

Rural credit market

Lecture 8-3

EE461 2/2021
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Overview

- Demand & Supply for credit
- Characteristics of rural credit market
- Informational asymmetries in credit market
 - Adverse selection & credit rationing
 - Moral hazard & uncertain repayment
- Microfinance
 - Concepts
 - Results from microcredit experiments



Sources of demand for credit



Market for fixed capital:

credit is used for purchasing fixed inputs, or capital is required for new startups or expansion of existing business



Market for working capital:

credit is required for ongoing production activity when there is a substantial lag between payment for production and sales receipts



Demand for consumption credit:

- also underlying demand for insurance when there is a sudden crop failure or illness that hinder incoming earnings for household
- Credit is required to smooth consumption to cover household's needs in periods of low income by borrowing against higher expected earnings during good periods

Credit for investment

Who provides rural credit?

- **Formal or institutional lenders:** government banks, commercial banks, credit bureaus, etc.
 - Don't have personal knowledge regarding characteristics and activities of their clients
 - Think about expected return from lender's and borrower's point of view: the borrower tends to invest in risky project that the bank does not want
 - With limited liability and possible risky project investment, institutional lenders often insist on collateral before advancing a loan
 - The collateral needs to be acceptable and low transaction cost of selling if needed

Who provides rural credit?

- **Informal lenders:** landlords, shopkeepers, traders, etc.
 - Possible reach out to the poor for some (exotic) forms of collateral, e.g. small land next to landlord's land, labor as collateral, or crop outputs
 - Have much better information regarding activities and characteristics of their clients
- **Microfinance (MFI)**
- **Non-banks** (in Thailand) Nanofinance, Picofinance, Leasing, etc.

Characteristics of rural credit markets

Informational constraints

- Lack of information regarding the use of a loan
- Lack of information regarding the repayment decision

Segmentation

- Repeat lending to individuals whom moneylender has lent before or has close interactions with, but reluctant to lend outside this group of people

Interlinkage: interlinked credit transactions

- Lending occurs within occupational lines: landlords give credits to their tenants, traders favor lending to their clients
 - Production relationship facilitate credit relationship, and hence segmentation
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Characteristics of rural credit markets

Interest rate variation

- Segmentation → interest rates vary by geographical location, the source of funds, and the characteristics of the borrower
- Siamwalla et al. (1993) report informal sector interest rate varies between 5-7% per month (higher than 12% per annum charged by formal sector banks)
- Udry (1994) finds that interest rates on loans among families in Nigeria were low
- For traders or landlords, interest rates might be in the form of other transactions, e.g.
 - the price at which a trader buys output from the farmer
 - the implicit wage that a laborer is required to work off an interest-free loan

Characteristics of rural credit markets

Rationing

- At the going rate of interest, the borrower would like to borrow more but cannot
- Normally, if the borrower want to borrow more, there is some surplus that the money lender can grab by simply raising interest rate a bit more. But, it turns out that the lender does not do so as he does not want to attract more risk borrowers.
- Rationing includes the complete exclusion of some potential borrowers from credit transactions

Exclusivity

- Moneylenders prefer their clients borrow only from them, not from many sources.
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Imperfect Information Paradigm

Akerloff, Spence, Stiglitz Shared the 2001 Nobel Prize

- Powerful framework for understanding imperfections in many markets where contracts are critical.
 - Revolves around two basic notions:
 - **Adverse Selection**
 - **Moral Hazard**
 - These two concepts will help answer the question:
 - Why won't the lender raise the interest rate to eliminate excess demand (get rid of credit rationing)?
 - **Credit rationing**: why the moneylender won't increase the interest rate when there is excess demand for loan
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Informational asymmetries and credit rationing

- ▶ Two types of borrowers: high-risk borrowers (risky type) and low-risk borrowers (safe type)
- ▶ Risk may be correlated with characteristics of the borrower that are observable or unobservable to the lender.
- ▶ When it is unobserved, the interest rate affects the mix of clients that are attracted, and hence the average probability of default.
- ▶ Suppose each type needs a loan of size L to invest in some project.
- ▶ Safe type: always obtain a secure return of R
- ▶ Risky type: Obtain a higher return of R' with probability p and possibly get zero return with probability $1-p$

Informational asymmetries and credit rationing

- ▶ The lender can freely set the interest rate; which rate he should choose?
 - ▶ What is the highest interest rate that the safe borrower wants the loan?
 - ▶ From net return, $i_1 = R/L - 1$
 - ▶ What is the highest interest rate that the risky borrower wants the loan?
 - ▶ From expected return, $i_2 = R'/L - 1$
 - ▶ Since we have $R' > R$, we then have $i_2 > i_1$
 - ▶ Note that this interest rate is independent of the risky type's probability of success.
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Informational asymmetries and credit rationing

