Lecture 6: Endogenous Political Institutions: Democracy

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Main questions and road map

- Today we open another layer of the "Russian Doll:"
  - Why are some countries rich and other poor? Because of differences in their factor accumulation and technolgy...Why some countries have better technology and capital accumulation than others? Because of differences in their economic institutions...Why do some countries have better economic institutions? Because of political economy considerations (conflict between groups) and how these are resolved by political institutions...
- What determines political institutions?
- A natural place to start this inquiry is asking: why are some societies democratic while others are not?
- We will examine views that emphasize the *economic* foundations of democratization.
  - i.e. economic incentives shape political attitudes ("induced preferences: as we have referred to before over political institutions);
  - ideas, or a change in social values, for instance, are not the primary cause of democratization in these theories.

Acemoglu and Robinson's Theory of Democratization

- What determines the equilibrium political regime?
- Why do some societies undergo institutional change?
- Why did many Western countries become democratic during the 19th century?
- Why did many Latin American countries become democratic but failed to consolidate democracy throughout the 20th century?

The struggle between the "elite" and the citizens

- Theory revolves around the way in which societies resolve the struggle between an "elite"-any powerful group controlling the society in a nondemocratic regime-and the more numerous yet disenfranchised citizens.
- Democracy is a solution to an elite's commitment problem.

The basic idea

- Imagine a nondemocratic regime where citizens would like to ask for policy concessions from the powerful elite (for concreteness and a relevant case, think of the elite as the "rich" and of the citizens as the "poor", and concessions as redistributive policies, though other interpretations possible)
- Citizens lack any *de jure* or institutional power, they are all disenfranchised, but have *de facto* power through riots, demonstrations, and ultimately through a revolution that effectively overthrows the elite.
- To appease the masses, the elite can make concessions (such as income or asset redistribution).

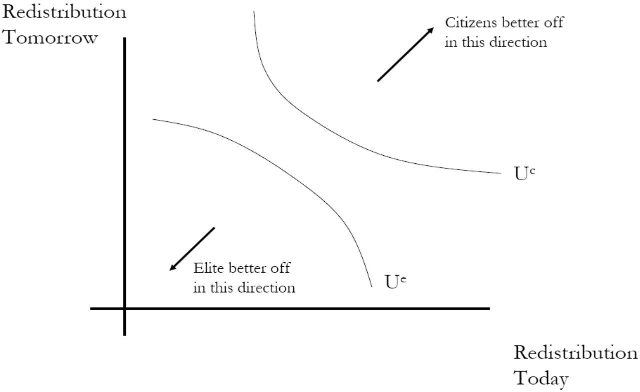
The basic idea (continued)

- Key argument:
  - simple concessions are not necessarily credible, since the citizens' abililty to solve the collective action problem is transitory.
  - A threat of revolt today may induce a policy concession, but when the threat vanishes the elite have an incentive to renege on their promise.
- Implications:
  - Anticipating this, non-credible concessions will not pacify citizens.
  - The elite will have to repress them.
  - Or agree to a peaceful extension of the franchise, giving the citizens some political power and thus institutionalising their concessions.

Some diagrams

- Consider the case where concessions refer to redistribution.
- Figure 3 (Robinson, 2005):
  - Elite's and citizens' indifference curves in the "redistribution today" vs. "redistribution tomorrow" plane.
  - Citizens can engage in collective action to overthrow the elite implies a "revolution constraint":
    - elite must deliver a minimal level of utility $\left(U^R\right)$ to avoid a revolution.
- Imagine that citizens can threaten a revolution today, but tomorrow the threat may be gone with some probability.
- Then, elite can credibly offer today the amount of redistribution that the citizens themselves would chose if they had power, labelled T^c.
- However, the amount of redistribution that the elite can credibly offer for tomorrow $\left(T^{max}\right)$, is just a fraction of T^c, since the threat of revolution may vanish tomorrow.

Figure 3. Preferences over Income Redistribution



- Figure 4: there is a credible amount of redistribution today and tomorrow that can give the citizens U^R.
  - elite optimally picks the lowest possible amounts of redistribution that avoid a revolution.
- Figure 5: concessions are not sufficient to deter a revolution;
  - even if the elite offers a policy $(T^c; T^{max})$ citizens receive less than U^R.

