What Does Debt Relief Do for Development?
Lessons from the Largest Household Bailout in History

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World Bank Research Department

Policy Research Talk
November 5, 2018
Motivation

Economists have long been concerned with high levels of sovereign debt as source of macro instability, contributing factor to financial crises, slower long-run growth.
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- Economists have long been concerned with high levels of sovereign debt as source of macro instability, contributing factor to financial crises, slower long-run growth
- Household debt as source of macroeconomic risk has only come into focus after 2007-2008 global financial crisis
Motivation

Today
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1. Household debt and the macroeconomy: what do we know?
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1. Household debt and the macroeconomy: what do we know?
2. Debt relief programs as a potential solution
   - Impact on credit market and economic activity
   - Impact on borrowers
   - Political economy implications
Motivation

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1. Household debt and the macroeconomy: what do we know?
2. Debt relief programs as a potential solution
   - Impact on credit market and economic activity
   - Impact on borrowers
   - Political economy implications
3. How to design better debt forgiveness programs?
Household debt and the macroeconomy

- The 2007-2008 global financial crisis brought household debt as a source of macroeconomic risks into the spotlight
  - Bubble in consumer lending, excessive subprime borrowing
  - Household debt is repackaged into intransparent mortgage backed securities, which invite excessive risk-taking by banks
  - Small increase in defaults among highly leveraged households are magnified by mortgage backed securities → banking crisis!

- Since then, much research on household debt and macro (in)stability showing that high debt-to-asset ratios lead to:
  - More frequent and severe banking crises
  - More severe and longer recessions (Mian and Sufi 2011, 2013)
  - Slower economic growth, higher longer-run unemployment (Mian, Sufi, and Verner, 2017; Schularick and Taylor 2012)
In emerging market economies, household debt-to-GDP ratios have doubled over the last ten years (IMF 2018)

Parallels to subprime lending in the U.S., consumer lending booms, potential source of systemic risk
Debt forgiveness pros and cons

Lowering household debt can reduce macroeconomic risks, but debt forgiveness programs remain controversial.

1. The case for interventions into debt contracts
   - Stimulate investment and consumption directly
   - Insurance against otherwise uninsurable aggregate shocks (Bolton and Rosenthal, 2002)
   - Fixing debt overhang (are there productivity effects?) (Guiso, Sapienza and Zingales, 2009; Breza 2013)

2. The case against interventions into debt contracts
   - Distort incentives for banks (Diamond and Rajan 2000; Gianetti and Simonov, 2009; Phillipon and Schnabl 2013)
   - Distort contracting environment and incentives for borrowers
   - May lead to ex-post credit rationing
Debt forgiveness pros and cons

Evidence from the world’s largest household debt relief program:

1. Impact on credit market and real economy:

2. Impact on beneficiary households:

3. Political economy implications:
The debt relief program

- In 2008, Govt of India enacted the *Agricultural Debt Waiver and Debt Relief Scheme* (ADWDRS) against backdrop of financial crisis.

Why is this an interesting program to study?

- **Economically significant**
  - Possibly the largest household level bailout program in history
  - US$ 16 - 17 billion (1-1.5% of India’s GDP)
  - Benefit to approximately 40-60 million rural households

- **Representative of many similar debt relief programs**
  - Thailand: US$ 2.9 billion bailout for rural households
  - Brazil: restructuring of more than US$ 10 billion farm debt

- **Identification**: program eligibility rules allow for causal tests at market and borrower level
The debt relief program

- Partial or full bailout of overdue agricultural loans
  - Covers all ag loans originated Dec 31, 1997–Dec 31, 2007
  - Loan must be 90+ DPD on February 28, 2008
  - Loans at private, public sector, and cooperative banks
  - Banks refinanced by the Reserve Bank of India

- Eligibility depends on land collateral:

<table>
<thead>
<tr>
<th>Who gets bailed out?</th>
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</thead>
<tbody>
<tr>
<td>Land \leq 2 hectares</td>
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<tr>
<td>Land &gt; 2 hectares</td>
</tr>
</tbody>
</table>