- ▶ Suppose the lender charges i_2 , his expected profits are $\Pi_2 = p(1 + i_2)L - L$
 - ▶ Only the risky type is willing to borrow at i_2
- ▶ If the lender charges i_1 , both types are in; hence, his expected profits are $\Pi_1 = \frac{1}{2}i_1L + \frac{1}{2}[p(1 + i_1)L - L]$
- ▶ When $\Pi_1 > \Pi_2$, the lender will be reluctant to charge the higher interest rate.
- ▶ By substituting i_1 and i_2 , we obtain the condition $p < \frac{R}{2R' - R}$
 - ▶ If the high-risk type is sufficiently risky (a lower p means a higher chance of default), the lender will not raise his interest rate to i_2 that attract on the risky type.
- ▶ The price is not raised even in the face of excess demand.

Summary of Adverse Selection

- Borrowers have greater information than lender
- Specifically, they know their own “type”
- Bad types may pretend to be Good
- Lender knows this and must charge high i
- If i is too high, market collapses
 - Good types drop out
 - Lender knows only Bad types are left, so won't lend
- Market Failure!! Profitable investments aren't made

Moral Hazard

Credit Market: Borrower has more information about what he does (actions he takes) with the money -- and thus also about the probability of default -- than the lender.

Implication: The lender may be unwilling to raise the interest rate **even if there exists excess demand**.

Why? Because by increasing the interest rate, the lender induces the borrower to do things that reduce the probability of repayment and thus lowers his own profit.

Repayment is uncertain

Two features of problematic credit markets

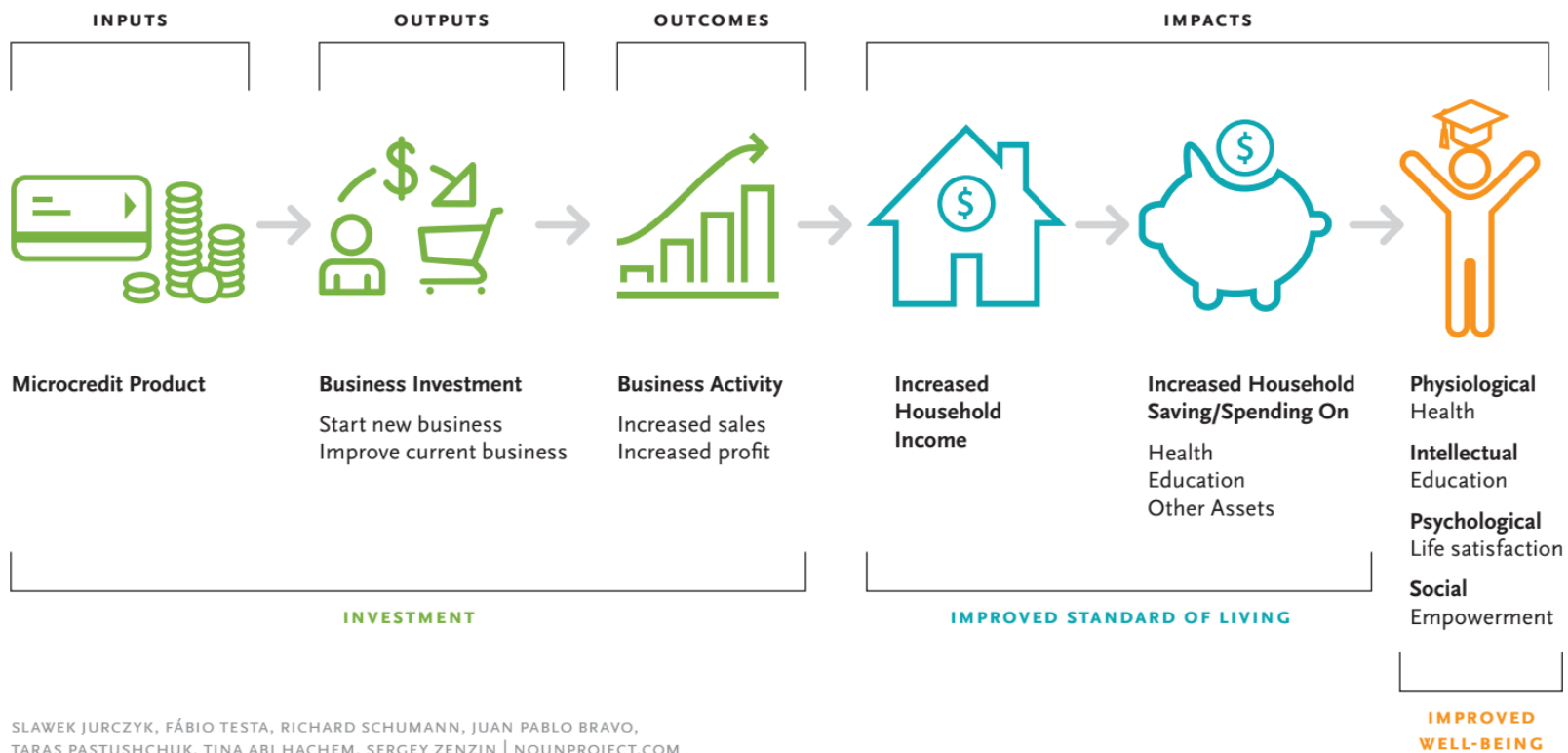
- Involuntary default
 - It is difficult to monitor what a loan has been used. A loan may be used for other needs (consumption) or may be put into a risky productive activity
 - It creates the problem of inability to repay, or “involuntary default”, at which a lender is less likely to get a money back
 - Voluntary default (or strategic default)
 - The borrower can repay the loan, but simply does not find it in his interest to do so, especially when the legal system of enforcement is weak
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Microfinance