Figure 4. When Redistribution satisfies the Revolution Constraint

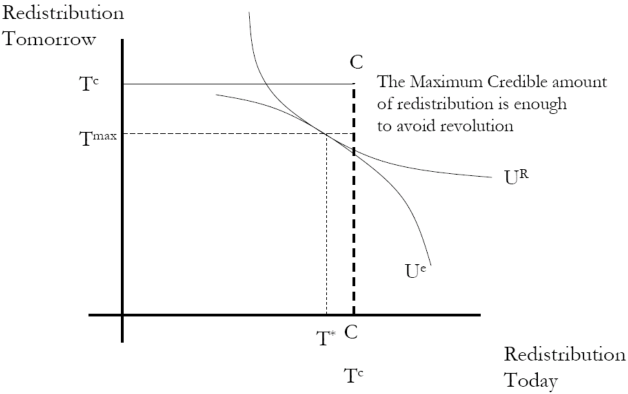
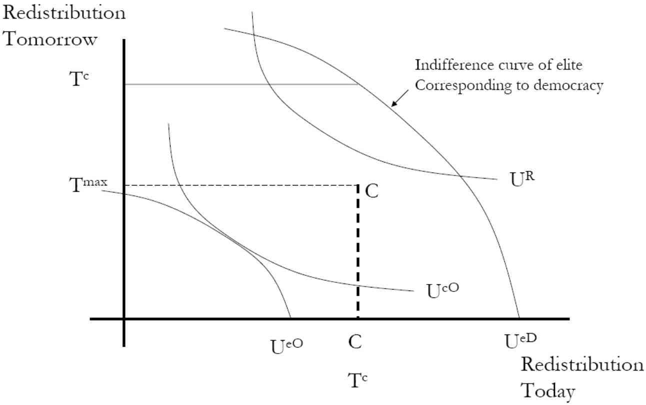


Figure 5. When Redistribution cannot satisfy the Revolution Constraint



Democratization or repression?

- Imagine the elite decide to democratize when facing the case of Figure 5, giving power away to the citizens.
  - Citizens would choose their preferred policy combination of (Tc, Tc), and the elite will have a utility of U^{eD}, captured by the indifference curve of the elite which cuts (Tc, Tc).
- Alternatively, the elite can use repression, which can be modelled as a discrete choice of incurring into a cost κ that controls the revolt and shifts the revolution constraint from U^R to U^{cO}.
  - The elite would now pick the optimal combination of redistribution, effectively avoid a revolution, and reach utility level U^{eO}.
- As long as repression is sufficiently cheap so that the gain in utility from U^{eD} to U^{eO} is larger than κ, the elite will use repression. Otherwise, it will democratize.

Predictions: inequality

- Democracy is likely to arise when credible promises of the elite are insufficient to appease the citizens because the revolution constraint, U^R, cannot be satisfied.
- A key factor determining the position of U^R is the extent of inequality.
- Higher inequality implies a larger potential gain for citizens of overruling the elite:
    - level of redistribution will be higher in a democracy, as the "median voter" will be relatively poorer.
    - Inequality shifts U^R out

Predictions: inequality (continued)

- But for this same reason democracy is less tolerable for elites in inequal societies.
  - Inequality shifts U^{eD} out.
- $\rightarrow$inequality can make elites more inclined to use repression and inequality may have a non-monotonic effect on democratization:
  - At low levels of inequality increasing inequality may facilitate democracy by making the revolution constraint more binding.
  - But if inequality gets too high, democracy becomes less likely because elites use repression.

Predictions: a political interpretation of the Kuznets Curve

- Kuznets Curve: Inverse U-shape relationship between development and level of inequality.
- Acemoglu and Robinson (2000): for several countries the transition to democracy coincided with the peak of inequality
- Interpretation:
  - Rising inequality often associated with industrialization increases social unrest and induces democratization.
  - Democratization in turn opens the way for redistribution and mass education, and reduces inequality

More predictions: crises and structure of the economy

- Democratizations are more likely to arise in times of crises.
  - Key precondition for democratization is solving collective action problem to impose a threat
  - Collective action problem is easier to solve in times of crises,
- Structure of the economy matters.
  - Trade-off between democracy and repression depends on source of the income of the elite.
  - Where the elite derive their income from land instead of from physical and human capital, repression is more likely than democratization or concessions.
    - Land is easier to tax or exporopiate, so landowners have more to loose from democracy than nondemocracy
    - $\rightarrow (T^c, T^c)$ is larger for "landowners" than for "industralists". Landed elites face more redistribution after democratization.
    - Social turmoil may be more damaging to physical and human capital than to land
    - $\rightarrow$ landowners are more willing to use force to preserve their regime (κ is lower for the elites)

Consolidation of democracy

- Imagine a society that has just been democratized.
- Now the citizens will set the redistributive policies and it is the elite who can mount a coup, and the citizens who try to appease them with concessions.
- The ability to mount a coup is transitory, so the same issues of credibility arise.
- When promises are insufficiently credible coups will occur.
- $\rightarrow$The same factors that influence the creation of democracy also influence whether, once created, democracy is likely to survive
    - e.g., think of the effects of inequality

Patterns of Political Development

- Britain in the 19th century; democratization and democratic consolidation
- Argentina in the 20th century; democracy-coup cycles
- Singapore; persistent nondemocracy with limited repression
- South Africa until the end of Apartheid; persistent nondemocracy with repression
- What accounts for this diversity?

Why not just ideology?

- One answer is related to "enlightenment".
  - societies become enlightened and wiser, and that's when they become democratic
  - but democracy arises in the midst of intense conflict, not generally a consensual move
  - it does not explain why democratization took place in some places during sometimes, and why it succeeded in some instances and not in others.