- Eligibility criteria were unanticipated and applied retroactively
- Very little scope for manipulation of default status, land records
The debt relief program

Timeline

December 1997 to December 2007
The debt relief program

Timeline

- December 1997 to December 2007
  - Households take up loans
  - Pledge land as collateral
The debt relief program

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   - Debt relief program is announced
The debt relief program

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   - Debt relief program is announced
   - Loan has to be in default as of December 31, 2007, and until February 28, 2008
   - Eligibility is based on collateral
The debt relief program

Timeline

1. December 1997 to December 2007
   - Households take up loans
   - Pledge land as collateral

   - Debt relief program is announced
   - Loan has to be in default as of December 31, 2007, and until February 28, 2008
   - Eligibility is based on collateral

3. June 2008: loans written off

Eligibility

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>1997</td>
</tr>
<tr>
<td>Dec 31, 2007</td>
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<tr>
<td>Feb 28, 2008</td>
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<tr>
<td>2010</td>
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<tr>
<td>Motivation</td>
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</table>

Impact on Credit Market and Economic Activity
Effect on credit supply

- Persistently lower credit in high-bailout districts
- Consistent with “evergreening before the bailout [Peek and Rosengren, 2005]
- 1 StDev (20%) increase in bailout share 18-25% decrease in credit growth
Loan performance and moral hazard

Decline in loan performance in districts with high program exposure

Defaults come from borrowers that were previously in good standing

1 StDev (20%) increase in bailout leads to 50-64% increase in loan defaults

Banks shift lending to less risky districts indicating borrower moral hazard
Effects on real economic activity

Productivity, wages and consumption

<table>
<thead>
<tr>
<th>Real effects of the bailout: Productivity, wages, and employment</th>
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<tbody>
<tr>
<td>OLS</td>
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<tr>
<td>Log(productivity)</td>
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<tr>
<td>Bailout share<em>p</em>post</td>
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<tr>
<td>Observations</td>
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<tr>
<td># clusters</td>
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<tr>
<td>R²</td>
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<tr>
<td>District FE</td>
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<tr>
<td>Year FE</td>
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<tr>
<td>State*Electoral cycle FE</td>
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</tbody>
</table>

This table estimates the effect of debt relief on real outcomes at the district level. Each column reports results from a separate regression. The dependent variable in Columns (1)–(4) is agricultural productivity, calculated as annual agricultural revenue per hectare at constant 2001 commodity prices. The dependent variable in Columns (5)–(8) is the average district-level real wage for unskilled agricultural occupations. The dependent variable in Columns (9)–(12) is the district average of monthly per capita consumption expenditure. In addition to the fixed effects indicated in the table, all regressions control for monsoon rainfall as a percentage of its long-run average. Standard errors errors, in brackets, are heteroscedasticity-robust and clustered at the district level, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively.

- No positive effect of the bailout on agricultural productivity, rural wages, or consumption → program did not have the intended stimulus effect
- Bailout may resolve debt overhang but at the same time credit dries up
- Consistent with micro-evidence: we see no change in investment behavior
Impact on credit market and real economy: summary

- No impact of the program on real economic activity
- Policymaker believed that debt forgiveness would remove investment disincentives due to debt overhang
  - This did not happen → no effect on investment, productivity
  - Investment *incentives* improve, but credit dries up
  - Policymaker failed to anticipate credit supply response
  - Bank response is privately and socially optimal: reallocate credit to observably less risky and more productive districts
- Large and long-lasting moral hazard costs of the program
  - Severe deterioration of credit discipline, borrower moral hazard
  - Every 1% of credit bailed out increases defaults by about 2.5%
  - Negative spillover effects: post-program defaults are concentrated among borrowers previously in good standing!
<table>
<thead>
<tr>
<th>Motivation</th>
<th>Program and Timeline</th>
<th>Impact on Credit Market</th>
<th>Impact on Households</th>
<th>Political Economy</th>
<th>Policy Implications</th>
</tr>
</thead>
</table>

**Impact on Beneficiary Households**
Effects on beneficiary households

The Indian bailout was targeted specifically at households in the rural sector, which accounts for 60% of employment, 14% of GDP.

