14.773 Political Economy of Institutions and Development.
Lecture 15. Failures of Electoral Control

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Introduction

- Barro-Ferejohn model of the electoral control: too idealized.
- Often, electoral controls do not work so well.
- Especially in less-developed economies, politicians and rulers not subject to much control.
- To make progress towards answering this question, let us start with the issue of "politician capture".

Lobbying

- Special-interest groups sometimes able to capture politicians.
- Lobbying
- A simple model due to Grossman and Helpman (1994).
- Imagine that there are G groups of agents, with the same economic preferences.
- The utility of an agent in group g, when the policy that is implemented is given by the vector $p \in \mathcal{P} \subset \mathbb{R}^K$, is equal to

$$U^g(p) - \gamma^g(p)$$

- Appier $U^g(p)$ is the usual indirect utility function, and $\gamma^g(p)$ is the per-person lobbying contribution from group g.
- We will allow these contributions to be a function of the policy implemented by the politician, and to emphasize this, it is written with p as an explicit argument.

Lobbying (continued)

- Following Grossman and Helpman, let us assume that there is a politician in power, and he has a utility function of the form

$$V(p) \equiv \sum_{g=1}^{G} \alpha^g \gamma^g(p) + a \sum_{g=1}^{G} \alpha^g U^g(p) \quad (1)$$

- α^g is the share of group g in the population.
- a determines how much the politician cares about aggregate welfare. When $a = 0$, he only cares about money, and when $a \to \infty$, he acts as a utilitarian social planner.
- One reason why politicians might care about aggregate welfare is because of electoral politics (for example, they may receive rents or utility from being in power as in the last subsection and their vote share might depend on the welfare of each group).

Lobbying (continued)

- Now consider the problem of an individual j in group g.
- By contributing some money, he might be able to sway the politician to adopt a policy more favorable to his group, but standard free rider problem.
- Therefore, only *organized* groups can contribute.
- Suppose that out of the G groups of agents, $G' < G$ are organized as lobbies, and can collect money among their members in order to further the interests of the group.
- The remaining $G - G'$ are unorganized, and will make no contributions. Without loss of any generality, let us rank the groups such that groups $g = 1, ..., G'$ to be the organized ones.

Lobbying (continued)

- The lobbying game takes the following form:
  - every organized lobby g simultaneously offers a schedule $\gamma^g(p) \geq 0$ which denotes the payments they would make to the politician when policy $p \in \mathcal{P}$ is adopted.
  - after observing the schedules, the politician chooses p.
- Notice the important assumption here that contributions to politicians (campaign contributions or bribes) can be conditioned on the actual policy that's implemented by the politicians.
- This assumption may be a good approximation to reality in some situations, but in others, lobbies might simply have to make up-front contributions and hope that these help the parties that are expected to implement policies favorable to them get elected.
- This is a potentially complex game, since various different agents (here lobbies) are choosing functions (rather than real numbers or vectors).
- Nevertheless, the equilibrium of this lobbying game takes a relatively simple form.

Lobbying Equilibrium

Theorem

In the lobbying game described above, contribution functions for groups $g = 1, 2...J$, $\{\hat{\gamma}^g(\cdot)\}_{g=1,2..J}$ *and policy* p^* *constitute a SPE if:*

1. $\hat{\gamma}^g(\cdot)$ *is feasible in the sense that* $0 \leq \hat{\gamma}^g(p) \leq U^g(p)$.

2. The politician chooses the policy that maximizes its welfare, that is,

$$p^* \in \arg\max_p \left(\sum_{g=1}^{G'} \alpha^g \hat{\gamma}^g(p) + a \sum_{g=1}^{G} \alpha^g U^g(p) \right).$$

Lobbying Equilibrium (continued)

Theorem

3. There are no profitable deviations for any lobby, $g = 1, 2, .., G'$, that is, for all $g = 1, 2, .., G'$,

$$p^* \in \arg\max_p \{\alpha^g \left(U^g(p) - \hat{\gamma}^g(p)\right) + \sum_{g'=1}^{G'} \alpha^{g'} \hat{\gamma}^{g'}(p) + a \sum_{g'=1}^{G} \alpha^{g'} U^{g'}(p)\}. \tag{2}$$

4. There exists a policy p^g for every lobby $g = 1, 2, .., G'$ such that

$$p^g \in \arg\max_p \left(\sum_{g'=1}^{G'} \alpha^{g'} \hat{\gamma}^{g'}(p) + a \sum_{g'=1}^{G} \alpha^{g'} U^{g'}(p) \right)$$

and satisfies $\hat{\gamma}^g(p^g) = 0$. That is, the contribution function of each lobby is such that there exists a policy that makes no contributions to the politician, and gives her the same utility.

