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# Rethinking the Effects of Financial Liberalization

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## Some facts

- What are the effects of financial liberalization in emerging markets?
- The conventional view was that liberalization would lead to
  - capital inflows
  - higher investment and growth
  - international risk sharing
  - development of domestic financial markets
  - higher welfare

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- The conventional view was that liberalization would lead to
  - capital inflows
  - higher investment and growth
  - international risk sharing
  - development of domestic financial markets
  - higher welfare
- However, liberalization has led to
  - small, volatile, and procyclical net capital flows
  - unchanged or even lower investment and growth
  - higher consumption volatility
  - domestic markets which are unstable and prone to crises
  - welfare?

## A model of financial liberalization based on sovereign risk

- Standard ingredients
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  - it cannot commit to enforce payments
  - constrained asset trade with foreigners

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- New ingredients
  - heterogeneity within country $\longrightarrow$ scope for domestic asset trade
  - government cannot discriminate between domestic and foreign creditors
  - interactions between domestic and foreign asset trade
    - temptation to default on foreigners may lead to domestic default
    - cost of domestic default may lead to repayment to foreigners

## Preferences, technology, and assets

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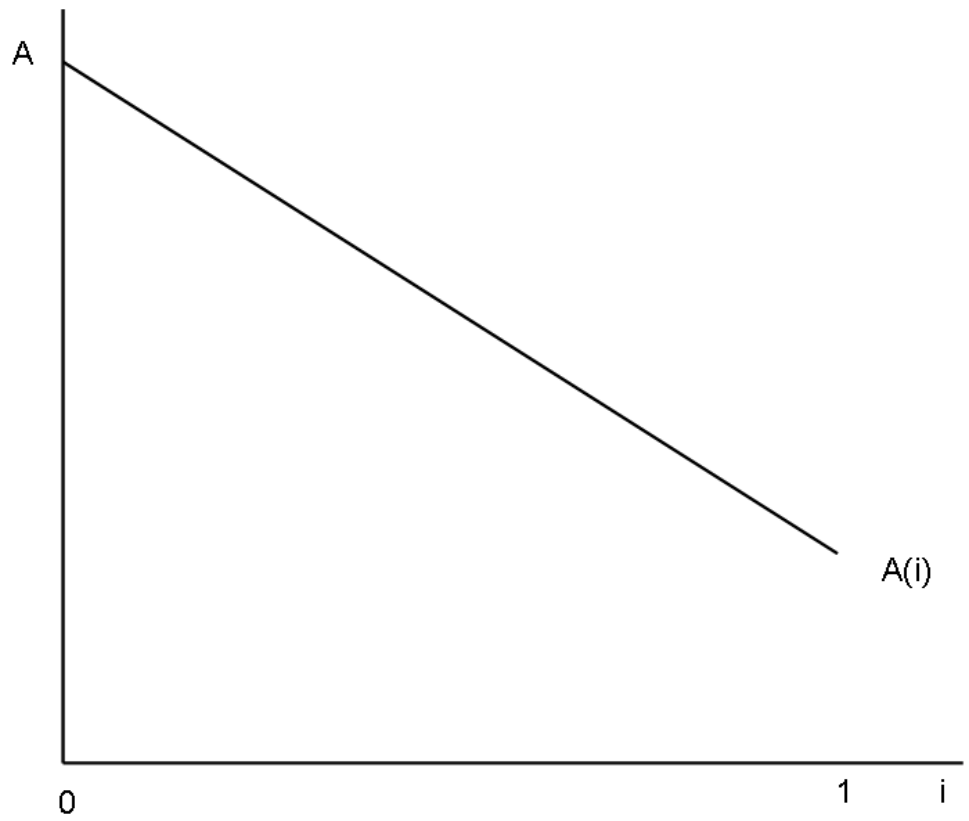
  - maximizes expected utility of consumption Tomorrow: $\max E[u\,(c(i))]$
  - receives endowment Today: $y \leq 1$
  - can invest in project that requires investment $1$ Today and delivers $A(i)$ Tomorrow
  - $A(i)$ is decreasing in $i$
  - can borrow Today by selling domestic bonds, but repays only if government enforces payments
  - can lend Today by buying domestic and foreign bonds, but gets repaid on domestic bonds only if government enforces payments


A
A(i)
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- Government
  - chooses enforcement to maximize average utility of domestic residents
  - announces Today enforcement policy for Tomorrow
  - with probability $1 - \pi$ it keeps its promises
    with probability $\pi$ it behaves opportunistically
  - $(1 - \pi)$ is a measure of the strength of institutions

