

14.999: Topics in Inequality, Lecture 14

Political Economy of Inequality

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Introduction

- What are the political implications of inequality?
- For example, may inequality negatively (or positively) impact certain dimensions of political equilibria and thus equilibrium policy choices?
- We saw in earlier lectures how “optimal policy” might respond to economic factors leading to inequality. But will it be a political equilibrium for such responses to develop? Does inequality beyond a certain level make it harder for such solutions to be implemented?

Some Basic Ideas

- In the “normative” analysis of inequality, we may want to distinguish:
 - ① Inequality of outcome: this is what the optimal policy discussion so far has focused on; for various normative reasons society may discuss inequality of outcome.
 - ② Inequality of opportunity: if inequality of outcome creates a direct or indirect unfair advantage for certain segments of society, this may be inefficient. For example, the poor may be credit constrained or may be unduly disadvantaged in the “rat race” with richer individuals.
 - ③ Political inequality: if inequality of outcome creates greater political power for the rich, enabling them to adopt distortionary policies, this could be highly inefficient and also may have deleterious dynamic effects.
- In this lecture, we will focus on 3, but will also see that the political implications of inequality are richer than this (and could be quite distortionary to a variety of channels).

Outline and Summary

- Very quick recap of median voter theory.
- Inequality and distortionary redistribution: how greater inequality may lead to greater redistribution (which is often distortionary) through the democratic channel.
- Inequality does not necessarily lead to greater redistribution: a corrective against some incorrect statements.
- Inequality and unequal political power: how greater inequality may reduce useful redistribution.
- Modeling capture: a simple formalization of political capture by lobbies.
- Populist bias of policies from capture: how possibility of political capture by the rich can create a bias towards populist policies and democratic regimes.

Single-Peaked and Single-Crossing Preferences

- The classic median voter theorem is formulated under single-peaked (quasi-concave) preferences. Here a variant: **single-crossing**.
- Suppose each individual is indexed by α_i and has preferences over some policy $p \in \mathcal{P}$ given by $U(p; \alpha_i)$. As with single-peaked preferences, we will take \mathcal{P} to be ordered (e.g., line).

Definition

Consider an ordered policy space \mathcal{P} and also order voters according to their α_i 's. Then, the preferences of voters satisfy the **single-crossing property** over the policy space \mathcal{P} when the following statement is true:

$$\text{if } p > p' \text{ and } \alpha_{i'} > \alpha_i, \text{ or if } p < p' \text{ and } \alpha_{i'} < \alpha_i, \text{ then} \\ U(p; \alpha_i) > U(p'; \alpha_i) \text{ implies that } U(p; \alpha_{i'}) > U(p'; \alpha_{i'}).$$

- While single-peakedness is a property of preferences only, single-crossing is a joint property of preferences and available set of

Single Crossing versus Single Peakedness

- Example:

$$1 \quad a \succ b \succ c$$

$$2 \quad a \succ c \succ b$$

$$3 \quad c \succ b \succ a$$

- These preferences are not single peaked. But they satisfy single crossing
- The natural ordering is $a > b > c$:

$$\alpha = 2: c \succ b \implies \alpha = 3: c \succ b$$

$$\alpha = 2: \begin{array}{l} a \succ c \\ a \succ b \end{array} \implies \alpha = 1: \begin{array}{l} a \succ c \\ a \succ b \end{array} .$$

Median Voter Theorem with Single Crossing

- Throughout, let the median of the distribution of preferences, $\{\alpha_i\}$, be denoted by α_m .