concept:

- Provision of small-scale financial services
- Still primarily small loans to poor borrowers in poor countries (microcredit)
- Average loan size \$100-200
- Some famous names: Grameen Bank (Bangladesh), BRAC (Bangladesh), Accion (Mexico)
- Key differences from standard banking: small loans, frequent payment, group lending (use borrowers' local presence to overcome information constraints)

FIGURE 1 A THEORY OF CHANGE FOR MICROCREDIT



SLAWEK JURCZYK, FÁBIO TESTA, RICHARD SCHUMANN, JUAN PABLO BRAVO,
TARAS PASTUSHCHUK, TINA ABI HACHEM, SERGEY ZENZIN | NOUNPROJECT.COM

Why does it work?

- Better ability to deal with market failures
- Local information
- May lower monitoring and enforcement cost
 - Peer monitoring
 - Social pressure
 - Future access to credit



Group lending/Joint liability

- Loans are made to groups of borrowers
 - Usually 5 or so
 - Usually the borrowers form the groups themselves
 - No literal collateral
 - Weekly meetings in the village
 - Public review of each group's records (passbooks)
 - The entire group is liable for each of its member's repayment
 - If all repay, the group can continue to borrow
 - If one member defaults, all members of the group lose access to credit
 - Incentives for members to monitor each other (project choice, effort, repayment)
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Limitations of group lending

- Best suited to “medium-density” environments, i.e. villages and small towns
 - Low density makes group monitoring, meeting attendance, etc., expensive
 - High density reduces the effectiveness of the implicit collateral
 - Tradeoff between monopoly power and credibility of enforcement mechanism
 - Entry leads to more competition for borrowers
 - But if I can default with one lender and get a loan from another?
 - Frequent but early repayment
 - Establish good habits
 - But costly and can reduce investment
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Limitations of group lending

- Difficult to maintain credibility that all members of the group will be punished
- Added risk for borrowers
- Costs of monitoring transferred to borrowers
- Social sanction may not work very well for enforcement



Some results from microcredit

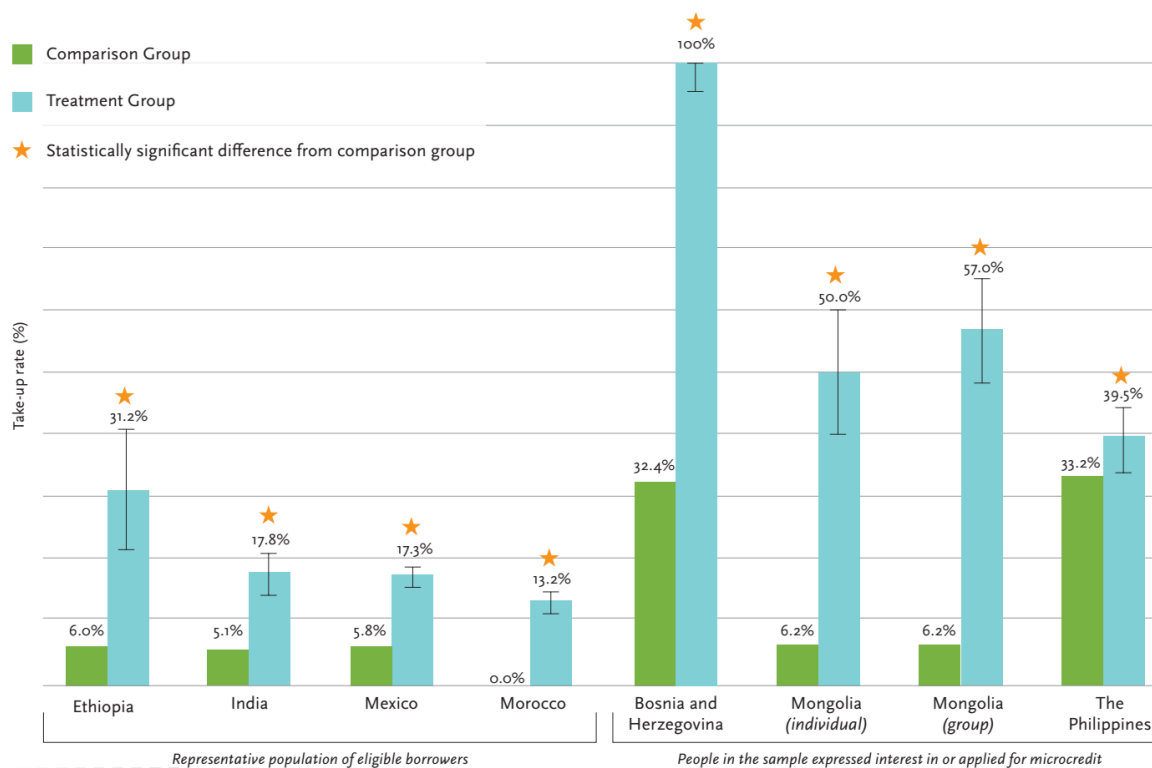
Where credit is due (IPA & J-PAL bulletin, 2015)