## Preferences, technology, and assets

- Note: To find the equilibrium
  - conjecture first that there is always enforcement
  - solve the model
  - check if ex-post government prefers to enforce
    - if it does, there is always enforcement
    - if it does not, solve model without enforcement when government is opportunistic

## Autarky

- Individual maximization implies that $i$ invests if $A(i) \geq R$ so for the threshold individual $\bar{i}$

$$A\left(\bar{i}\right) = R$$

- Since all the endowment is invested, aggregate investment is

$$\bar{i} = y$$

- The hurdle rate for projects, which equals the interest rate on domestic bonds, is

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- Individual and aggregate consumption are given by

$$c(i) = \begin{cases} A(i) - A(y) \cdot (1-y) & \text{if } \ i \leq y \\ A(y) \cdot y & \text{if } \ i > y \end{cases}$$

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- The government chooses to enforce since payments are from individuals with low marginal utility to individuals with high marginal utility

## Financial liberalization

- EM can now borrow from or lend to an international financial market (IFM) that
  - acts competitively, is risk neutral, does not discount the future, and can commit to make payments
  - buys or sells any asset offering zero expected return
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- Three steps:
  - solve model under full enforcement
  - characterize enforcement trade off and, if enforcement is not possible,
  - solve model under enforcement failure

## Financial liberalization: Full enforcement

- Gross interest rate on domestic and foreign bonds

$$R = R^* = 1$$

- Consumption and investment are given by

$$c(i) = \begin{cases} A(i) - (1-y) & \text{if } \; i \leq \bar{\imath} \\ y & \text{if } \; i > \bar{\imath} \end{cases}$$

$$A\left(\bar{\imath}\right) = R = 1$$

$$c = \int_0^{\bar{\imath}} A(i) \cdot di - (\bar{\imath} - y)$$

## Financial liberalization: Enforcement trade off

- If government enforces, consumption is given by

$$c(i) = \begin{cases} A(i) - (1-y) & \text{if } \; i \leq \bar{\imath} \\ y & \text{if } \; i > \bar{\imath} \end{cases}$$

- If government does not enforce, consumption is given by

$$c^{NE}(i) = \begin{cases} A(i) & \text{if } \; i \leq \bar{\imath} \\ 0 & \text{if } \; i > \bar{\imath} \end{cases}$$

- Government enforces if

$$(1-\bar{\imath}) \cdot [u(y) - u(0)] \geq \int_0^{\bar{\imath}} [u(A(i)) - u(A(i) - (1-y))] \cdot di$$

  - LHS is gain to (domestic) savers. RHS is loss to borrowers
  - enforcement lowers average consumption, but improves distribution

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- Enforcement is facilitated by higher

  – initial endowment $y$: increases size of domestic payments and decreases size of foreign payments

  – variance of domestic productivities: increases size of domestic payments relative to foreign ones

  – risk aversion: increases importance of redistribution

## Financial liberalization: Enforcement failure

- Gross interest rate on domestic and foreign bonds are actuarially fair

$$R = \frac{1}{1-\pi} \quad \text{and} \quad R^* = 1$$

- Since domestic bonds are risky and the risk premium is zero, only IFM buys domestic bonds

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$$(1-\pi) \cdot u\left(A(\bar{\imath}) - \frac{1-y}{1-\pi}\right) + \pi \cdot u(A(\bar{\imath})) = u(y) \quad \Rightarrow \quad A(\bar{\imath}) > 1$$

$$c_E = \int_0^{\bar{\imath}} A(i) \cdot di - \bar{\imath} \cdot \frac{1-y}{1-\pi} + (1-\bar{\imath}) \cdot y \quad \text{and} \quad c_N = \int_0^{\bar{\imath}} A(i) \cdot di + (1-\bar{\imath}) \cdot y$$