Theorem

(Median Voter Theorem) *Suppose that preferences of voters satisfy the single-crossing property. Then, a Condorcet winner always exists and coincides with the bliss point of the median voter (voter α_m).*

Proof

- Consider the median voter with α_m , and bliss policy p_m .
- Consider an alternative policy $p' > p_m$. Naturally,
 $U(p_m; \alpha_m) > U(p'; \alpha_m)$.
- Then, by the single crossing property, for all $\alpha_i > \alpha_m$,
 $U(p_m; \alpha_i) > U(p'; \alpha_i)$.
- Since α_m is the median, this implies that there is a majority in favor of p_m .
- The same argument for $p' < p_m$ completes the proof

Policy Convergence

- In fact, when the Median Voter Theorem is invoked, it is in the context of “Downsian Policy Convergence”, which assumes that there are two parties competing by committing to policies and wishing to come to power.

Theorem

(Downsian Policy Convergence) *Suppose that there are two parties that first announce a policy platform and commit to it and a set of voters that vote for one of the two parties. Assume that all voters have preferences that satisfy the single-crossing property and denote the median-ranked bliss point by p_m . Then, both parties will choose p_m as their policy.*

Redistributive Taxation: Setup

- Consider situation with two parties competing to come to power.
- There are only two policy instruments, linear tax on earnings τ and a public good $G \geq 0$ (it is important that there are only two policy instruments).
- The budget constraint of each agent is

$$c^i \leq (1 - \tau)l^i.$$

- Suppose that agents have the following preferences

$$u^i(c^i, x^i) = c^i + h(x^i) + v(G),$$

where c^i and x^i denote individual consumption and leisure, and $h(\cdot)$ is a well-behaved concave utility function, and $v(\cdot)$ is a weakly concave function. The case in which it is linear is isomorphic to lump-sum transfers, and no public good.

Redistributive Taxation: Inequality

- The real wage is exogenous and normalized to 1.
- Individual productivity differs, such that the individuals have different amounts of “effective time” available. That is, individuals are subject to the “time constraint”

$$\alpha^i \geq x^i + l^i,$$

- Therefore, α^i is a measure of “individual productivity”.
- Assume that α^i is distributed in the population with mean α and median α^m .

Redistributive Taxation: Labor Supply

- Since individual preferences are linear in consumption, optimal labor supply satisfies

$$l^i = L(\tau) + (\alpha^i - \alpha),$$

where $L(\tau) \equiv \alpha - (h')^{-1}(1 - \tau)$ is decreasing in τ by the concavity of $h(\cdot)$.

- A higher tax rate on labor income *distorts* the labor-leisure choice and induces the consumer to work less. This will be the (distortional) cost of redistributive taxation in this model.
- Let l denote average labor supply. Since the average of α^i is α , we have $l = L(\tau)$. The government budget constraint can therefore be written:

$$G \leq \tau l \equiv \tau L(\tau).$$

Redistributive Taxation: Policy Preferences

- Let $U(\tau; \alpha^i)$ be utility for α^i from tax τ with G determined as residual. By straightforward substitution into the individual utility function, we can express the policy preferences of individual i as

$$U(\tau; \alpha^i) = (1 - \tau)L(\tau) + h(\alpha - L(\tau)) + v(\tau L(\tau)) + (1 - \tau)(\alpha^i - \alpha). \quad (1)$$

- Are the preferences represented by (1) single-peaked? Generally not. We know nothing about the form of the average labor supply function $L(\tau)$, and it would be even difficult at this level of generality to ensure quasi-concavity.
- But it is straightforward to verify that (1) satisfies the single-crossing property — τ and α^i coming together on the in the last term, and clearly with an always negative interaction.

Redistributive Taxation: Applying MVT

- Therefore, we can apply MVT, and party competition gives

$$\tau^m = \arg \max_{\tau} U(\tau; \alpha^m)$$

Hence, we have

$$v'(\tau^m L(\tau^m)) [\tau^m L'(\tau^m) + L(\tau^m)] + L'(\tau^m) [1 - \tau^m - h'(\alpha - L(\tau^m) - L(\tau^m) - (\alpha^m - \alpha))] = 0$$

- If the mean is greater than the median, as we should have for a skewed distribution of income, it must be the case that $\alpha^m - \alpha < 0$ (that is median productivity must be less than mean productivity).
- This implies that $\tau^m > 0$ —otherwise, (2) could be satisfied for a negative tax rate, and we would be at a corner solution with zero taxes (unless negative tax rates, i.e., subsidies, were allowed).
- Now imagine a change in the distribution of α such that the difference between the mean and the median widens. From the above first-order condition, this'll imply that the equilibrium tax rate τ^m increases.

