ECON 4921: Lecture 7

Jon Fiva, 2009

Roadmap

1. Introduction
2. Institutions and Economic Performance
3. The Firm
4. Organized Interest and Ownership
5. Complementarity of Institutions
6. **Institutions and Commitment**
7. Agency problems: Voters- Politicians-Bureaucrats
8. Fiscal Federalism
9. System Competition

Institutions defined

- Douglas North:
  - ”Institutions are the humanly devised constraints that structure human interaction. They are made up of **formal** constraints[1], **informal** constraints[2] and their enforcement characteristics. Together they define the incentive structure of societies and specificially economies”.
    - 1) rules, laws, constitutions
    - 2) norms of behavior, conventions
- … or simply ’the rules of the game’

Institutions defined cont.

- Examples
  - Economic institutions
    - Contracts that can be written and enforced
    - Presence and perfection of market
  - Political institutions
    - Form of government
    - Extent of checks and balances
    - Bureaucracy
    - Federalism

- Economic institutions shape the incentives of economic actors
- Political institutions shape the incentives of political actors

- Key difference from policies: durability

Institutions defined cont.

- If institutions are the rules of the game, then organizations and their entrepreneurs are the players.
- Organizations are made up of groups of individuals, bound together by some common purpose to achieve certain objectives.
  - E.g. political parties, firms, unions…
- The organizations that come into existence will depend on opportunities provided by the institutions.
- **But choice of institutions will also depend on the political power of existing organizations.**

Choice of Institutions

- Why do particular institutions come into existence?
- Democratic institutions emerged in 19th or 20th century in most countries. Why?
- Key ingredients in AR (2001):
  - Social conflict view of institutions
    - Different groups prefer different political institutions because of the way they allocate political power and resources.
  - Institutions as commitment devices

A model of democratization

- Continuum of agents with infinite horizon.
- Two types of agents in the economy
  - poor agents (p) : proportion λ
  - rich agents (r) : proportion $(1- \lambda)$
- No differences within groups.
- $\lambda > 1/2$: median voter will be a poor voter in democracy.
- Initially, the franchise is limited to the elite (rich agents).
- The number of agents in the economy is normalized to 1.

- Two methods of producing a consumption good, Y (price=1), in this economy:
  - Market technology: $Y_t^m = AH_t^m$
  - Home production technology: $Y_t^h = BH_t^h$
- A>B
- Only market production is taxable.
- H_t^m and H_t^h is the amount of capital devoted to market and home production, respectively.

$$H_t^m + H_t^h = H \equiv \int \mathrm{h}^{\mathrm{i}}\,\mathrm{di}$$

- Rich have more capital than poor ($h^r > h^p \geq 1$)
- All agents have the same indirect utility over net income with a discount factor $\beta \in (0,1)$.
- Post tax income : $\widehat{Y_t^i} = (1 - \tau_t)Ah^i + T_t$ i=p,r
- Government budget constraint $T_t = \tau_t A H_t^m$
  - Transfers independent of type of agent.

Revolution

- In any period, the poor can owerthrow the existing government, i.e. revolution always succeed.
- But revolution destroy a fraction of capital $(1-\mu_t)$.
- μ can take on two values and is assumed to vary stochastically, where

$$Pr(\mu_t = \mu^h) = q$$

$$Pr(\mu_t = \mu^l) = 1 - q$$

irrespective of whether $\mu_{t-1} = \mu^h$ or not.

- If there is a revolution, the poor obtains $\left(\frac{\mu_t AH}{\lambda}\right)$ for all future periods.
- Assume $\mu^l = 0$
  - Everything is destroyed in the case of a revolution.

- μ captures the underlying environment, e.g. with μ low, the cost of organizing revolution is high.
- q low : threat of revolution is rare, perhaps because citizens are unorganized

Dynamic game between two players

Poor and rich are assumed to act strategically.

Overcome all internal coordination problems.

- Rich have identical pref → one player
- Poor have identical pref . and there are no incentives to free-ride because can be excluded from resulting redistribution. → one player

Transition to democracy

- In each period the elite decides whether to extend the franchise or not
- If extended, median voter sets the tax rate
- If extended, always remain a democracy

The timing of events

1) μ is revealed
2) Elite decides on extension of franchise
   a. No: Rich set the tax rate
   b. Yes: Poor set the tax rate (median voter)
3) Revolution decision
4) Capital stock allocated and income realized.

