

# **Guimaraes and Sheedy: A Model of Equilibrium Institutions**

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# Overview

With ex-ante identical agents and “little structure,” a group of insiders forms and taxes outsiders

Expropriation is feasible, but the equilibrium supports private investment, due to indirect, endogenous commitment

## Review and discussion

- Basic setup and equilibrium
- Public goods
- Investment in spite of expropriation threat

# Basic Setup and Equilibrium

$$\max_{a, \tau(\cdot)} \frac{1}{a} \int_{\mathcal{A}} U(c(i)) di$$

$$\text{s.t. } \int_{\mathcal{A}} c(i) di = \int_{\mathcal{P}} \tau(i) di,$$

$$\int_{\mathcal{R} \cap \mathcal{P}} (U'_a{}^e - U(q - \tau(i))) di + \int_{\mathcal{R} \cap \mathcal{A}} (U'_a{}^e - U(c(i))) di \leq \int_{\bar{\mathcal{R}} \cap \mathcal{A}} \delta di$$

$$\forall \mathcal{R} \text{ with } \mathbb{P}(\mathcal{R}) = a'^e;$$

$$a = a'^e, \mathbb{E}(U(c(i))) = U'_a{}^e \text{ (no state variables)}$$

Symmetry within groups; no defections

$$a(U(c) - U(q - \tau)) \leq \delta a$$

## Comments

- Equilibrium objects are not *individual* values and choices
- “Equilibrium institutions”? Rather equilibrium group size, taxes as functions of exogenous institutions ( $\delta$ ; taxes and army size come as a package)
- Power of incumbents,  $\delta$ , should equal  $U_p^e - U_a$
- Producers to be do not fight since they cannot expect to be rewarded

But they do care about army size

Different model with modified  $\delta$  and politically active producers: Benthamite, probabilistic voting outcome ...

- Resource cost of army size: Disadvantage of enlarging army, in addition to having to share taxes  
Different benchmark model: Exogenous total endowment
- No-rebellion constraint accounts for all possible rebel armies  
Different model with one potential rebel army drawn per period and production in each period: Insiders would tax more heavily, risking a rebellion
- Existence vs. uniqueness

# Public Goods

Public good is efficiently provided

## Comments

- Relies on perfect substitutability of private and public good consumption
- Production efficiency

# Investment In Spite of Expropriation Threat

## Timing

- Rebellion-proof army with platform  $(\tau^q, \tau^k)$  forms
- Outsiders choose whether to put effort to produce capital
- Army can be overthrown by new army with platform  $(\hat{\tau}^q, \hat{\tau}^k)$
- Outsiders receive endowment and return on capital, are taxed

## Crucial assumption on institutions

- Army size and taxes can only be changed together
- This allows to commit to less than full expropriation ex post

## Mechanism

- Army size and taxes can only be changed together
- Raising capital taxes ex post and dissolving the army would imply that some army members end up as producers
- This generates resistance to change
- Forming a sufficiently large army ex ante allows to commit not to fully expropriate ex post and thus, to provide incentives for investment

## Comments

- Nice