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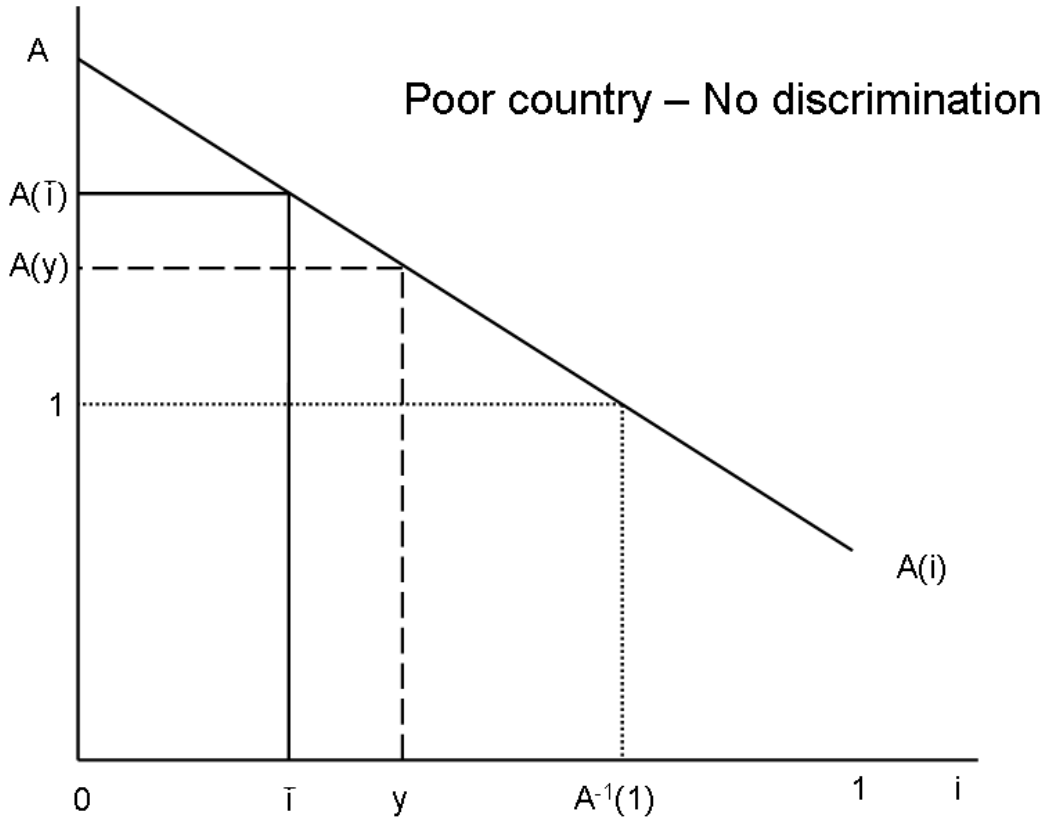
- Investment is low when enforcement risk is high, i.e. when
  - institutions are weak (high $\pi$): payments are more concentrated for a given level of debt
  - endowment $y$ is low: payments are larger for a given probability of repayment


Poor country – No discrimination
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- Enforcement worsens when EM is very poor/productive ($y$ low)
  - temptation to default on foreigners is too strong
  - enforcement is lost when government acts opportunistically
  - if institutions are strong ($\pi \approx 0$), enforcement is only lost with small probability
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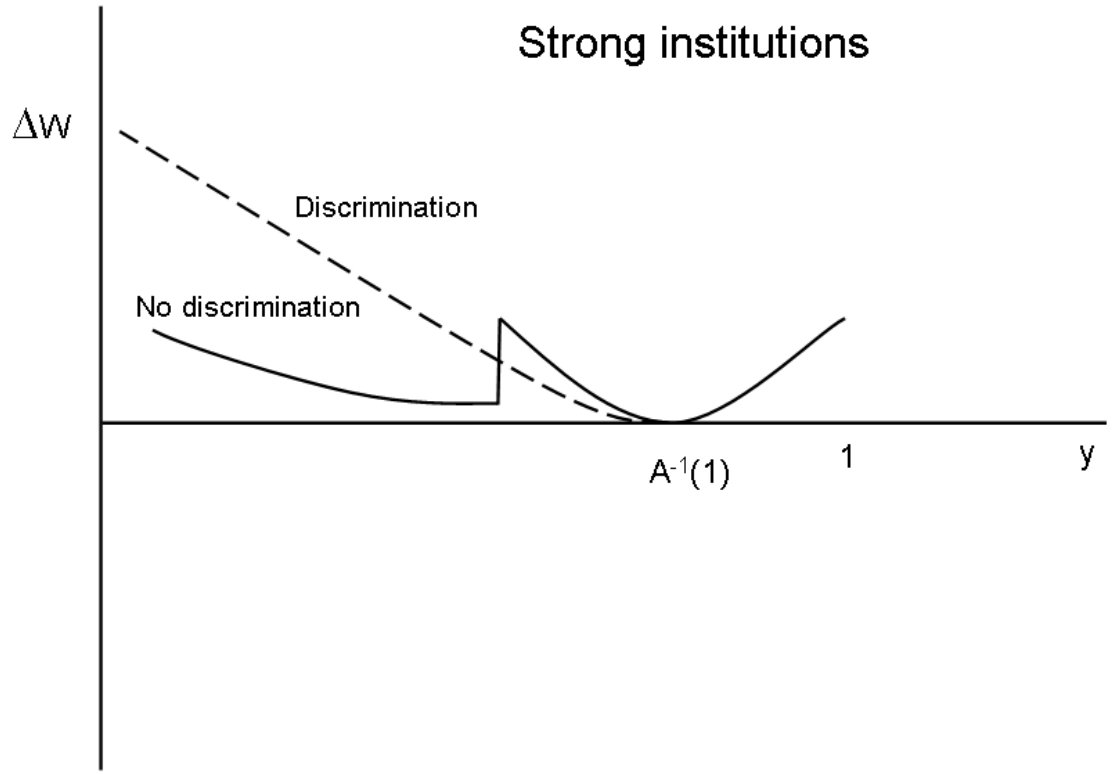
  - if institutions are strong ($\pi \approx 0$), enforcement is only lost with small probability
  - if institutions are weak, effects of liberalization are very different from traditional models
- If EM is poor/productive and institutions are weak, liberalization results in
  - lower investment, lower growth, capital outflows: borrowing becomes very risky
  - higher aggregate consumption volatility: EM receives payments when enforcement fails, makes more payments when there is enforcement
  - higher individual consumption volatility: domestic risk sharing is destroyed
  - instability in domestic financial markets: all domestic trade is lost
  - lower welfare: savers lend at a lower rate and borrowers are subject to enforcement risk


