Dynamics of Political Institutions

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Lecture 17
So far we have examined static models of political competition (PC), a specific democratic institution.

Can extend to generate dynamic implications.

A static PC model predicts at any given date $t$, a mapping from income distribution (ID) at $t$ to Economic Policy (EP) at $t$.

We can use this to generate a political economy theory of dynamics (growth or income distribution):

$$\text{ID at date } t \xrightarrow{\text{(politics)}} \text{EP at date } t \xrightarrow{\text{(economics)}} \text{ID at date } t+1$$
Political Economy Steady State Models

- Alesina-Rodrik (1994): take a PE model with no elite capture (instead populism a la median voter); high inequality countries have higher taxes and lower growth in the long run

- Benabou (2000): argues that the Alesina-Rodrik model is not consistent with cross-country facts

- Uses a PE model with elite capture, where high inequality generates low taxes, which in turn re-generates high inequality

- His model has multiple steady states which describe difference between US (high inequality, generates right-wing policy, which re-generates high inequality) and W Europe/E Asia (low inequality, generates redistributive welfare state, which re-generates low inequality)
Dynamics of Political Institutions

‘Bigger’ questions (of interest to development economists and economic historians):

- comparisons of outcomes of democracy with autocracy
- transition between autocracy and democracy

Of particular interest is the possibility of macro ‘underdevelopment traps’ owing to political economy reasons
Engerman and Sokoloff (JEP 2000): historical analysis of divergence between North and Central/South America in 20th century traced back to colonial origins in 16th and 17th century:
- CSA were more suitable for minerals and cash crops (sugar, coffee) than NA attracted wealthier colonial settlers from Europe
- These settlers created political institutions to ensure their monopolization of these resources, enslavement of indigenous population and slave imports to create cheap labor source
- Kept taxes low, did not educate the masses, prevented democracy (compared to NA)
- When Industrial Revolution arrived in 19th century they were unprepared and fell behind NA

Similar story by Acemoglu, Robinson and Johnson (2001): cross-country regressions of modern day p.c.i., political institutions on colonial settlements in 16th-17th century (instrumented by exposure of settlers to tropical disease)
Transition from Autocracy to Democracy

- Spread of Democracy: e.g., extension of franchise in UK and US during 19th century
- Why did autocrats/elites agree to dilute their own power?
- Acemoglu-Robinson (QJE 2000) provide one answer: threat of revolution owing to progressive rise of inequality, autocrats cannot credibly commit to redistribute, so must agree to usher in democracy
- Lizzeri-Persico (QJE 2004) provide different answer for 19th century democratic reforms in the UK: democracy only way to ensure provision of public goods (e.g., sanitation and public health) which affect elites
Transition from Autocracy to Democracy: Historical Path-Dependence

- Borguignon-Verdier model formalizes the Engerman-Sokoloff ‘story’
- More generally:
  - how high historical inequality may trap some countries into persistent underdevelopment (zero growth) and autocracy
  - while others with less inequality but same ‘fundamentals’ transit into democracy with restricted/small middle class, low growth and perpetuation of elite power
  - and those with low starting inequality transit into robust democracy with large/growing middle class, high growth and vanishing elite power
Borguignon-Verdier (2000), Assumptions

- Two Period version (later sections discuss extensions to more periods)
- Period 1: Two classes of citizens:
  - *elites*, income $y^r$, educated, proportion $1 - p$ of population
  - *poor*, income $y^p$, uneducated, proportion $p$
- All parents have one child
- Cost of education 1, where $y^r > 1 > y^p$
- No credit market, poor cannot afford to educate their children, rich can
- Return to education:
  - private return: $R > 1$
  - social return $\mu$ (human capital externality): per capita income in the economy at $t = 2$ increases by $\mu \cdot E$ if $E$ is the fraction of population with education at $t = 2$
Education Investment/Policy in Period 1

- Elites are altruistic towards their own children (zero discount rate), so will invest in education privately even without any public education subsidy.

- They also decide on how much taxes to pay to fund public education for the poor.

- Government funds subsidy $1 - y^p$ for each poor child, parent has to contribute $y^p$.

- Public education provided to proportion $e \leq p$, costs government $T = e(1 - y^p)$ per capita.