Nondemocratic Politics

- Let us start with a simple model of nondemocratic politics.
- This model will provide many of the insights that will be crucial in understanding why democratic regimes emerge.
- Key idea:
  - political power in the hands of an elite
  - but "citizens" excluded from formal, *de jure* power still have a say in politics because of their *de facto* power to undertake collective action, unrest, revolution...
  - $\rightarrow$ (*no*) *revolution constraint*

Preferences

- Suppose that there are two classes, the elite (the rich) with fixed income y^r and the poor citizens with income $y^p < y^r$.
- Total population is normalized to 1, a fraction $1 - \delta > 1/2$ of the agents are poor, with income y^p, and the remaining fraction δ are rich with income y^r.
- Mean income is denoted by $\bar{y}$.
- Let θ be the share of total income accruing to the rich:

$$y^p = \frac{(1-\theta)\bar{y}}{1-\delta} \text{ and } y^r = \frac{\theta\bar{y}}{\delta}. \tag{1}$$

- Also assume

$$\frac{(1-\theta)\bar{y}}{1-\delta} < \frac{\theta\bar{y}}{\delta} \text{ or } \theta > \delta,$$

to ensure that $y^p < \bar{y} < y^r$.

Taxation

- Only fiscal instruments, linear tax $\tau \geq 0$ and lump-sum transfer T.
- Taxation is distortionary, with cost of taxation $C(\tau)\bar{y}$ as a function of the tax rate is τ, where C is increasing and strictly convex.
- Then the government budget constraint is therefore

$$T = \tau\left((1-\delta)y^p + \delta y^r\right) - C(\tau)\bar{y} = \left(\tau - C(\tau)\right)\bar{y}. \tag{2}$$

- The most preferred tax rate of poor agents is given by

$$\left(\frac{\theta-\delta}{1-\delta}\right) = C'(\tau^p). \tag{3}$$

- In contrast, the rich elite's political bliss point is $\tau^r = 0$.

Preferences

- Individual utility is defined over the discounted sum of post-tax incomes with discount factor $\beta \in (0,1)$, so for individual i at time $t=0$, it is

$$U^i = \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \hat{y}_t^i, \tag{4}$$

  where $\hat{y}_t^i$ denotes after-tax income.
- We are in a non-democratic environment, so policy is determined by rich agents.
- The only influence of poor agents is through their de facto power, the threat of revolution.
- The rich will choose policy subject to a revolution constraint.
- Along the equilibrium path where revolution does not take place:

$$U^i = \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left((1-\tau_t)\, y^i + (\tau_t - C(\tau_t))\, \bar{y} \right). \tag{5}$$

Revolution

- If a revolution is attempted, it always succeeds but a fraction μ_t of the productive capacity of the economy is destroyed forever in the process.
- After a revolution, citizens receive all output.
- Therefore, if there is a revolution at time t, each citizen receives a per period return of

$$\frac{(1-\mu^S)\bar{y}}{(1-\delta)}.$$

- In all future periods: total income in the economy is $(1-\mu^S)\bar{y}$ and is shared between $1-\delta$ agents.
- μ^S is the value of μ_t at the date when the revolution took place
- Suppose that μ_t is equal to $\mu^H = \mu$ with probability q and to $\mu^L = 1$ with probability $1-q$.

Revolution and Collective Action

- Fluctuations in μ due to ability to solve the collective action problem among the citizens.
- It will be the source of *commitment problems*.
- A change in μ corresponds to a change in the underlying environment, so the elite, who hold political power in nondemocracy, will optimize again.
- As a result, their promise to redistribute today may not materialize due to changes in circumstances tomorrow.

Timing of Events

At each t, the timing of events is as follows:

- μ_t is revealed.
- The elite set the tax rate τ_t^N.
- The citizens decide whether or not to initiate a revolution, denoted by ρ_t with $\rho_t = 1$ corresponding to a revolution at time t. If there is a revolution, they obtain the remaining $1 - \mu_t$ share of output in all future periods.

Equilibrium Concept

- Let us start with the pure strategy Markov Perfect Equilibria of this game
- Strategies only depend on the current state of the world.
- For the elite the strategy is the tax rate:

$$\tau^N : \{\mu^L, \mu^H\} \rightarrow [0, 1].$$

- For the citizens, it is the revolution decision

$$\rho : \{\mu^L, \mu^H\} \times [0, 1] \rightarrow \{0, 1\}.$$

Payoffs after Revolution

- Define $V^p(R, \mu^S)$ as the return to citizens if there is a revolution starting in threat state $\mu^S \in \{\mu, 1\}$.
- Then,

$$V^p(R, \mu^S) = \frac{(1 - \mu^S)\bar{y}}{(1 - \delta)(1 - \beta)}.$$

- Equal sharing of gains from revolution to avoid the free rider problem.
- For the rich elite:

$$V^r(R, \mu^S) = 0.$$

- Since $\mu^L = 1$, the citizens will never attempt a revolution when $\mu_t = \mu^L$.
- Thus, the only relevant value is the one starting in the state $\mu^H = \mu$:

$$V^p(R, \mu^H) = \frac{(1 - \mu)\bar{y}}{(1 - \delta)(1 - \beta)}. \quad (6)$$

Payoffs in Nondemocracy

- Now consider nondemocracy in the state $\mu_t = \mu^L$, where there is no threat of revolution.
- Denote the relevant values by $V^r(N, \mu^L)$ and $V^p(N, \mu^L)$.
- Since there is no threat of revolution in this state, the MPE tax choice for the elite is

$$\tau^N = \tau^r = 0.$$

- Therefore,

$$\begin{aligned} V^r(N, \mu^L) &= y^r + \beta \left[qV^r(N, \mu^H) + (1-q)V^r(N, \mu^L) \right] \quad (7) \\ V^p(N, \mu^L) &= y^p + \beta \left[qV^p(N, \mu^H) + (1-q)V^p(N, \mu^L) \right]. \end{aligned}$$