Redistributive Taxation: Inequality and Distortions

- This is the foundation of the general presumption that greater inequality (which is generally, but not always, associated with a widening gap between the mean and the median) will lead to greater taxation to ensure greater redistribution away from the mean towards the median.
- In this sense greater inequality leads to greater “inefficiency”.
- In particular, consider the utilitarian benchmark in this economy, which would correspond to the tax rate that maximizes

$$\begin{aligned}
 \int U(\tau; \alpha^i) di &= \int [(1 - \tau)L(\tau) + h(\alpha - L(\tau)) + v(\tau L(\tau)) \\
 &\quad + (1 - \tau)(\alpha^i - \alpha)] di \\
 &= \int [(1 - \tau)L(\tau) + h(\alpha - L(\tau)) + v(\tau L(\tau))] di.
 \end{aligned}$$

- This will be achieved if we simply maximize the utility of the mean individual with characteristic α .

Redistributive Taxation: A More Cautious Interpretation

- Why the “inefficiency”? The reason is only weakly related to the logic of redistribution, but more to the technical assumptions that have been made.
- In order to obtain single-peaked preferences, we had to restrict policy to a single dimensional object, the linear tax rate.
- Is this “inefficiency” the same as *Pareto suboptimality*?
- Imagine, instead, that different taxes can be applied to different people. Then, redistribution does not necessitate distortionary taxation. But in this case, preferences will clearly be non-single-peaked and will not satisfy single-crossing — agent i particularly dislikes policies that tax him a lot, and likes policies that tax agents j and k a lot, where as agent j likes policies that tax i and k a lot, etc.

Inequality and Redistribution

- One of the key conclusions mentioned above is that greater inequality should lead to greater redistribution (and through this channel reduce post-tax inequality).
- Despite these claims in the literature, however, there is no such unambiguous prediction.
- More importantly, there is no empirical evidence that greater inequality leads to more redistribution (though most of this is based on cross-country and some cross-County evidence, which is difficult to interpret why inequality varies across countries).

Inequality and Redistribution: Counterexample

- Suppose the economy consists of three groups, upper class, middle class and lower class.
- All agents within a class have the same income level, α_r , α_m and α_l .
- A middle class agent is the median voter, and decides the linear tax rate on incomes.
- Now imagine a reduction in α_l and a corresponding increase in α_m such that average attribute, α , remains unchanged. This clearly increases inequality.
- But it also increases the income share of the middle class and will thus *reduce* the desired tax rate of the median voter.
- But in this example, this change in the income distribution corresponds to *greater inequality*.
- So we have a situation in which greater inequality reduces taxes.

Inequality and Redistribution: A More General Approach

- But suppose that the decisive voters not necessarily the median voter with characteristic α^m , but the voter at the q th percentile, with characteristic α^q .
- Then the equilibrium policy, with exactly the same argument as above, will be a slight variant on (2):

$$\begin{aligned}
 & v'(\tau^q L(\tau^q)) [\tau^q L'(\tau^q) + L(\tau^q)] \\
 + & L'(\tau^q) [1 - \tau^q - h'(\alpha - L(\tau^q))] - L(\tau^q) - (\alpha^q - \alpha) = 0
 \end{aligned}$$

- But imagine that $q < 1/2$, or $\alpha^q > \alpha$. Then by the characterization of the utilitarian solution above, we have too little redistribution (too little provision of the public good).