Strong institutions
ΔW
Discrimination
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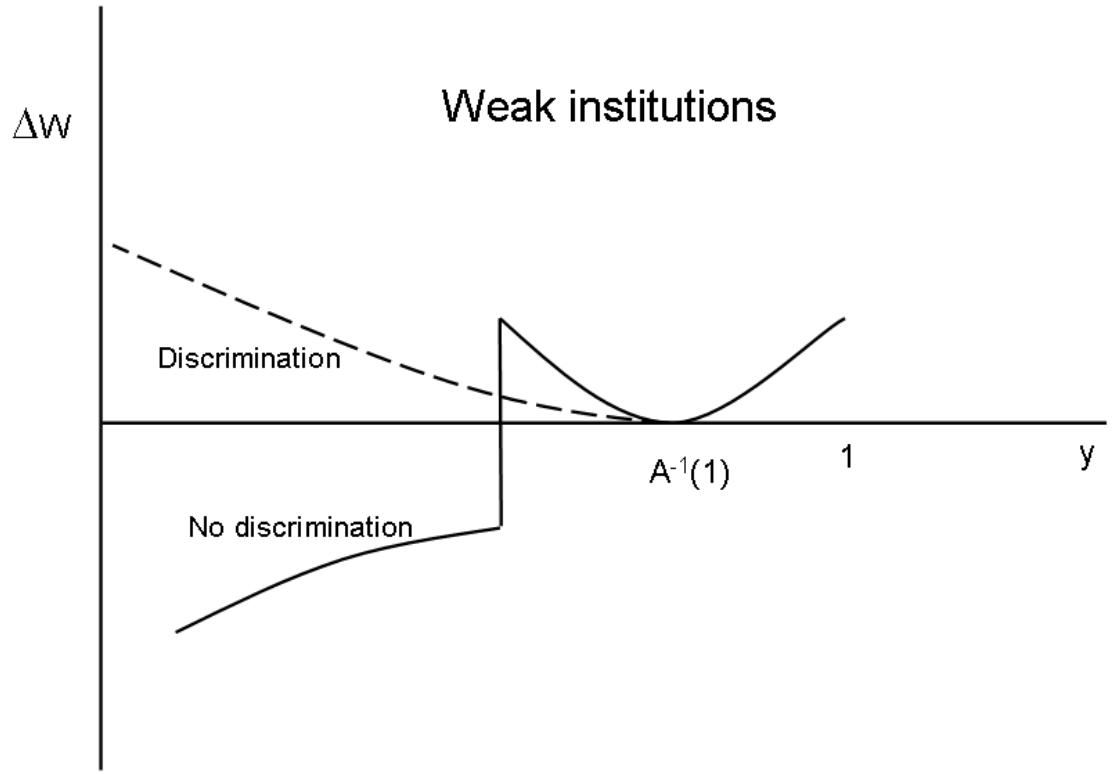
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## Final remarks

- We propose a simple model that accounts for effects of financial liberalization in emerging markets
  - small, volatile, and procyclical net capital flows
  - unchanged or even lower investment and growth
  - higher consumption volatility
  - domestic markets which are unstable and prone to crises
- In traditional models, either there is no heterogeneity or enforcement is discriminatory
  - results qualitatively similar to complete-markets model
- In our model, there is heterogeneity and enforcement is non-discriminatory
  - interactions between domestic and international asset trade
  - results qualitatively different from complete-markets model
- Important implications for
  - welfare effects of financial liberalizations
  - policy and design of optimal financial systems