The government’s case for debt forgiveness

▶ “Debt overhang” in the rural economy
▶ This creates disincentives for investment, households pass up profitable investment opportunities
▶ Additionally, overindebted households are cut off from the credit market
▶ Debt forgiveness holds the promise of resolving debt overhang and improving access to finance and rural productivity

How did the program affect the balance sheets, investments and productivity of recipient households?
Effects on beneficiary households

Evidence from a household survey

- Recall, eligibility depends on land pledged as collateral
- \( \leq 2 \text{ha} \) qualify for full bailout, \( > 2 \text{ha} \) for 25% debt relief
- Survey with 2,897 households within \( \pm 0.5 \) hectares of cutoff

- Extremely similar in demographics, income, debt levels etc.
- Only difference: 100% full or 25% partial debt relief
Effects on beneficiary households

Evidence from a household survey

Household survey with 2,897 respondents in Gujarat

- Sampled from official bank lists: universe of recipients, verified debt relief amounts and land holdings
- Survey outcomes: total income, ag revenue, profits, savings and consumption; investment and productivity

- Difference in debt levels at cutoff: US$ 924, approximately equal to India’s 2010 per capita income (US$1,031)
Effects on household debt

- Stated goal: reduce debt and restore access to formal credit
- Clear pledged land collateral to enable new borrowing and productive investment
- Debt is reduced (mechanically). But: households do not use collateral to draw new bank loans!
- Could be due to supply or demand. National level results suggest it’s mostly due to lower credit supply

<table>
<thead>
<tr>
<th>PANEL A: Full Sample</th>
<th>$\Delta_{post-pre}$</th>
<th>Total debt (Rs '000)</th>
<th>Applied for new bank loan=1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
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<tr>
<td>100% Relief</td>
<td>-38.18**</td>
<td>-27.10*</td>
<td>-24.69*</td>
</tr>
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<td></td>
<td>(18.57)</td>
<td>(14.09)</td>
<td>(13.39)</td>
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<tr>
<td>Observations</td>
<td>1,093</td>
<td>2,191</td>
<td>2,191</td>
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<tr>
<td>R-squared</td>
<td>0.084</td>
<td>0.049</td>
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<tr>
<td>Dep. variable mean (pre)</td>
<td>93.20</td>
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<thead>
<tr>
<th>PANEL B: Robustness samples</th>
<th>$\Delta_{post-pre}$</th>
<th>Total debt (Rs '000)</th>
<th>Applied for new bank loan=1</th>
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<tbody>
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<td>93.20</td>
<td>93.20</td>
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</table>
Effects on household sources of credit

- Lack of new *formal* borrowing changes composition of debt
- Households have proportionally more debt from family and informal lenders after debt forgiveness
- ...and pay higher average interest rates on remaining debt

<table>
<thead>
<tr>
<th>PANEL A: Full Sample</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tr>
<td>100% Relief</td>
<td>-7.52***</td>
<td>-8.03***</td>
<td>-7.96***</td>
<td>-7.95***</td>
<td>4.16</td>
<td>6.09***</td>
<td>5.77***</td>
<td>5.76***</td>
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<td></td>
<td>(2.64)</td>
<td>(2.70)</td>
<td>(2.65)</td>
<td>(2.72)</td>
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<td>(1.26)</td>
<td>(1.30)</td>
<td>(1.32)</td>
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<tr>
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<td>2617</td>
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<tr>
<td>R-squared</td>
<td>0.208</td>
<td>0.192</td>
<td>0.192</td>
<td>0.192</td>
<td>0.136</td>
<td>0.123</td>
<td>0.124</td>
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<td>Dep. variable mean (pre)</td>
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<td>86.67</td>
<td>86.67</td>
<td>86.67</td>
<td>8.46</td>
<td>8.46</td>
<td>8.46</td>
<td>8.46</td>
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</tbody>
</table>