- Government raises revenues via proportional income taxes at rate $\tau$ involves deadweight losses/admin costs of $a\tau^2$ per dollar of income taxed.
Political Power

- Country is an autocracy ruled by elites, or a ‘nominal’ democracy where political participation/awareness of citizens depends on their education.

- An uneducated citizen has zero awareness/turnout, hence in period 1 the elites decide government policy entirely in their own self-interest (oligarchy).

- In period 2, any poor citizen that has received education in period 1 becomes politically aware/active:
  - If $e \leq 1 - p$ the oligarchy persists (median voter is still an elite).
  - If $e > 1 - p$ a genuine democracy emerges representing interest of the ‘middle class’ (educated child of a poor parent).
Key Trade-off faced by Elites in Period 1

- **Cost** of funding public education at scale $e$ at $t = 1$:
  - Fiscal cost \( \frac{1}{1-p} \left[ e(1 - y^p) + ae^2 \frac{(1-y^p)^2}{y} \right] \)
  - Loss of political power in Period 2 to new middle class if $e > 1 - p$

- **Benefit**: extra income at $t = 2$ of $\mu e$ owing to human capital externality
Elite Dynasty Payoff at $t = 1$

$$Y(e) \equiv [y^r - 1 - \frac{1}{1 - p}][e(1 - y^p) + ae^2 \frac{(1 - y^p)^2}{y_0}] + [y^r + R + \mu(1 - p + e)]$$

(1)

$$\frac{\partial Y(0)}{\partial e} > 0 \quad \text{if and only if} \quad \mu > \frac{1 - y^p}{1 - p}$$

(2)
Public Education Investment in Period 1, Conditional on Perpetuation of Oligarchy

Proposition

The optimal choice of $e$ by the elite over the range $[0, 1 - p]$ is the following. If (2) holds, optimal choice of $e$ is:

$$e^* = \min\{1 - p, \frac{\mu(1 - p) - [1 - \bar{y} + (1 - p)x]}{2a(1 - \bar{y} + (1 - p)x)^2}\}$$

(3)

(where $x \equiv y^r - y^p$, $y^p \equiv \bar{y} - (1 - p)x$), and zero otherwise.

Higher initial inequality/poverty ($y^p$ low/$x$ high, for given $\bar{y}$) implies $e^*$ low; high human capital externality $\mu$ implies $e^*$ high.
Government Policy in Period 2

- Two period model assumes $t = 2$ is the last period, so there is no point investing in education.

- So policy choice reduces to selecting (linear) income tax policy, which could redistribute from rich to poor at $t = 2$.

- If tax rate is $\tau$, it raises per capita revenue of $c = \tau \bar{y}_B (1 - a \tau)$, where $\bar{y}_B \equiv \bar{y} + (\mu + R)(1 - p + e)$ is period 2 per capita income.

- This allows government to provide lump sum welfare support of $c$ to everyone in the population.
If $e \leq 1 - p$, median voter is elite, will not want to redistribute → right wing government (oligarchy perpetuated) selects $\tau = 0 = c$

If $e > 1 - p$, median voter is the middle class (educated, child of a poor parent), whose after-tax income at $t = 2$ is:

$$Z(\tau; e) = [\bar{y} - (1 - p)x + R + \mu(1 - p + e)](1 - \tau) + \tau(1 - a\tau)[\bar{y} + (\mu + R)(1 - p + e)]$$

(4)
Proposition

Suppose democracy emerges in Period 2 \((e > 1 - p)\). Then the period 2 tax rate is 0 if

\[
x(1 - p) \leq R(p - e) \tag{5}
\]

and

\[
\tau^*(e) = \frac{x(1 - p) - R(p - e)}{2a[\bar{y} + (\mu + R)(1 - p + e)]} \tag{6}
\]

otherwise.

Intuition: Middle class does not want any redistribution if its pre-tax income \(\bar{y} - (1 - p)x + R + \mu(1 - p + e)\) is bigger than per capita income \(\bar{y} + (R + \mu)(1 - p + e)\), which reduces to condition (5)

Can also interpret (5) as saying that income gap between elite and middle class at \(t = 2\) is smaller than gap between middle class and poor.
Nature of Democracy in Period 2

- If $e$ is low, condition (5) is more likely to hold, a right wing democracy ($\tau = 0$) emerges.

