

Punish Liars, Not Free-Riders

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Motivation

Uncertainty about willingness to contribute to collective action.

- Climate efforts
- Refugee crisis
- Military coalitions

Private information makes collective action even harder.

- Is the project feasible?
- How to divide the labor?

Central Question

When and how can *communication* promote cooperation in collective action when actors have private information?

- Won't solve all problems of collective action
- Can it help with those that stem from private information?

Main Findings

Communication can bring us up to complete-information second-best if:

1. Participants care about the future
2. Set of potential projects is risky enough

But through a very different mechanism than tit-for-tat

- Objective is honesty, not fairness
- Equilibrium division of labor may be—should be!—uneven
- Have to punish giving *more* than you claim to be willing

The Model

Players $i \in \{1, 2\}$ interact over infinite periods. In each stage, a new project that costs 2 units of effort.

1. Nature draws types $\omega_i \in \{0, 1, 2\}$
 - Most a player is willing to contribute to assure success: none, half, or all of the project cost
 - Drawn anew each period (as in Sartori 2002)
2. Players send cheap-talk messages about their types
3. Players select contributions $x_i \in \{0, 1, 2\}$
4. Payoffs realized:

$$u_i(x_i, x_j | \omega_i) = \begin{cases} 1 - c(\omega_i)x_i & x_i + x_j \geq 2, \\ -c(\omega_i)x_i & x_i + x_j < 2. \end{cases}$$

Complete Information Benchmark

With complete information, efficient Nash equilibrium

- If insufficient total willingness, no contributions
- Otherwise, distribute costs to most-willing player

	$\omega_2 = 0$	$\omega_2 = 1$	$\omega_2 = 2$
$\omega_1 = 0$	(0, 0)	(0, 0)	(0, 2)
$\omega_1 = 1$	(0, 0)	(1, 1)	(0, 2)
$\omega_1 = 2$	(2, 0)	(2, 0)	(1, 1)

One-Shot Setting

With incomplete information, incentive compatibility problem for high type

- Pretend to only be willing to contribute half
- Save unit of effort if partner is half or fully willing
- No worse off if partner is totally unwilling

Dynamic Setting

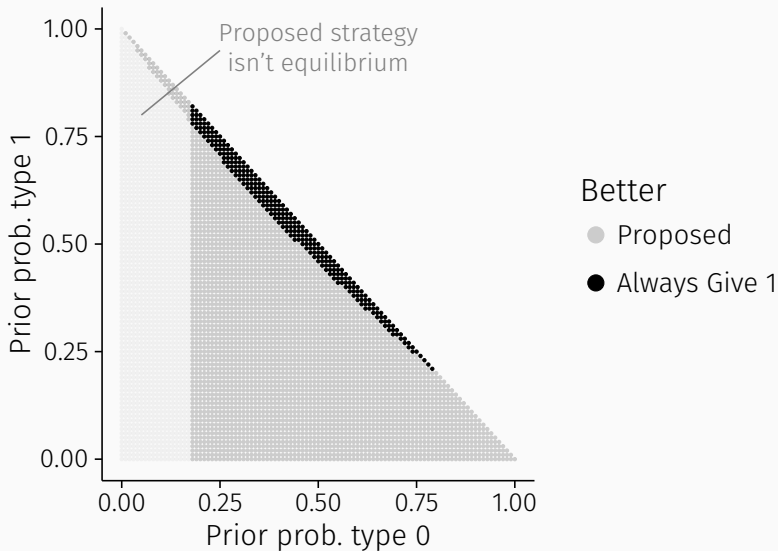
Proposed equilibrium

1. Each period, each player honestly reveals type
2. Coordinate on complete-information second-best
3. *Any* deviation \rightarrow revert to no-communication stage BNE

Conditions

- Discount factor great enough
 - Efficiency loss from reversion to no-communication hurts
- Great enough chance of totally unwilling type
 - High type doesn't want to make "unobservable" lie

Welfare Comparison



Closing Thoughts

Conclusions:

- Under uncertainty, cannot simply punish free-riders
- Honest communication is sustainable if:
 - Interaction is repeated
 - “Too high” contributions are punished
 - Real risk of failure if dishonest

Future directions:

- Historical application to alliances?
- Endogenize project selection?
- Lab experiment?