- Debt forgiveness was largely unsuccessful at restoring borrower’s access to formal credit, despite clearing collateral!
Effects on household savings and consumption

- Do households perceive debt relief as a windfall?
- There is no consumption nor savings response to the bailout
- This is not surprising as debt relief does not increase liquidity (would do so only if collateral were used to access new loans)

<table>
<thead>
<tr>
<th>PANEL A: Full sample</th>
<th>Log(savings)</th>
<th>Log(consumption)</th>
<th>Log(durables consumption)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Relief</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>-0.21</td>
<td>-0.08</td>
<td>-0.06</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.16)</td>
<td>(0.15)</td>
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<tr>
<td>Observations</td>
<td>1159</td>
<td>2281</td>
<td>2281</td>
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<tr>
<td>R-squared</td>
<td>0.186</td>
<td>0.177</td>
<td>0.178</td>
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<tr>
<td>Dep. variable mean</td>
<td>6.31</td>
<td>6.31</td>
<td>6.31</td>
</tr>
</tbody>
</table>
Effects on household investment and productivity

- Note that all households in the sample are producers, so debt overhang argument more relevant than in other settings
- Debt overhang: households forgo profitable investments because they do not internalize returns

<table>
<thead>
<tr>
<th>PANEL A: Full Sample</th>
<th>Log(investment per acre)</th>
<th>Log(revenue per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>100% Relief</td>
<td>-0.17*</td>
<td>-0.15***</td>
</tr>
<tr>
<td>Observations</td>
<td>1191</td>
<td>2431</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.157</td>
<td>0.259</td>
</tr>
<tr>
<td>Dep. variable mean</td>
<td>8.01</td>
<td>8.01</td>
</tr>
</tbody>
</table>

- No evidence that the bailout resolved debt overhang problems
Effects on borrower moral hazard

- Bailout changes terms of the credit contract, sets precedent that default has no negative consequences → moral hazard?
- How does experiencing debt forgiveness affect borrowers’ concerns about the reputational consequences of default?
- Beneficiaries *less* worried about reputational consequences, but *more* worried about future access to finance

<table>
<thead>
<tr>
<th>PANEL A: Full Sample</th>
<th>Expected impact on reputation</th>
<th>Expected impact on access to credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
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<tr>
<td>100% Relief</td>
<td>0.01</td>
<td>-0.13**</td>
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<tr>
<td>(0.13)</td>
<td>(0.05)</td>
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<tr>
<td>Observations</td>
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<td>R-squared</td>
<td>0.508</td>
<td>0.448</td>
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<tr>
<td>Dep. var. mean</td>
<td>3.78</td>
<td>3.78</td>
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</tbody>
</table>

- Bailout changes beliefs, gives rise to borrower moral hazard
Effects on beneficiary households: summary

- Debt relief does not improve access to bank credit
- But: strong and persistent shift in the composition of debt
- No evidence that debt forgiveness resolves debt overhang
- Strong *negative* effects on behavior and expectations:
  - Debt relief beneficiaries more likely to default on formal loans in the future, consistent with moral hazard externality
  - Less concerned about the reputational effects of default
  - More concerned about consequences of default on future access to credit
- Bailout has high moral hazard cost, no offsetting positive impact on financial access or economic activity
Political Economy Effects and Moral Hazard
Political economy and moral hazard

- Strong macroeconomic stability rationale for addressing high levels of household debt.
- But: large-scale debt forgiveness programs can generate significant moral hazard on the part of banks and borrowers.
- Why? Political intervention into the credit market, ex-post change in the terms of credit contract.
- Expectation of future politically motivated interventions into the credit market does lasting damage to credit discipline.
- What are the political returns of debt relief? What are the political economy incentives?
The political returns of the bailout
Evidence from Indian elections

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<td>Congress</td>
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<td>UPA</td>
<td>NDA</td>
<td>Congress</td>
<td>BJP</td>
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<tr>
<td>treatXpost</td>
<td>0.017**</td>
<td>-0.015***</td>
<td>0.009**</td>
<td>-0.011**</td>
<td>0.019</td>
<td>-0.031***</td>
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<td>Dep var. mean</td>
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<td>District FE</td>
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</table>