Values in Nondemocracy (continued)

- What about in state $\mu_t = \mu^H$?
- First, suppose that in this state the elite also set $\tau^N = \tau^r$.
- Then, there is never any redistribution, and the values are

$$V^r(N) = \frac{y^r}{1-\beta},$$

$$V^p(N) = \frac{y^p}{1-\beta} \tag{8}$$

regardless of the state.

The Revolution Constraint

- The *revolution constraint* binds if the poor citizens prefer a revolution in the state $\mu_t = \mu^H$ rather than to live in nondemocracy without any redistribution, i.e., if

$$V^p(R, \mu^H) > V^p(N)$$

where $V^p(R, \mu^H)$ is given by (6).

- Using the definitions in (1), the revolution constraint is equivalent to

$$\theta > \mu. \tag{9}$$

- In other words, inequality needs to be sufficiently high, i.e., θ sufficiently high, for the revolution constraint to bind.
- If inequality is not that high, so that we have $\theta \leq \mu$, there is no threat of revolution even in the state $\mu_t = \mu^H$, even with no redistribution ever.
- In this case, the elite will always set their unconstrained best tax rate, $\tau^N = \tau^r$, and we have no revolution along the equilibrium path.

When the Revolution Constraints Binds

- Suppose that the revolution constraint (9) binds.
- If in this case, the elite set $\tau^N = \tau^r$ in the threat state $\mu_t = \mu^H$, there will be a revolution.
- So the elite need to make some concessions by setting a tax rate $\tau^N = \hat{\tau} > 0$.
- Let us denote the values to the elite and the citizens in the state $\mu_t = \mu^H$ when the elite set a tax rate $\hat{\tau}$ and are expected to do so in the future, and there is no revolution, by $V^r(N, \mu^H, \tau^N = \hat{\tau})$ and $V^p(N, \mu^H, \tau^N = \hat{\tau})$.
- At this tax rate, we have that an agent of type i has net income of $(1 - \hat{\tau})\, y^i$, plus he receives a lump sum transfer of $\hat{T}$.
- From the government budget constraint, this lump-sum transfer is $\hat{T} = (\hat{\tau} - C(\hat{\tau}))\, \bar{y}$, where $\hat{\tau}\bar{y}$ is total tax revenue, and $C(\hat{\tau})\, \bar{y}$ is the cost of taxation.

When the Revolution Constraints Binds (continued)

- In this case, the value functions are given by

$$
\begin{aligned}
& V^r(N, \mu^H, \tau^N = \hat{\tau}) = \\
& \quad y^r + (\hat{\tau}(\bar{y} - y^r) - C(\hat{\tau})\bar{y}) \\
& \qquad + \beta \left[q V^r(N, \mu^H, \tau^N = \hat{\tau}) + (1-q) V^r(N, \mu^L) \right],
\end{aligned}
\tag{10}
$$

and

$$
\begin{aligned}
& V^p(N, \mu^H, \tau^N = \hat{\tau}) = \\
& \quad y^p + (\hat{\tau}(\bar{y} - y^p) - C(\hat{\tau})\bar{y}) \\
& \qquad + \beta \left[q V^p(N, \mu^H, \tau^N = \hat{\tau}) + (1-q) V^p(N, \mu^L) \right].
\end{aligned}
$$

- Intuition.

When the Revolution Constraints Binds (continued)

- The best response of the citizens is

$$\rho \begin{cases} = 0 & \text{if } V^p(R, \mu^H) \leq V^p(N, \mu^H, \tau^N = \hat{\tau}) \\ = 1 & \text{if } V^p(R, \mu^H) > V^p(N, \mu^H, \tau^N = \hat{\tau}) \end{cases} \tag{11}$$

- We can also write:

$$\begin{aligned} V^r(N, \mu^H) &= \rho V^r(R, \mu^H) + (1 - \rho) V^r(N, \mu^H, \tau^N = \hat{\tau}) \qquad (12) \\ V^p(N, \mu^H) &= \max_{\rho \in \{0,1\}} \rho V^p(R, \mu^H) + (1 - \rho) V^p(N, \mu^H, \tau^N = \hat{\tau}) \end{aligned}$$

Preventing Revolution

- The elite would like to prevent revolution if they can.
- Will they be able to do so?
- To determine the answer to this question, we need to see what is the maximum value that the elite can promise to the citizens.
- Clearly this will be when they set the tax most preferred by the citizens, τ^p, given by (3).
- Hence the relevant comparison is between $V^p(R, \mu^H)$ and $V^p(N, \mu^H, \tau^N = \tau^p)$.
- If $V^p(N, \mu^H, \tau^N = \tau^p) \geq V^p(R, \mu^H)$, then a revolution can be averted, but not otherwise.