Sketch Proof

- Conditions 1, 2 and 3 are easy to understand.
- No group would ever offer a contribution schedule that does not satisfy Condition 1.
- Condition 2 has to hold, since the politician chooses the policy.
- If Condition 3 did not hold, then the lobby could change its contribution schedule slightly and improve its welfare.

Sketch Proof (continued)

- To see this, suppose that this condition does not hold for lobby $g = 1$, and instead of p^*, some $\hat{p}$ maximizes (2).
- Denote the difference in the values of (2) evaluated at these two vectors by $\Delta > 0$.
- Consider the following contribution schedule for lobby $g = 1$:

$$\begin{aligned} \tilde{\gamma}^1(p) &= \alpha_1^{-1}\Big[\sum_{g=1}^{G'} \alpha^g \hat{\gamma}^g(p^*) + a \sum_{g=1}^{G} \alpha^g U^g(p^*) \\ &\quad - \sum_{g=2}^{G'} \alpha^g \hat{\gamma}^g(p) - a \sum_{g=1}^{G} \alpha^g U^g(p) + \varepsilon c^1(p)\Big] \end{aligned}$$

  where $c^1(p)$ is an arbitrary function that reaches its maximum at $p = \hat{p}$.
- Following this contribution offer by lobby 1, the politician would choose $p = \hat{p}$ for any $\varepsilon > 0$.

Sketch Proof (continued)

- To see that this choices optimal for the politician, note that by part (1), the politician would choose policy $\tilde{p}$ that maximizes

$$\begin{aligned} & \alpha^1 \tilde{\gamma}^1 (p) + \sum_{g=2}^{G'} \alpha^g \hat{\gamma}^g (p) + a \sum_{g=1}^{G} \alpha^g U^g (p) \\ = & \sum_{g=1}^{G'} \alpha^g \hat{\gamma}^g (p^*) + a \sum_{g=1}^{G} \alpha^g U^g (p^*) + \varepsilon c^1 (p) . \end{aligned}$$

- Since for any $\varepsilon > 0$ this expression is maximized by $\hat{p}$, the politician would choose $\hat{p}$.
- The change in the welfare of lobby 1 as a result of changing its strategy is $\Delta - \varepsilon c^1 (\hat{p})$.
- Since $\Delta > 0$, for small enough ε, the lobby gains from this change, showing that the original allocation could not have been an equilibrium.

Sketch Proof (continued)

- Finally, condition 4 ensures that the lobby is not making a payment to the politician above the minimum that is required.
- If this condition were not true, the lobby could reduce its contribution function by a constant, still induce the same behavior, and obtain a higher payoff.

Differentiable Contribution Functions

- Next suppose that these contribution functions are differentiable.
- Then, it has to be the case that for every policy choice, p^k, within the vector p^*, we must have from the first-order condition of the politician that

$$\sum_{g=1}^{G'} \alpha^g \frac{\partial \hat{\gamma}^g (p^*)}{\partial p^k} + a \sum_{g=1}^{G} \alpha^g \frac{\partial U^g (p^*)}{\partial p^k} = 0 \text{ for all } k = 1, 2, .., K$$

- From the first-order condition of each lobby that

$$\alpha^g \left(\frac{\partial \hat{\gamma}^g (p^*)}{\partial p^k} - \frac{\partial U^g (p^*)}{\partial p^k} \right) + \sum_{g'=1}^{G} \alpha^g \frac{\partial \hat{\gamma}^{g'} (p^*)}{\partial p^k} + a \sum_{g'=1}^{G} \alpha^g \frac{\partial U^{g'} (p^*)}{\partial p^k} = 0$$

for all $k = 1, 2, .., K$ and $g = 1, 2, .., G'$.

Differentiable Contribution Functions (continued)

- Combining these two first-order conditions, we obtain

$$\frac{\partial \hat{\gamma}^{g}\left(p^{*}\right)}{\partial p^{k}}=\frac{\partial U^{g}\left(p^{*}\right)}{\partial p^{k}} \tag{3}$$

  for all $k = 1, 2, .., K$ and $g = 1, 2, .., G'$.
- Intuitively, at the margin each lobby is willing to pay for a change in policy exactly as much as this policy will bring them in terms of marginal return.
- But then this implies that the equilibrium can be characterized as

$$p^{*} \in \arg\max_{p}\left(\sum_{j=1}^{G'} \alpha^{g} U^{g}(p)+a \sum_{j=1}^{G} \alpha^{g} U^{g}(p)\right).$$

Differentiable Contribution Functions (continued)

- Consequently, there is an interesting parallel between the lobbying equilibrium and the pure strategy equilibria of probablilistic voting models analyzed before.
- Like the latter, the lobbying equilibrium can also be represented as a solution to the maximization of a weighted social welfare function, with individuals in unorganized groups getting a weight of a and those in organized group receiving a weight of $1 + a$. Intuitively, $1/a$ measures how much money matters in politics, and the more money matters, the more weight groups that can lobby receive.
- As $a \rightarrow \infty$, we converge to the utilitarian social welfare function.