Inequality and Redistribution: Redux

- Now consider an increase in inequality. We can capture the two effects discussed in the introduction in a reduced form manner in this way:
 - Holding q fixed, the gap between α^q and α changes.
 - The relevant q changes, for example because with greater inequality, political power shifts to richer segments of society.
- Because of the second effect, we may get more “inefficient” results with too little redistribution because of inequality.
- This might be particularly important in settings where redistribution takes the form of educational investments in the presence of credit market constraints or other disadvantages for poor children.

Political Capture: Evidence?

- There is limited direct evidence on political capture.
- A series of papers (e.g., Bertrand, Bomdardini and Trebbi, 2014) show active lobbying that appears to be rent seeking.
- There are several cases of political capture from less developed economies (e.g. Bolivia and Venezuela).
- There is also indirect evidence that some transitions to democracies do not increase redistribution towards the poor.
 - Here the theory is more unambiguous: extensions of the franchise/democratizations should always increase q in terms of the above model, increase taxation and reduce inequality.
 - But Acemoglu, Naidu, Restrepo and Robinson (2013) find that many transitions to democracy increase government revenue but do not reduce inequality.

A Simple Model of Political Capture

- Let us now be a little more detailed about why the rich may have more voice in the political system.
- Suppose that there is an organized lobby representing the rich, and it can secretly bribe some politicians.
- In particular, a fraction of politicians are “corruptible”.
- Inequality may affect the willingness of the lobby to bribe politicians.
- We next place this setup in the context of a two-period model.

Policy Space and Voters

- One-dimensional policy space
- Two periods, 1 and 2
- Two groups of voters
 - majority (poor), with bliss point $\gamma^p = 0$
 - minority (elite), with bliss point $\gamma^r = r > 0$. We assume that this minority is organized in a lobby.
 - results identical if there is a distribution of preferences with median at $\gamma = 0$
- Voters care about policy only
 - Person with bliss point γ gets utility

$$u(x_1, x_2) = - \sum_{t=1}^2 (x_t - \gamma)^2$$

from policies x_1 and x_2 in periods 1 and 2

- Elections are decided by median voter who is poor

Politicians

- Politicians' utility in each period depends on:

- policy

$$v = -\alpha x^2 \dots$$

- office

$$\dots + WI_{\{\text{in office}\}} \dots$$

- bribes and fines

$$\dots + B - \text{fines}$$

- Two types of politicians

- share μ has $\gamma = 0$ and is not corruptible ("**moderate and honest**")
- share $1 - \mu$ also has $\gamma = 0$ but can accept a bribe ("**dishonest**") or alternatively with equivalent results, he could be a secret right-winger.

- The two possibilities (secret right-wing the politician and secret dishonest politician) are essentially equivalent, since with bribes, the politician can be convinced to act as if he has the same preferences is the lobby.

Timing

- 1 Politician chooses first-period policy $x_1 \in \mathbb{R}$.
- 2 Population gets a noisy signal $s = x_1 + z$.
- 3 Median voter decides whether to replace the current politician with a random one drawn from the pool.
- 4 In the second period, the politician (the incumbent or the new one) chooses policy $x_2 \in \mathbb{R}$.
- 5 Everyone learns the realizations of both policies and gets payoffs.

Implications of Political Capture: The Second Period

- First consider the second period.
- Suppose that if the lobby is able to capture the politician, they will determine the policy efficient bargaining. Then the equilibrium policy will be joint surplus maximizing, $x_2 = r/(1 + \alpha)$, which is different than the democratic system have decided ($x = 0$; see paper for the determination of this policy).
- Because of possible fines from bribery (expected value $-K$), this will be the case only if r , the difference in preferences of the rich and the population, is larger than some threshold r^* , corresponding to inequality being greater than some amount, since otherwise it's not worth for the lobby to organize bribery or other influence activities.
- This illustrates, once again, why greater inequality may distort the political system in a direction that's biased in favor of the rich.
- But the very opposite can also happen — endogenously.