Preventing Revolution (continued)

- Solving above equations

$$V^p(N, \mu^H, \tau^N = \tau^p) = \frac{y^p + (1 - \beta(1-q))\,(\tau^p(\bar{y} - y^p) - C(\tau^p)\bar{y})}{1-\beta}. \tag{13}$$

- $V^p(N, \mu^H, \tau^N = \tau^p)$ crucially depends on q, the probability that the state will be μ^H in the future, since this is the extent to which redistribution will recur in the future (in some sense, how much future redistribution the rich can credibly promise).
- The revolution can be averted if $V^p(N, \mu^H, \tau^N = \tau^p) \geq V^p(R, \mu^H)$, or if

$$\frac{y^p + (1 - \beta(1-q))\,(\tau^p(\bar{y} - y^p) - C(\tau^p)\bar{y})}{1-\beta} \geq \frac{(1-\mu)\bar{y}}{(1-\delta)\,(1-\beta)},$$

which can be simplified to

$$\mu \geq \theta - (1 - \beta(1-q))\,(\tau^p(\theta - \delta) - (1-\delta)C(\tau^p)). \tag{14}$$

Preventing Revolution (continued)

- If the above condition does not hold, even the maximum credible transfer to a citizen is not enough, and there will be a revolution along the equilibrium path.
- We can now use (14) to define a critical value of μ^H, again denoted μ^* such that $V^p(N, \mu^*, \tau^N = \tau^p) = V^p(R, \mu^*)$, or

$$\mu^* = \theta - (1 - \beta(1 - q)) \left(\tau^p(\theta - \delta) - (1 - \delta) C(\tau^p)\right). \qquad (15)$$

  where $\mu^* < \theta$.
- When $\mu \geq \mu^*$, $V^p(N, \mu^H, \tau^N = \tau^p) \geq V^p(R, \mu^H)$, and the revolution is averted.
- When $\mu < \mu^*$, $V^p(N, \mu^H, \tau^N = \tau^p) < V^p(R, \mu^H)$, future transfers are expected to be sufficiently rare that even at the best possible tax rate for the citizens, there isn't enough redistribution in the future, and the citizens prefer a revolution rather than to live under nondemocracy with political power in the hands of the elite.

Preventing Revolution(continued)

- Using (6) and (13), we have that $\hat{\tau}$ is given by:

$$\mu = \theta - (1 - \beta(1-q)) \left(\hat{\tau}(\theta - \delta) - (1-\delta)C(\hat{\tau})\right). \qquad (16)$$

This analysis than leads to:

Proposition: There in a unique MPE $\{\tilde{\sigma}^r, \tilde{\sigma}^p\}$ of the game $G^\infty(\beta)$. Let μ^* and $\hat{\tau}$ be given by (15) and (16). Then in this equilibrium:

- If $\theta \leq \mu$, the elite never redistribute and the citizens never undertake a revolution
- If $\theta > \mu$, then we have that:
  - If $\mu < \mu^*$, promises by the elite are insufficiently credible to avoid a revolution. In the low state, the elite do not redistribute and there is no revolution, but in the high state a revolution occurs whatever tax rate the elite set.
  - If $\mu \geq \mu^*$, the elite do not redistribute in the low state and set the tax rate $\hat{\tau}$ in the high threat state, just sufficient to stop a revolution. The citizens never revolt.

Preventing Revolution (continued)

- For discussion, suppose that $\theta > \mu$.
- Then, starting with the elite in power, if $\mu < \mu^*$, they set a zero tax rate when $\mu_t = \mu^L$, but when the state transits to μ^H, there is a revolution.
- The problem here is that although the elite would like to stay in power by offering the citizens redistribution, they cannot offer today enough to make the present value of nondemocracy to the citizens as great as the present value of revolution.

Comparative Statics

- The threshold μ^* depends θ and on q.
- μ^* is increasing in θ, so that inequality makes revolution more likely (because the revolution constraint is "more binding")
- μ^* is decreasing in q, because lower q means "less credible commitments to future distribution"—because revolution constraints are rare events.

Incentive Compatible Promises

- MPE limit commitment power.
- What happens if we look at subgame perfect equilibria?
- Issue: "promises" by the elite must be *incentive compatible*, in the sense that when the revolution threats disappears, they should have no incentive to deviate.
- Suppose $\theta > \mu$ and $\mu < \mu^*$, so with the restriction to MPE, the unique equilibrium involves a revolution.
- Compute the maximum value that the elite can promise to the citizens to see whether this will prevent revolution.