Lobbying and Distributional Conflict

- Next consider an application of this tax policy. Imagine there are two groups, the rich and poor.
- A fraction α of the agents is rich with income h^r, and the remaining agents are poor with income $h^p < h^r$.
- Average income in the economy is

$$h = \alpha h^r + (1 - \alpha) h^p$$

- There is a linear tax rate τ imposed on all incomes, and the proceeds are distributed lump sum to all agents.
- Taxation creates a dead weight loss of

$$c(\tau) h$$

  where $c(\tau)$ is strictly increasing and convex, and assume that $c'(0) > 0$ and $c'(0) < \varepsilon$.
- The overall amount of lump sum subsidy is therefore

$$T = [\tau - c(\tau)] h$$

Lobbying and Distributional Conflict (continued)

- First recall that with majority voting, the preferred tax rate for the poor (who are more numerous) will result.
- In particular, we will have

$$\tau^m = \arg\max_{\tau} (1-\tau) h^p + [\tau - c(\tau)] h$$

or

$$h - h^p = c'(\tau^m) h$$

- So as long as $h - h^p > \varepsilon$, we will have $\tau^m > 0$, and there will be redistributive taxation.
- Next consider the lobbying model, and assume that only the rich are organized.
- Then, the equilibrium tax rate will be given by

$$\tau^l = \arg\max_{\tau} \begin{pmatrix} (1+a)\alpha[(1-\tau)h^r + [\tau - c(\tau)]h] \\ +a(1-\alpha)[(1-\tau)h^p + [\tau - c(\tau)]h] \end{pmatrix}$$

Lobbying and Distributional Conflict (continued)

- The first-order condition to this problem (taking into account the possibility of a corner solution) gives

$$
\begin{aligned}
(1+a)\,\alpha\left[h-h^{r}-c'\left(\tau^{l}\right)h\right]+a\,(1-\alpha)\left[h-h^{p}-c'\left(\tau^{l}\right)h\right] &\leq 0 \\
&\text{or} \\
\alpha\left[h-h^{r}-c'\left(\tau^{l}\right)h\right]-ac'\left(\tau^{l}\right)h &\leq 0,
\end{aligned}
$$

  and clearly since $h-h^{r}<0$, we will have $\tau^{l}=0$.
- Therefore, with lobbying there will be no redistributive taxation.

Lobbying and Distributional Conflict (continued)

- Interestingly, this conclusion also extends to the case in which the poor are also organized. In this case, we will have

$$\tau^{l'} = \arg\max_{\tau} \left(\begin{array}{c} \alpha \left[(1-\tau) h^r + [\tau - c(\tau)] h \right] \\ + (1-\alpha) \left[(1-\tau) h^p + [\tau - c(\tau)] h \right] \end{array} \right)$$

The first-order condition to this problem gives

$$\alpha \left[h - h^r - c'\left(\tau^l\right) h \right] + (1-\alpha) \left[h - h^p - c'\left(\tau^l\right) h \right] \leq 0 \text{ and } \tau^l \geq 0$$

with complementary slackness. Since $\alpha [h - h^r] + (1-\alpha) [h - h^p] = 0$ by definition, this implies

$$-c'\left(\tau^l\right) h \geq 0,$$

which is only possible if $\tau^l = 0$.

Lobbying and Distributional Conflict (continued)

- This result basically reflects the fact that with costly taxation, the utilitarian social welfare maximizing policy is zero taxes.
- In contrast, imagine a situation in which redistribution is socially beneficial.
- This might be because taxes are redistributed to the poor agents who are then able to invest in human capital which they were unable to do before because of credit constraints.
- Let us capture this in a very simple way by assuming that $c'(\tau) < 0$ for $\tau \leq \bar{\tau}$ and $c'(\bar{\tau}) = 0$.
- This implies that the utilitarian social welfare maximizing policy is to set $\tau = \bar{\tau}$.