Noisy Signal

- We will now see how populist policies, biased to the left, can arise in the first period. Noisy signals are key for this.
- Noise z has a distribution with support on $(-\infty, +\infty)$ with c.d.f. $F(z)$ and p.d.f. $f(z)$.
- Density $f(z)$ is assumed to be an even (i.e., symmetric around 0) function, which is everywhere differentiable and satisfies $f'(z) < 0$ for $z > 0$.
 - the density function f is single-peaked
- Noise z is sufficiently high and well-behaved:

$$|f'(z)| < \frac{1}{\frac{b^2}{2} + \frac{W}{2\alpha}} \text{ for all } z.$$

- implies $\Pr(|z| > \frac{b}{4}) > \frac{1}{4}$
- implies $f(0) < \frac{2}{b}$
- holds for $\mathcal{N}(0, \sigma^2)$ if σ^2 is sufficiently high, i.e., $\sigma^2 > \frac{\frac{b^2}{2} + \frac{W}{2\alpha}}{\sqrt{2\pi e}}$.

Equilibrium Concept

Period 2

- Perfect Bayesian equilibrium in pure strategies
- In period 2:
 - moderate politician chooses $x_2 = 0$
 - dishonest politician chooses $x_2 = b$
- Median voter prefers to have moderate politician in period 2
 - incumbent reelected if and only if his posterior that he is honest/moderate is at least μ

Period 1: Elections

- Suppose that in equilibrium:
 - moderate politicians choose $x_1 = a$
 - dishonest politicians choose $x_1 = b > a$ (proved in the paper that this is always the case).
- For median voter who gets signal s , posterior probability that politician is moderate equals

$$\hat{\mu} = \frac{\mu f(s - a)}{\mu f(s - a) + (1 - \mu) f(s - b)}$$

- It exceeds μ if and only if

$$s < \frac{a + b}{2}$$

- The probability of reelection if policy is x equals

$$\pi(x) = F\left(\frac{a + b}{2} - x\right)$$

Period 1: Policy Choices

- Moderate politician maximizes

$$\max_x -\alpha x^2 + W\pi(x) - (1 - \mu)\alpha \left(\frac{r^2}{1 + \alpha} \right) (1 - \pi(x))$$

- he loses $\alpha r^2 / (1 + \alpha)$ in period 2 only if dishonest politician comes to power
- FOC must hold at $x = a$:

$$-2\alpha a - \left(W + (1 - \mu) \frac{\alpha r^2}{1 + \alpha} \right) f \left(\frac{b - a}{2} \right) = 0$$

Period 1: Policy Choices

- Similarly for dishonest politicians (acting jointly with the lobby):

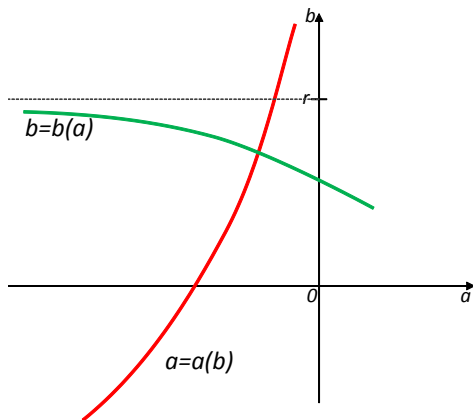
$$\max_x -\alpha x^2 - (x - r)^2 + \left(W + \frac{\chi^\alpha}{1 + \alpha} r^2 - K\right) \pi(x),$$

where $-(x - r)^2$ represents the utility loss of the lobby, $\frac{\alpha}{1 + \alpha} r^2 - K$ is the net joint surplus from second-period corruption, subtracting the cost in terms of fines, K .