Analysis

- First calculate the value to the elite if they redistribute at the rate $\tau^N = \tau^H \leq \tau^p$ in the state $\mu_t = \mu^H$ and at the rate $\tau^N = \tau^L \leq \tau^p$ in the state $\mu_t = \mu^L$
- Since we are no longer looking at Markovian strategies, $\tau^L > 0$ is now possible.

Analysis (continued)

- These values are

$$
\begin{aligned}
V^{r}(N,\mu^{L},\left[\tau^{L},\tau^{H}\right]) &= y^{r} \\
&+\left(\tau^{L}\left(\bar{y}-y^{r}\right)-C\left(\tau^{L}\right)\bar{y}\right) \\
&+\beta[qV^{r}(N,\mu^{H},\left[\tau^{L},\tau^{H}\right]) \\
&+(1-q)V^{r}(N,\mu^{L},\left[\tau^{L},\tau^{H}\right])].
\end{aligned}
$$

$$
\begin{aligned}
V^{r}(N,\mu^{H},\left[\tau^{L},\tau^{H}\right]) &= y^{p} \\
&+\left(\tau^{H}\left(\bar{y}-y^{r}\right)-C\left(\tau^{H}\right)\bar{y}\right) \\
&+\beta[qV^{r}(N,\mu^{H},\left[\tau^{L},\tau^{H}\right]) \\
&+(1-q)V^{r}(N,\mu^{L},\left[\tau^{L},\tau^{H}\right])]
\end{aligned}
$$

Analysis (continued)

- Combining the previous two expressions,

$$
\begin{aligned}
V^r(N,\mu^L,\left[\tau^L,\tau^H\right]) &= \frac{y^r + (1-\beta q)\left(\tau^L\left(\bar{y}-y^r\right) - C\left(\tau^L\right)\bar{y}\right)}{1-\beta} \\
&\quad + \frac{\beta q\left(\tau^H(\bar{y}-y^r) - C(\tau^H)\bar{y}\right)}{1-\beta}
\end{aligned}
$$

  as the value that the elite will receive if they stick to their "promised" behavior summarized by the tax vector $\left[\tau^L,\tau^H\right]$.

- The key is whether this behavior is "incentive compatible" for them, that is, whether they will wish to deviate from it now or in the future.

Deviation

- What happens if they deviate?
- Clearly, they will deviate when $\mu_t = \mu^L$
- Worst punishment: revolution the first time $\mu_t = \mu^H$.
- Thus, the deviation payoff for the elite is

$$V_d^r(N, \mu^L) = y^r + \beta \left[q V^r(R, \mu^H) + (1-q) \, V_d^r(N, \mu^L) \right],$$

- Since $V^r(R, \mu^H) = 0$,

$$V_d^r(N, \mu^L) = \frac{y^r}{1 - \beta (1-q)}. \tag{17}$$

Incentive Compatibility

- The incentive compatibility constraint for the elite is

$$V^r(N, \mu^L, \left[\tau^L, \tau^H\right]) \geq V^r_d(N, \mu^L). \tag{18}$$

- The subgame perfect equilibrium that is best for the elite, starting in the state μ^L can be characterized as the solution to

$$\max_{\tau^L, \tau^H} V^r(N, \mu^L, \left[\tau^L, \tau^H\right]) \tag{19}$$

subject to (18) and

$$V^p(N, \mu^H, \left[\tau^L, \tau^H\right]) \geq V^p\left(R, \mu^H\right), \tag{20}$$

where $V^p(N, \mu^H, \left[\tau^L, \tau^H\right])$ is the value to the citizens starting in the state μ^H from the tax vector $\left[\tau^L, \tau^H\right]$.

- If the constraints set is empty, then in the subgame perfect equilibrium, there will again be revolution.
- Otherwise, revolution can be averted.

Incentive Compatibility (continued)

- Compute the values to the citizens as

$$V^p(N, \mu^H, \left[\tau^L, \tau^H\right]) = \frac{y^p + \beta(1-q)\left(\tau^L(\bar{y} - y^p) - C\left(\tau^L\right)\bar{y}\right)}{1-\beta} + \frac{(1-\beta(1-q))\left(\tau^H(\bar{y} - y^p) - C(\tau^H)\bar{y}\right)}{1-\beta} \tag{21}$$

Incentive Compatibility (continued)

- Clearly, there will exist and minimum value of μ^H such that a revolution can be averted, say μ^{**}.
- This will be given by $\tau^H = \tau^p$ and τ^L the maximum value consistent with the incentive compatibility constraint of the elite, (18), as equality—say $\bar{\tau}'$.
- Solving the incentive compatibility constraint, this is given by

$$\bar{\tau}'(\theta-\delta)+ \quad \delta C(\bar{\tau}') = \frac{\beta q}{(1-\beta q)}\left[\frac{\theta}{1-\beta(1-q)}-(\tau^p(\theta-\delta)+\delta C(\tau^p))\right]. \tag{22}$$

- *Important point:* $\bar{\tau}'$ can be significantly less than τ^p because the commitment problem is still present.