Capital allocation:

i) If $\tau_t > \hat{\tau} \equiv \left(\frac{A-B}{A}\right)$: choose home prod. $H_t^m = 0$

ii) If $\tau_t \leq \hat{\tau}$: choose market prod. $H_t^m = H_t$

No voter would ever choose $\tau_t > \hat{\tau}$. $\hat{\tau}$ is consequently an upper bound on which tax rates that can be chosen.

Why is $\hat{\tau} \equiv \left(\frac{A-B}{A}\right)$?

Actions chosen by the elite: $\boldsymbol{\sigma^r(\mu, P)}$

P: Institutions, either elite in power (E) or democracy (D)

φ: the extension of franchise decision.

- If φ=1, P changes from non-democracy (E) to democracy (D) forever. We assume that it is impossible to revert from democracy to non-democracy.
- If φ=0, P remains a non-democracy. If P remains at E, the tax rate chosen by the rich, τ^r is 0.

Actions chosen by the poor $\boldsymbol{\sigma^p(\mu, P|\varphi, \tau^r)}$

ρ: the revolution decision.

- In non-democracy (P=E)

  … and ρ=1, then P changes from E to D, forever.

  … and ρ=0, then P remains at E.

- In democracy (P=D), the poor choose the tax rate τ^p.

Markov Perfect equilibria

Focus on Markov Perfect equilibria, i.e. strategy combinations $\{\sigma^r, \sigma^p\}$ such that σ^r and σ^p are best responses to each other for all μ and P.

Each party plays the best strategies irrespective of promises or games played in the past.

Dynamic programming

Let $V^j(R)$ be the return of revolution to agent j (j=p,r) in state $\mu = \mu^h$.

➔ $V^p(R) = \left(\frac{\mu^h AH}{\lambda}\right)\left(\frac{1}{1-\beta}\right)$

(per period returns for all future periods discounted to the present)

➔ $V^r(R) = 0$

(rich lose everything)

In state(μ^l, E), revolution never takes place.

Elites choose φ=0, $\tau^r = 0$. Then for each agent j:

$$V^j(\mu^l, E) = Ah^j + \beta\left[(1-q)V^j(\mu^l, E) + qV^j(\mu^h, E)\right] \quad (1)$$

j=p,r.

Assumption 1

Suppose in state (μ^h, E), rich plays (φ=0, $\tau^r = 0$)

Then $\widetilde{V^p}(\mu^h, E) = Ah^p(\frac{1}{1-\beta})$

To make this model interesting we need to assume that the **revolution constraint is binding**: $V^p(R) > \widetilde{V^p}(\mu^h, E)$,

We also assume that maximum redistribution for one period is **insufficient to prevent redistribution**, i.e.

$$V^p(R) > \widetilde{V^p}(\mu^h, E) + (A - B)\left(\frac{H - \lambda h^p}{\lambda}\right)$$

$$V^p(R) > \widetilde{V^p}(\mu^h, E) + (A - B)\left(\frac{H - \lambda h^p}{\lambda}\right)$$

Inserting gives:

$$\left(\frac{\mu^h AH}{\lambda}\right)(\frac{1}{1-\beta}) > Ah^p(\frac{1}{1-\beta}) + (A - B)\left(\frac{H - \lambda h^p}{\lambda}\right)$$

Which after some rearranging gives

$$\left(\frac{h^r}{h^p}\right) > \frac{\lambda(1-\mu^h)}{(1-\lambda)(\mu^h - \frac{(1-\beta)(A-B)}{A})}$$

Revolution is clearly the worst outcome for the rich, they will try to prevent it with:

i) redistribution (φ=0, $\tau^r > 0$)

   or

ii) franchise extension (φ=1)

Scenario 1 – revolution threat met by redistribution

Revolution decision:

$$V^p(\mu^h, E) = max\{V^p(R), V^p(\mu^h, E, \tau^r)\}$$

Where:

$$V^p(\mu^h, E, \tau^r) = (1-\tau^r)Ah^p + \tau^r AH + \beta[(1-q)V^p(\mu^l, E) + qV^p(\mu^h, E, \tau^r)] \quad (2)$$

The elites can successfully transfer today (two first terms), but the poor also care about the future (last term), where the rich may cut taxes back to 0 (with probability (1-q)).