- Thus FOC at $x = b$:

$$-2\alpha(b - r) - (b - r)^2 + \left(W + \frac{\chi^\alpha}{1 + \alpha} r^2 - K\right) \left(\frac{b - a}{2}\right) = 0$$

Equilibrium



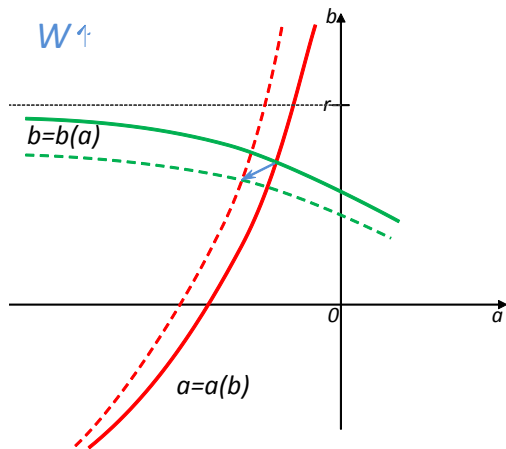
- Intuition for shapes: related to effects of policies on likelihood ratios.

Solution

- In equilibrium, $a < 0$
 - moving from $x_1 = 0$ to $x_1 < 0$ causes second-order loss
 - but first-order gain due to higher chance of reelection
- $b < r/(1 + \alpha)$ for the same reason
- This moves a left even further

- For moderate politicians: a right-wing alternative necessitates populist bias!
- This would be true even if $W = 0$
 - reelection is valuable as it allows to influence second-period policy

Comparative Statics



Comparative Statics (continued)

- Populist bias is stronger if
 - W is higher (i.e., politicians value being in office more)
 - α is lower (i.e., changing political positions is relatively costless for politicians)
 - K is lower (i.e., fines from corruption are lower).
 - These results hold even if W increases or α decreases for only one type of politician
 - e.g., higher W for pro-elite politicians makes them move left
 - and then pro-poor politicians move left as well

Comparative Statics (continued)

- Also, under additional conditions on distribution F , populist bias is stronger if:
 - r is greater (i.e., greater polarization).
 - two competing effects:
 - ① benefits from reelection to both types of politicians is greater, which leads to more signaling;
 - ② cost of signaling is also higher to lobby-dishonest politician pair.Additional conditions ensure that the first effect dominates.
- Populist bias would be weaker if dishonest politicians could commit to $b = r/(1 + \alpha)$.

Populism of Dishonest Politicians

- If $W = 0$, then $0 < b < r/(1 + \alpha)$.
 - $x_1 < 0$, $x_2 = r/(1 + \alpha)$ is dominated even by $x_1 = r/(1 + \alpha)$, $x_2 = 0$
 - hence switching to $x_1 = \alpha r/(1 + \alpha)$ is better even if it guaranteed losing elections
- If $W > 0$, then $b < 0$ is possible
 - if office is very valuable per se, *all* politicians will be populists!

Is the Lobby Better off?

- In fact, it can be shown that if W is sufficiently large and K is small, the lobby is worse off in this equilibrium than in an environment in which it could not bribe the politicians.
- This is because the first-period populist bias.
- Of course, the entire society is made worse off also.
- Another implication is that in this equilibrium there will be a significant amount of inefficient policy volatility.
- Bottom line: the ability of the rich to capture undue political power when inequality is high may not lead to uniformly right-wing policies, but will lead to inefficiency and policy volatility.

Limits to Political Capture

- The models of political capture often assume two groups with opposing preferences. This might be a good approximation to some pre-modern economies or economies dominated by land or by a single industry.
- What happens when there are a richer set of agents/preferences/interests? For example, as in the United States, Wall Street, Silicon Valley, retail industries, Hollywood, teachers, unionized workers, immigrants, low-skill workers, middle managers, etc.?

Limits to Political Capture (continued)

- Those that are not well-organized and are not “swing voters” may not matter. But if some of the well-organized groups have opposing preferences, this might reduce the chance of any single group dominating the political system. For example, Silicon Valley could be a break on Wall Street getting implicit guarantees for risk-taking.
- But the question would be whether the political agenda centers on issues (such as implicit guarantees for risk-taking in banking) that divide such groups or issues that unite them (such as low taxes at the top).