- Then, the threshold is

$$\mu^{**} = \theta - \beta(1-q)\left(\bar{\tau}'(\theta-\delta) - (1-\delta)C\left(\bar{\tau}'\right)\right) - (1-\beta(1-q))(\tau^p(\theta-\delta) - (1-\delta)C(\tau^p)), \tag{23}$$

  where $\bar{\tau}'$ is given by (22).
- As long as $\bar{\tau}' > 0$,

$$\mu^{**} < \mu^*.$$

- Therefore:

Proposition: When we allow non-Markovian strategies, a revolution can be averted for all $\mu \geq \mu^{**}$. Here $\mu^{**} < \mu^*$, which means that greater redistribution is now possible, but $\mu^{**} > 0$, which means that there are limits how much credible redistribution the elite can promise.

Incentive Compatibility (continued)

- In addition, with SPE, taxes in the high state are not necessarily equal to τ^p, because there is *tax smoothing*
- Because $C(\cdot)$ is convex, it is better to have taxes in the two states closer to each other.
- Full tax smoothing is generally not always incentive compatible, however.

Democratization

- In the model presented so far, the only instrument that the elite have to prevent revolutions is fiscal redistribution within the existing system.
- Alternative: changes in institutions.

Democratization: General Insights

- Why does this make sense?
- Revolution arises because the citizens have *de facto power* today, but have no power in the future.
- Therefore, they are willing to use an inefficient action, revolution, in order to obtain more in the future.
- De facto power is, by its nature, not always persistent.
- But *de jure power*, arising from formal institutions, more persistent.
- If there is a way of transforming the transitory de facto power of the citizens into more durable de jure power, this might prevent revolution.
- Thus, democratization (more generally institutional change) as a *commitment device*.

Model

- Take the same model as before, augmented with two more actions by the elite:
    1. Democratization: at the beginning of each date, they can change the constitution, and from then on the society is democratic (and this is for now irreversible), and taxes are decided by majoritarian elections. Since citizens are in the majority, majoritarian elections will lead to their most preferred tax rate, τ^p, in the future
    2. Repression: the elite can also use repression in order to prevent revolution. Repression costly because it destroys a fraction of output at that time.
- *Question:* when will they use fiscal redistribution, when will they prefer repression and when will they go for democratization.

Intuition

- Democratization is costly: all power is allocated to citizens, and they can set their most preferred tax rate τ^p.
- Fiscal redistribution within the existing system is cheaper, if it is credible.
- Therefore, democratization will only arise when fiscal redistribution within the existing system is not credible.
- Also, democratization needs to be preferred to repression, so repression needs to be sufficiently costly and democracy need not be too redistributive.

Sketch

- Income now is

$$\hat{y}^i = \omega (1-\kappa) y^i + (1-\omega) \left((1-\tau) y^i + (\tau - C(\tau)) \bar{y} \right), \quad (24)$$

- κ is the cost due to repression, with $\omega = 0$ denoting no repression and $\omega = 1$ denoting repression. We model the cost of repression as we did the costs of revolution.

Timing of Events

- The state $\mu_t \in \{\mu^L, \mu^H\}$ is revealed.
- The elite decide whether or not to use repression, $\omega \in \{0, 1\}$. If $\omega = 1$, the poor cannot undertake a revolution and the stage game ends.
- If $\omega = 0$, the elite decide whether or not to democratize, $\phi \in \{0, 1\}$. If they decide not to democratize, they set the tax rate τ^N.
- The citizens decide whether or not to initiate a revolution, $\rho \in \{0, 1\}$. If $\rho = 1$ they share the remaining income forever. If $\rho = 0$ and $\phi = 1$ the tax rate τ^D is set by the median voter (a poor citizen). If $\rho = 0$ and $\phi = 0$, then the tax rate is τ^N.

Markov Perfect Equilibria

- Analysis identical to before.
- Democracy is an absorbing state and citizens are in the majority, thus

$$V^p(D) = \frac{y^p + \tau^p(\bar{y} - y^p) - C(\tau^p)\bar{y}}{1-\beta} \text{ and } \tag{25}$$

$$V^r(D) = \frac{y^r + \tau^p(\bar{y} - y^r) - C(\tau^p)\bar{y}}{1-\beta}.$$

Markov Perfect Equilibria (continued)

- We need to ensure that democracy prevents revolution, that is,

$$V^p(D) \geq V^p(R, \mu^H).$$

- This is equivalent to

$$\mu \geq \theta - (\tau^p(\theta - \delta) - (1 - \delta)C(\tau^p)) . \tag{26}$$

- The revolution constraint identical to before.
- Thus the same credibility issues.
- Then, revolution can be prevented by redistribution if $\mu > \mu^* \in (0, 1)$ where

$$V^p(N, \mu^*, \tau^N = \tau^p) = V^p(R, \mu^*). \tag{27}$$

Markov Perfect Equilibria (continued)

- Payoff to play a strategy of always repressing?
- By standard arguments, these values satisfy the Bellman equations:

$$\begin{aligned} V^i(O,\mu^H|\kappa) &= (1-\kappa)\,y^i + \beta\left[qV^i(O,\mu^H \mid \kappa) + (1-q)\,V^i(N,\mu^L)\right] \\ V^i(N,\mu^L) &= y^i + \beta\left[qV^i(O,\mu^H \mid \kappa) + (1-q)\,V^i(N,\mu^L)\right], \end{aligned}$$

which take into account that the cost of repression will only be incurred in the state where the revolution threat is active, i.e., when $\mu_t = \mu^H$.

