typical loan term	1 year	4–12 months	3–24 months	3 months	4 months
Percent female members	95%	61%	23%	N/A	95%
Currently financially sustainable?	No	Yes	Yes	Yes	No
Nominal interest rate on loans (per year)	20%	47.5–50.5%	32–43%	55%	36–48%
Annual consumer price inflation, 1996	2.7%	12.4%	8.0%	8.0%	N/A

Source: Jonathan Morduch, "The Microfinance Promise," *Journal of Economic Literature* 37, no. 4 (1999): 1569–1615. Printed with permission of American Economics Association.

Sustainability of Micro Finance

Unlike traditional banks, Micro Finance Institutions are usually not profitable

- World Bank: Only 1% of Microfinance Institutions are financially stable
- Break even interest rate estimated to be double current interest rates

Returns do not take into account positive societal externalities from reducing poverty

- Evidence that microfinance does improve social mobility of borrowers
- May be cost effective way of delivering resources to poor without many side effects

Micro Finance as a Path to Development

Not clear how much finance will ultimately do to address development gap

- Successful in side-stepping deficiencies of financial institutions for poor borrowers
- Some success helping borrowers escape poverty traps and extreme poverty

Drawbacks

- Not clear how well the group lending strategy can scale to large loans
- Interest rates still exorbitant compared to rich countries (20+% vs 3.5%), not equal footing
- Sidestepping bad traditional institutions has limits, ultimately will need to improve them