Loan guarantees in a democracy

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Introduction

The economic rationale for loan guarantees suggests that they can boost economic activity by facilitating access to credit (Mankiw, 1986; Gale, 1990).

Political reasoning suggests a more cynical rationale: *politicians endorse guarantees if a large mass of voters will benefit from them.*

Introduction

We study a credit-rationing model à la Tirole (2006), which we augment with a government.

The government—run by the winner of an election—sets the fraction of loan principal that will be returned to lenders in case of a failure.

After the policy on loan guarantees is announced by the winner, households (which voted during the election) apply for a loan to implement a productive project.

Households are subject to moral hazard in that, after obtaining a loan, they can choose low effort and extract a private benefit.

Introduction

In this setup, we delineate two effects of guarantees:

- **Redistributive effect:** *shifts resources from the rest of the economy to borrowers.*

- **Allocative effect:** *alleviates moral hazard and, as a result, more households obtain a loan. Thus more capital is allocated to productive projects*.

We study how the interaction between the two effects determines the decision of vote-share-maximizing politicians on loan guarantees.

Related literature

Our work relates to the literature on the role of loan guarantees in alleviating credit-rationing

- spanning from Mankiw (1986) and Gale (1990) to Philippon & Skreta (2012) and Ahnert & Kuncl (2023), among others.

Our work also relates to theoretical studies on how voting shapes financial regulation

- such as debt moratorium (Bolton and Rosenthal, 2002) and bailouts (Schilling, 2021)

Model
Economic stage

There is a continuum of risk-neutral households of mass one.

An endowment of one unit capital is uniformly distributed over lender institutions, which operate under perfect competition.

Household i applies for a loan to finance a fixed-scale project, and financing all households' projects requires exactly one capital unit.

We refer to a household that obtains financing as a *borrower*.

Let ι denote the mass of borrowers.

Model
Economic stage

After financing, a borrower decides whether to exert low or high effort.

If a borrower exerts low effort, the project

- fails and returns nothing,
- yet the borrower receives a private benefit $b_i \sim \mathcal{U}(0,1)$, which uniquely characterizes household i.

If a borrower exerts high effort, the project

- succeeds with probability p and returns $R = r_l + r_b$
- fails with probability $1 - p$ and returns nothing

Model

Economic stage

Borrowers are protected by limited liability.

The government pays lenders a fraction $\phi \in [0, 1]$ of the loan principal in case of a failure.

Compensating one unit of loan principal costs $1 + \kappa$ units, where κ represents the administrative cost of guarantees.

The cost of guarantees is distributed evenly across all households

$$-(1 - p)(1 + \kappa)\iota\phi.$$

Model

Economic stage

We assume:

Assumption 1 $R \in \left(\frac{1}{p}, \frac{2}{p}\right)$

Assumption 2 $0 \leq \kappa \leq \min\left\{\frac{pR-1}{2-pR}, \frac{2-pR}{pR-1}\right\}$

Model
Political stage

The government is run by the winner of an election.

Each household-voter has exactly one vote, and there is no uncertainty about their preferences.

First, the two candidates (a and b) compete by simultaneously choosing platforms ϕ_j.

- *They are non-ideological and aim at maximizing their vote shares*

Then, households vote for the candidate whose platform, if elected, would maximize their payoff.

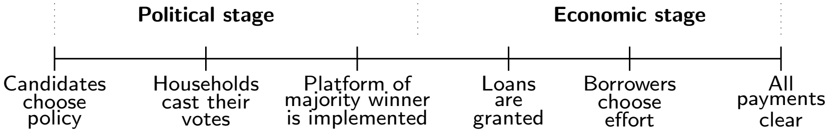


Figure 1: Timeline

Analysis

A borrower exerts high effort if

$$pr_b = p \cdot (R - r_l) \geq b_i$$

A loan is granted if and only if the above incentive compatibility constraint is satisfied.