Markov Perfect Equilibria (continued)

- Solve those Bellman equations simultaneously to get returns from using repression all the time:

$$V^r(O,\mu^H \quad | \quad \kappa) = \frac{y^r - (1-\beta(1-q))\kappa y^r}{1-\beta} \text{ and} \tag{28}$$
$$V^p(O,\mu^H \quad | \quad \kappa) = \frac{y^p - (1-\beta(1-q))\kappa y^p}{1-\beta}.$$

Markov Perfect Equilibria (continued)

- When is it beneficial for the elite to use repression versus redistribute or concede democratization?
- To understand when repression occurs we need to compare $V^r(O, \mu^H \mid \kappa)$ to $V^r(D)$ when $\mu < \mu^*$; and to $V^r(N, \mu^H, \tau^N = \hat{\tau})$ when $\mu \geq \mu^*$. We will now determine two threshold values for the cost of repression, this time called κ^* and $\bar{\kappa}$, such that the elite are indifferent between their various options at these threshold levels.
- More specifically, let κ^* be such that the elite are indifferent between promising redistribution at the tax rate $\tau^N = \hat{\tau}$ and repression, $V^r(O, \mu^H \mid \kappa^*) = V^r(N, \mu^H, \tau^N = \hat{\tau})$. This equality implies

$$\kappa^* = \frac{1}{\theta}\left(\delta C(\hat{\tau}) - \hat{\tau}\left(\delta - \theta\right)\right). \tag{29}$$

Markov Perfect Equilibria (continued)

- Similarly, let $\bar{\kappa}$ be such that at this cost of repression, the elite are indifferent between democratization and repression, i.e., $V^r(O, \mu^H \mid \bar{\kappa}) = V^r(D)$, which implies that

$$\bar{\kappa} = \frac{1}{\theta(1-\beta(1-q))} \left(\delta C(\tau^p) - \tau^p (\delta - \theta)\right). \tag{30}$$

  It is immediate that $\bar{\kappa} > \kappa^*$, i.e., if the elite prefer repression to redistribution, then they also prefer repression to democratization.

- Therefore, we have that the elite will prefer repression when $\mu \geq \mu^*$ and $\kappa < \kappa^*$, and also when $\mu < \mu^*$ and $\kappa < \bar{\kappa}$.

Markov Perfect Equilibria (continued)

Proposition: There is a unique MPE $\{\tilde{\sigma}^r, \tilde{\sigma}^p\}$ in the game $G^\infty(\beta)$, and it is such that:

- If $\theta \leq \mu$, then the revolution constraint does not bind and the elite can stay in power without repressing, redistributing or democratizing.
- If $\theta > \mu$, then the revolution constraint binds. In addition, let be μ^* defined by (27), and κ^* and $\bar{\kappa}$ be defined by (29) and (30). Then:
    - If $\mu \geq \mu^*$ and $\kappa \geq \kappa^*$, repression is relatively costly and the elite redistribute income in state μ^H to avoid revolution.
    - If $\mu < \mu^*$ and $\kappa < \bar{\kappa}$, or $\kappa \geq \bar{\kappa}$ and (26) does not hold, or if $\mu \geq \mu^*$ and $\kappa < \kappa^*$, the elite use repression in state μ^H.
    - If $\mu < \mu^*$, (26) holds, and $\kappa \geq \bar{\kappa}$, concessions are insufficient to avoid a revolution and repression is relatively costly. In this case, in state μ^H the elite democratize.

Discussion

- Democracy arises only if $\mu < \mu^*$, repression is relatively costly, i.e., $\kappa \geq \bar{\kappa}$ and if (26) holds.
- This critical threshold for the cost of repression, $\bar{\kappa}$, is increasing in inequality (increasing in θ), that is,

$$\frac{d\bar{\kappa}}{d\theta} > 0.$$

- Intuitively, when inequality is higher, democracy is more redistributive, i.e., τ^p is higher, and hence more costly to the rich elite. They are therefore more willing to use repression.
- Democracy therefore emerges as an equilibrium outcome only in societies with intermediate levels of inequality.
  - Too high inequality makes democracy too costly for the elite, too low inequality makes nondemocracy sufficiently attractive for the citizens that the revolution threat does not materialize.

Subgame Perfect Equilibria

- As above, the same insights hold with subgame perfect equilibria, but now fiscal redistribution within the existing regime can prevent democratization for a larger set of parameter values.

Discussion

- *Key ideas*:
  - Conflict and threat of revolution
  - Commitment
  - From de facto to de jure power
- Are these reasonable?

Conflict

- Most instances of democratization amidst conflict and threat of revolution
- Though exceptions exist, most instances of democratization in 19th century Europe and 20th century Latin America in the midst of social unrest
  - democratization "partly taken" not just "given"