Scenario 2 – revolution threat met by franchise extension

Revolution decision: $V^p(\mu^h, E) = max\{V^p(R), V^p(D)\}$

In democracy the poor median voter will choose the tax rate where agents are indifferent between market and home production ($\hat{\tau} \equiv \left(\frac{A-B}{A}\right)$).

➔ $V^p(D) = \frac{(Bh^p + (A-B)H)}{1-\beta}$ (why?)

➔ $V^p(R) = \left(\frac{\mu^h AH}{\lambda}\right)\left(\frac{1}{1-\beta}\right)$ (as defined above)

Assumption 2

We assume that franchise extension is sufficient to avoid revolution.

I.e. $V^p(D) > V^p(R) \;\Rightarrow\; Bh^p + (A - B)H > \left(\frac{\mu^h AH}{\lambda}\right)$

When is redistribution sufficient to avoid revolution?

- Define $\widehat{V^p}(\mu^h, E|q)$ as the maximum returns to the poor, without franchise extension.

Setting set $\tau^r = \hat{\tau}$ in (2) and after som algebra, we get:

$$\widehat{V^p}(\mu^h, E\big|q) = \frac{Bh^p+(A-B)H-\beta(1-q)(A-B)(H-h^p)}{1-\beta} \quad (3)$$

If $\widehat{V^p}(\mu^h, E\big|q) < V^p(R)$, then maximum transfer when $\mu = \mu^h$ is insufficient to prevent revolution.

From (3), we notice:

a) $\widehat{V^p}(\mu^h, E \,|\, q = 1) = V^p(D)$.

Then it follows imidieately from assumption 2 that redistribution is **SUFFICIENT** to avoid revolution.

b) $\widehat{V^p}(\mu^h, E \,|\, q = 0) = Ah^p\left(\frac{1}{1-\beta}\right) + (A - B)(H - h^p)$.

Then it follows imidieately from assumption 1 that redistribution is **INSUFFICIENT** to avoid revolution.

c) $\frac{\partial \widehat{V^p}}{\partial q} > 0$

- a), b) and c) $\Rightarrow$ There exists a unique q* $\in (0,1)$ such that $\widehat{V^p}(\mu^h, E \big| \mathrm{q}^*) = V^p(R)$.
- $V^r(\mu^h, E, \tau^r)$ is decreasing in τ and for all τ^r it is greater than (or equal to) $V^r(D)$.
  - When q <q* : Revolution threat met by franchise extension.
  - When q>q*: Revolution threat is met by redistribution.
- The rich will set the tax rate to $\bar{\tau}$ where the poor is indifferent between revolution and non-revolution (i.e $V^p(\mu^h, E, \bar{\tau}) = V^p(R)$).

Intuition

Initially the ruling elite face demands from the poor of policies that benefit the latter.

But revolutionary threats are intrinsically transitory.

- In the model captured by μ.

When μ is low no credible threat of revolution.

- The rich will not redistribute income or extend the franchise.

When μ is high there is a credible threat of revolution.

- A revolution is the worst outcome for the rich.
- The elite can always avoid revolution by extending the franchise (Ass. 2),
  - They prefer to redistribute income. But sufficient to avoid redistribution only when q is high, that is when the revolution threat is not rare.
- When q is low, the revolution threat is rare
- Poor realize that they are unlikely to receive transfers in the future. The rich knows that the poor will respond by revolution and they will meet the revolution threat with franchise extension.

Commitment problem

- The rich would like to commit to future redistribution, but the poor realize that such a promise may not be credible.
  - If what gives power to the citizens – the revolution threat – is likely to disappear the rich is likely to cut back on redistribution.
  - On the other hand: with frequent revolution threat promise of future redistribution is credible.
- In the model reversion to non-democracy is impossible. Introducing democracy solves the commitment problem.

Empirical Relevance?

May explain why Germany, the country with the most developed socialist party at the time, instituted the welfare state without franchise extension, while Britain and France extended the franchise

(more on this next week)