# Credit and Microfinance:
Consumption and Credit

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Lecture 1

POVERTY AND MICROFINANCE

○ The poor often lack access to financial services
  wealth-threshold for accessing financial services has decreased though the ages due considerable progress in the field of banking

– Microfinance attempts to provide financial services to the poor

  This course looks at optimal design of microfinance institution
  – uses a contract based approach
  – depth of outreach is the metric used

LENDER'S CONTRACT PRISM

Adverse Selection — Moral Hazard — Costly State Verification — Contract Enforcement
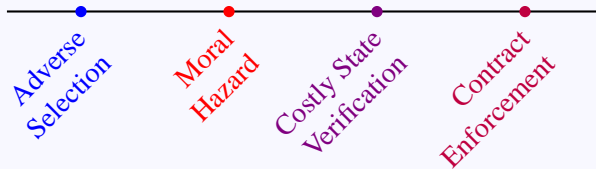
Adverse Selection: Ascertaining the borrower's risk type.
⤳   *Borrower invests and thus initiates the project*

Moral Hazard: Ensuring that the borrower exerts high effort.
↻   *Project concludes and its outcome is realised*

Costly State Verification: Verifying the project's actual outcome

Enforcement: Forcing the borrower to repay

ESWARAN & KOTWAL (1990)

Individual's *ability to smooth consumption*
         affects her *capacity to bear risk.*

Consumption smoothing requires *wealth* and / or *credit* to trade consumption across time and disengage it from income

    Wealth self insures through saving and delays consumption

    Credit brings forward future the consumption

    Difficult to smooth consumption when
      1. credit markets rusty
      2. wealth distribution skewed

Rural Credit Markets

    1. Segemented with lots of exclusivity
    2. Variation in terms of loans – we explore credit ceilings

MODEL

Two period model with *uncertain income* in each period

Income uncertainty: $z + \sigma$ and $z - \sigma$ with equal probability

Period 1	Period 2		
	States	Good	Bad
Good		$2(z+\sigma)$	$2z$
Bad		$2z$	$2(z-\sigma)$

Table: Agent's total lifetime income in all possible states of nature

Agents are *risk averse* and *identical* in all respects

$$U(c^1, c^2) = u(c^1) + u(c^2) \qquad u'() > 0, u''() < 0;$$

other than their respective *credit ceilings B*.

UNCONSTRAINED MAXIMISATION

Period 1 Income realisation received

Decision on c^1 period 1 consumption

… implying decision to borrow or save contingent

$$\tilde{c}^1_{bad} \text{ solves } \max_{c^1_{bad}} u(c^1_{bad}) + E\big(u(c^2_{bad})\big)$$

$$\tilde{c}^1_{good} \text{ solves } \max_{c^1_{good}} u(c^1_{good}) + E\big(u(c^2_{good})\big)$$

Period 2 Income realisation received

repay or receieve repayment

c^2 the residual income is consumed in period 2

CONSTRAINED MAXIMISATION

Individual credit ceiling is B

Upper bound of relevant rate of B

If bad state is realised in period 1, the $c^*_{bad}(B)$ solves:

$$\max_{c^1} u(c^1_{bad}) + E(u(c^2_{bad}))$$

subject to $b \leqslant B$.

$$c^*_{bad}(B) = \begin{cases} (z - \sigma) + B & \text{for } B < B_c \\ \tilde{c}^1_{bad} & \text{for } B \geqslant B_c \end{cases}$$

If good state is realised in period 1,

$$\tilde{c}^1_{good} \text{ solves } \max_{c^1_{good}} u(c^1_{good}) + E\big(u(c^2_{good})\big)$$

UN/CONSTRAINED MAXIMISATION

		Consumption	
States in Period 1		Period 1	Period 2
	bad	$\tilde{c}^1_{bad}$	Total income - $\tilde{c}^1_{bad}$
	good	$\tilde{c}^1_{good}$	Total income - $\tilde{c}^1_{good}$

Table: Agent's consumption in all states without credit ceiling

		Consumption	
States in Period 1		Period 1	Period 2
	bad	$c^*_{bad}(B)$	Total income - $c^*_{bad}(B)$
	good	$\tilde{c}^1_{good}$	Total income - $\tilde{c}^1_{good}$

Table: Agent's consumption in all states *with* a binding credit ceiling B

RISK PREMIUM

Expected Utility depends on

z (expected income)

σ (volatility of income)

B (credit ceiling) if $B \leqslant B_c$

Expected utility is increasing and concave in B till B_c and flat beyond

Certainty equivalent income x is the risk-less income = expected utility from the uncertain income process

$$2U(x) = EU(B, z, \sigma)$$

$$\text{where } x = z - \pi_{risk}$$

x can be broken down into expected income z and risk premium π_{risk}.
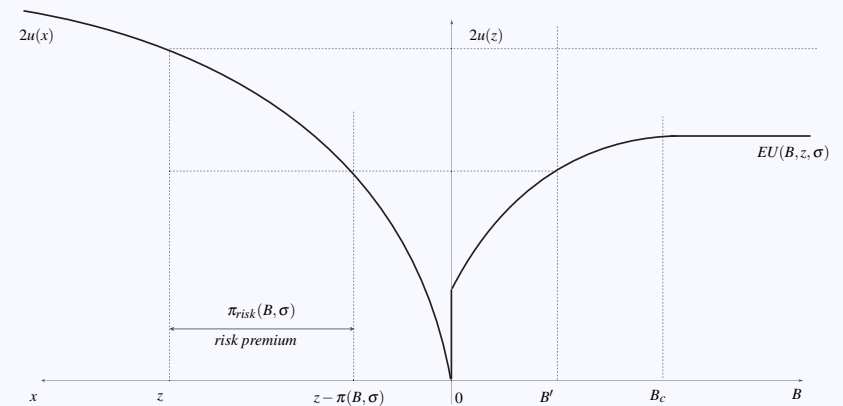

Figure: Obtaining the Risk Premium

Certainty Equivalent Income   =   Expected Utility

CONCLUSION

– Credit constraint's role in shaping an individual's outlook towards risk

– Cost an agent is ready to pay to insulate herself from income risk increases with as her credit ceiling decreases.

– Getting entrapped in Poverty

  ○ *may lead severely credit constrained individuals to choose low mean income low risk occupations over high mean income high risk occupations*

EMPIRICAL EVIDENCE

Karlan and Zinman (2008)

– shows that randomly give credit constrained individuals access to credit improves their welfare.

– credit constraint may be one of the causes of poverty

Dercon and Shapiro (2005)

– revisited the ICRISAT data set after three decades

– found a threshold below which individuals get entrapped by poverty

  – individuals with income below a threshold in 1980s still had similar incomes

  – individuals with income above the threshold had seen marked increase in income