- Voters strongly reward candidates affiliated with ruling party and coalition that enacted the bailout
- State elections staggered in time: effect lasts for 3-4 years
The political returns of the bailout

Evidence from Indian elections

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<thead>
<tr>
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<td>(0.141)</td>
<td>(0.071)</td>
<td>(0.088)</td>
<td>(0.134)</td>
<td>(0.108)</td>
<td>(0.051)</td>
<td>(0.106)</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Yes</td>
</tr>
</tbody>
</table>

- In areas with higher exposure to the debt relief program, voters are more satisfied with their economic situation, rate govt performance more highly, vote accordingly
- Voters reward candidates affiliated with ruling party and coalition that enacted the bailout (as seen in election results)
- Strong incentives for political interference in debt resolution
Policy Implications
Household debt and macroeconomic stability

- It’s now well established that high levels of household debt generate significant macroeconomic risks.
- Economies with higher household-debt-to-GDP ratios are more vulnerable to banking crises, have longer recessions, slower recovery and slower economic growth in the longer run.
- Reducing household debt may be more useful as a stabilizing policy or direct stimulus than forgiving sovereign debt.
- Tradeoff between short-term gains of deepening credit markets and long-term financial stability and growth.
- How to resolve high levels of household debt without resorting to policies creating new distortions?
How to design better debt forgiveness programs

- Debt forgiveness programs may be useful to reduce macroeconomic risks, but can magnify other problems

- Bailout programs and fiscal deficits
  - Moving risks from bank balance sheets to fiscal deficits
  - Shifts macroeconomic risks without resolving them

- Incentive distortions and moral hazard
  - Intervention in credit contracts damage the credit culture
  - Change in incentives for banks and borrowers
  - Can generate bank and borrower moral hazard
  - Both contributing to financial instability in the longer-run

- Negative effects magnified by political economy factors
  - Politicians reap electoral reward, do not internalize costs
  - No incentive to internalize moral hazard costs
  - Borrowers default in anticipation of future bailouts
How to design better debt forgiveness programs

➥ Designing debt relief to minimize moral hazard

➥ Bailouts should be designed to minimize impact on credit market incentives and repayment culture, avoid rewarding excessive risk-taking (banks) or default (borrowers)

➥ **Banks**: Do not fully recapitalize banks to make them internalize part of the cost of bad loans that are written off

➥ **Borrowers**: Make debt forgiveness contingent on factors that borrowers cannot affect through their actions

➥ Idea similar to index insurance: grant *blanket* debt relief after droughts, drop in househo price index etc. instead of waiving debts on the basis of default status or debt amounts!

➥ Provide incentives for prudent lending and timely repayment

➥ **But**: any debt forgiveness program is an ex-post change to the contracting environment, generating an incentive distortion
What are alternatives to debt forgiveness programs

- Political interference in debt resolution generates moral hazard costs that are far larger than the fiscal cost of the bailout

1. Ex-ante: addressing risks
   - Better credit information
     - Limiting multiple borrowing and overindebtedness
     - Integrating bank, non-bank and microfinance information
   - In agricultural economies: better insurance
     - Mandating crop insurance, promoting index insurance

2. Ex-post: institutionalizing debt resolution
   - Better debt resolution process: most developing countries currently lack personal bankruptcy code that would allow for orderly discharge of non-performing debts
   - Institutionalizing the debt resolution process (e.g. through personal bankruptcy) reduces scope for political interference
Summary: what do we learn?

- India’s debt relief program for rural households illustrates the promise and pitfalls of debt forgiveness programs
  - Improvements in credit allocation
  - Large negative effects on moral hazard, credit culture
  - Moral hazard costs are not offset by a stimulating effect on real economic activity
  - Political interference in debt resolution generates moral hazard costs that are much larger than fiscal costs of the program

- Results can give guidance to design of debt forgiveness programs more generally. Goal: institutionalize debt resolution process to reduce scope for political interference
Thank you!