Because perfect competition dictates no profits for lender institutions, it holds that

$$pr_l + (1 - p)\phi = 1.$$

The incentive compatibility constraint is then satisfied for every household with

$$b_i \leq pR - 1 + (1 - p)\phi.$$

Analysis

The level of guarantees above which household i becomes incentive-compatible is

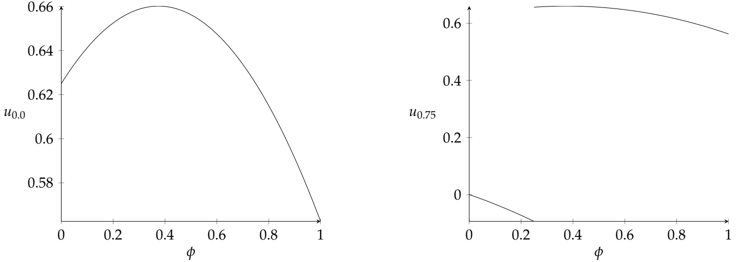
$$\bar{\phi}_i \equiv \frac{1 + b_i - pR}{1 - p}$$

The level of guarantees maximizing the payoff of a non-borrower is

$$\hat{\phi}_i^n = 0$$

and of a borrower is

$$\hat{\phi}_i^b = \min\left\{1, \frac{1 - (1+\kappa)(pR - 1)}{2(1+\kappa)(1-p)}\right\}.$$



(a) Household 0.0, which is a borrower for every $\phi \in [0, 1]$, maximizes its payoff at $\phi = 0.375$.

(b) Household 0.75, which is a borrower for every $\phi \in [0.25, 1]$, maximizes its payoff at $\phi = 0.375$.

Figure 2: $u_i(\phi)$ of different households when $p = 0.5$, $R = 3.25$ and $\kappa = 0$

Analysis
Equilibrium

Proposition 1

The game $\mathcal{G}$ admits a unique equilibrium where candidates set

$$\phi^* = \min\left\{1, \frac{1-(1+\kappa)(pR-1)}{2(1+\kappa)(1-p)}\right\}$$

In this equilibrium, the mass of borrowers is

$$\iota(\phi^*) = \frac{1}{2}\left(pR - \frac{\kappa}{1+\kappa}\right)$$

and, given our assumptions, is the majority.

The socially optimal solution is

$$\phi^{so} \equiv \arg\max_{\phi \in [0,1]} \{V(\phi) \equiv \int_0^1 u_i(\phi) di\}$$

Proposition 2

It holds that

$$\phi^{so} = \min\left\{1, \frac{(pR-1)(1-\kappa)}{2(1-p)\kappa}, \frac{2-pR}{1-p}\right\}$$

Therefore, $\iota(\phi^*) \leq \iota(\phi^{so})$

We now consider that households also take into account their political biases.

Household i receives

$$\tilde{u}_i = \begin{cases} u_i(\phi_a) & \text{if } a \text{ wins} \\ u_i(\phi_b) + \delta & \text{if } b \text{ wins,} \end{cases}$$

- $\delta \in \mathcal{U}(-\frac{1}{2\psi}, \frac{1}{2\psi})$ represents bias in favor or against b.
- ψ is small enough so that every household has a chance to vote for either candidate.

Extension

Political bias - probabilistic voting

Proposition 3

Game $\tilde{\mathcal{G}}$ admits a unique equilibrium where candidates set

$$\tilde{\phi}^* = \max\left\{0, \min\left\{1, \frac{(pR-1)(1-\kappa)}{2(1-p)\kappa}, \frac{2-pR}{1-p}\right\}\right\}.$$

Hence, probabilistic voting shifts the equilibrium solution to the socially optimal level because every household's preferences matter.

Conclusion

Politicians offer guarantees to the extent a large enough share of the electorate benefits from this redistribution. However, the allocative effect constrains the generosity of guarantees.

If political discourse has loan guarantees at its center, candidates focus on the majority's preference.

If loan guarantees are formed in a period where other political issues play a role, then candidates' take all households' preferences into account.