- If $e$ is close enough to $p$, condition (5) will not hold, and we get a redistributive democracy ($\tau > 0$).

- $\tau^*(e)$ is increasing if $R \geq (1 - p)x$ or $R < (1 - p)x$ and $1 + \frac{\mu}{R} < \frac{\bar{y}}{(1-p)x-R}$.
Now consider choice by elite at $t = 1$ over the range $e > 1 - p$

Elite has nothing to lose at $t = 2$ from emergence of democracy if (5) holds, equivalent to $e \leq e_\tau \equiv p - \frac{\bar{x}}{\bar{R}}(1 - p)$

If $e > e_\tau$, elite stands to lose from emergence of democracy at $t = 2$ an amount of

$$L(e) = \tau^*(e)[px + R(p - e)] - a(\tau^*(e))^2[\bar{y} + R + \mu(1 - p + e)]$$

Total PV Income of elite families as a function of $e$ and optimal choice $e^* / e^\circ$ depicted in Figure 1
Fig. 1. The function $Y_e$ and $\tilde{Y}(a,e)$ in Eq. 14 occurs at $e$ or $1 - y_p$. It is drawn in the case $t$.

Equation 6 or possibly at zero if condition 5 does not hold. The function $Y_e$ coincides with $\Pi$ below $e$ and then diverges increasingly from it. It follows that the function $Y_e$ is discontinuous at $1 - y_p$ when $e - 1 - y_p$, as in cases iii and iv. It can be seen in Fig. 1 that the income of the oligarchy is the highest either at the maximum $e$ of $Y_e$—cases i and iii—or at the maximum $e$ of $\tilde{Y}(a,e)$—as in case ii. There is only one ambiguous case—case iv—where the discontinuity of the function $Y_e$ makes it possible that the maximum $o$ occurs at $1 - y_p$ rather than at $e$ or $e$.  

13 The case where $e$ is negative does not lead to fundamentally different shapes for the function $t$. $Y_e$.  

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**Fig. 1.**
Resulting Political and Economic Dynamics

- Different outcomes corresponding to parameters (initial inequality $\frac{x}{y}$, human capital externality $\frac{h}{y}$) shown in Figure 2:
  - Case $\alpha$: $e^* = 0$, no education, no growth, preservation of oligarchy
  - Case $\beta$: $0 < e = e^* < 1 - p$, little growth, minority middle class, preservation of oligarchy
  - Case $\gamma$: $e^* = 1 - p$, medium growth, ruling oligarchy with equal sized middle class
  - Case $\delta$: $1 - p < e^* < e_\tau$, high growth, *de jure* democracy, transfer of power to middle class ruler who behaves the way the elite wants
  - Case $\epsilon$: $e^* > e_\tau$: fast growth, *de facto* democracy, middle class ruler ushers in welfare state
Fig. 2. benefit the oligarchy may get from educating the poor, and, on the other hand, the initial income inequality, $x$, which defines the extent of redistribution which will be undertaken by the middle class if it gets to power. Fig. 2 maps the five solutions of the model in the $x, m$ space. The effect of the other parameters will be analyzed later as shifts of the curves appearing in Fig. 2.

The pure oligarchy solution occurs when condition 5 does not hold, i.e.:

$1 \frac{\mu}{\bar{y}} > \frac{y}{p}$.

The corresponding region lies below line D on Fig. 2.

Curve C above line D delimits the area where some limited educational transfers are made to the poor in the first period but the oligarchy retains strict political majority in the second period — solution $b$ above. This curve is obtained from the condition that the maximum of $Ye$ occurs for a value $e$ smaller than $1 \frac{\mu}{\bar{y}}$. It may be shown that its parabolic shape comes from the quadratic efficiency cost of transfers.

Above C, the educational externality is big enough so that it would be in the interest of the oligarchy to educate a proportion of the poor which would get political majority in the second period. Two cases are to be distinguished. In the 14

Note that this space must actually be restricted to values of $x$ such that $x > 1 \frac{\mu}{\bar{y}}$, i.e. such that the liquidity constraint for the poor's investment in education is binding.

solution $\alpha$: Pure oligarchy regime
solution $\beta$: Minority middle class regime
solution $\gamma$: Balance of power regime
solution $\delta$: Accomodating ruling middle class regime
solution $\epsilon$: Democracy regime

Fig. 2.