- Demand for many of the microcredit products was modest

microcredit may be valued as a useful financial tool by some, but not all, borrowers

In four studies where MFIs offered microloans to a general population of eligible borrowers, take-up ranged from 13 to 31 percent

FIGURE 2 MICROCREDIT TAKE-UP WAS MODEST WHEN MFIS OFFERED IT TO A GENERAL POPULATION OF ELIGIBLE BORROWERS



Note: Statistical significance is noted at the 90 percent confidence level or higher and error bars represent 90 percent confidence intervals; In Ethiopia, India, Mexico, Mongolia, and Morocco, take-up is measured as having any loans from the partner MFI at the time of the endline survey; In India, the results displayed are from the first endline survey (1.5 years), and there is also a statistically significant difference after 3.5 years; In Bosnia and Herzegovina, comparison group take-up is measured as having any outstanding loan from any MFI and treatment group take-up is a direct measurement of those who took up the partner MFI's microcredit offer (76.3 percent of borrowers in the treatment group reported having any loans from any MFI at the time of the endline survey); In the Philippines, take-up is measured as having any loan from any financial institution in the month preceding the endline survey.

Some results from microcredit

- Expanded credit access did lead some entrepreneurs to invest more in their businesses.
 - Generally, microcredit access increased business activities, but rarely resulted in profit increases.
- Microcredit access did not lead to substantial increases in income.

TABLE 2 SUMMARY OF MICROCREDIT'S IMPACT ON VARIOUS OUTCOMES

Outcome	Bosnia and Herzegovina	Ethiopia	India	Mexico	Mongolia	Morocco	Philippines
Business ownership	↑	—	—	—	↑	—	—
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	—	—	—	↑	—	—	↓

Note: Green (red) arrows represent statistically significant positive (negative) differences in outcomes between the treatment and comparison groups at the 90 percent confidence level or higher, dashes represent no statistically significant difference; Ethiopia: While none of the individual business outcomes showed a positive impact, a combined business outcomes index did; a decline in household spending/consumption is measured as an increase in food insecurity; India: The increase in assets occurred only after 3.5 years, while the increase in inventories occurred only after 1.5 years; Mexico: Household spending is measured as the value of assets purchased in the past two years; social well-being is measured as a combination of women's empowerment outcomes and trust in people; Mongolia (group): Business assets measured as an index of listed assets increased, while assets measured as monetary stock did not; Morocco: There was an increase in combined business sales and home consumption, an increase in business costs, and no change in investment; The Philippines: There was a decrease in the number of businesses and number of paid employees; household spending/consumption was measured as changes in food costs and quality; a combined social well-being index showed a negative effect.

Some results from microcredit

- Expanded access to credit did afford households more freedom in optimizing how they earned and spent money.
 - There is little evidence that microcredit access had substantial effects on women's empowerment or investment in children's schooling, but it did not have widespread harmful effects either.
 - Microcredit did not lead to increases in children's schooling in the six studies in which it was measured, and only one of the four studies that measured women's empowerment found a positive effect.
 - Some critics believe that expanding access to credit may crowd out existing businesses, cause households to overextend themselves and fall into debt traps, or increase stress or depression levels among borrowers. There is little evidence to support these claims.
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