Lobbying and Distributional Conflict (continued)

- In this case there would be equilibrium redistribution at the rate $\tau = \bar{\tau}$ when both the poor and the rich have organized to form lobbies.
- To see this note that with both the poor and the rich organized, the same condition as above applies, so we need $c'\left(\tau^l\right)h = 0$, or in other words $\tau^l = \bar{\tau}$.
- But with only the rich organized, the relevant condition is

$$\alpha\left[h - h^r - c'\left(\tau^l\right)h\right] - ac'\left(\tau^l\right)h = 0 \text{ or } \leq 0,$$

and if $\left|c'\left(\tau\right)\right|$ is not very large, there will not be redistribution.

- This illustrates the fact that with the rich organized, public policy will cater more to their preferences, so policies that redistribute away from the rich to the poor will not be adopted even if they are socially beneficial.

Campaign Contributions

- An alternative conception: campaign contributions used for affecting equilibrium election outcomes.
- Consider a probabilistic voting model with campaign contributions.
- Let contributions to party P be where

$$C_P = \sum_g O^g \alpha^g C_P^g$$

- Here O^g is an indicator variable for whether group g is organized or not, C_P^g is contribution per member, and α^g denotes the size of group g.
- The effect of contributions is introduced as affecting the balance of different politicians. In particular, suppose as before that individuals in a group will vote for

$$U^i(p_A) - U^i(p_B) - \delta \geq \sigma^i,$$

where δ is an aggregate random valance variable affecting all voters.

Campaign Contributions (continued)

- Assume that

$$\delta = \tilde{\delta} + \eta \times (C_B - C_A),$$

so campaign spending influences this valance parameter. The parameter η measures the effectiveness of campaign spending.

- With usual arguments, the indifferent voter in group J is defined by the threshold

$$\sigma^g = U^g(p_A) - U^g(p_B) + \eta(C_A - C_B) - \tilde{\delta}.$$

- In addition, assume that all groups are symmetric, and have σ^g distributed uniformly over

$$\left[-\frac{1}{2\phi}, \frac{1}{2\phi}\right].$$

- Suppose also that the parameter $\tilde{\delta}$ has a uniform distribution on

$$\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right].$$

Campaign Contributions (continued)

- This implies that the probability of party A winning the election is

$$\Pr[A] = \frac{1}{2} + \psi \left[U(p_A) - U(p_B) + \eta (C_A - C_B) \right]$$

where

$$U(p_P) = \sum_g \alpha^g U^g(p_P)$$

is a measure of average preferences.

- A utilitarian social planner would have simply maximized this.
- Moreover, given the symmetry of all the groups, we know from our above analysis that probabilistic voting would have also maximized this.

Campaign Contributions (continued)

- We continue to assume that the only objective of the parties is to come to power.
- The question is how lobbying changes this. To understand this, let us look at the objective function of lobbies.
- Assume that the lobby for group J has the objective function:

$$\Pr[A]\, U^g(p_A) + (1 - \Pr[A])\, U^g(p_B) - \frac{1}{2}\left((C_A^g)^2 + (C_B^g)^2 \right),$$

  which means that they don't care about which party comes to power, only about the implemented policy. And there are convex costs of contributing to each party.
- The exact timing of events is as follows:
  - The two parties simultaneously choose their platforms, p_A and p_B;
  - Lobbies, observing the platforms, decide how much to give to each party.
  - Voters observe their own σ's and vote.

Campaign Contributions (continued)

- The important assumption here is that voters are essentially myopic, in the sense that they can be swayed by campaign contributions.
- This implies the following first-order condition for campaign contributions (for all groups that are organized)

$$\eta\psi\alpha^{g}\left[U^{g}(p_A) - U^{g}(p_B)\right] - C_A^{g} \leq 0,$$

and

$$-\eta\psi\alpha^{g}\left[U^{g}(p_A) - U^{g}(p_B)\right] - C_B^{g} \leq 0,$$

which exploits the fact that $\partial p_A / \partial C_A^{g} = \eta\psi\alpha^{g}$ and takes into account that we may be at the corner solution.

Campaign Contributions (continued)

- The equilibrium involves

$$
\begin{aligned}
C_A^g &= \max\left[0, \psi\eta\alpha^g \left(U^g\left(p_A\right) - U^g\left(p_B\right)\right)\right] \\
C_B^g &= -\min\left[0, \psi\eta\alpha^g \left(U^g\left(p_A\right) - U^g\left(p_B\right)\right)\right].
\end{aligned}
\tag{4}
$$

- In other words, despite the convexity of the contribution schedules, each lobby only contributes to one party, in particular to the party that has a platform that gives its members greater utility.

Campaign Contributions (continued)

- Now consider the first stage of the game where each party chooses their platform.
- Since parties only care about coming to power, party A will maximize:

$$\psi \left[U(p_A) - U(p_B) + \eta \times \sum_g \left(\begin{array}{c} \max\left[0, \psi\eta\alpha^g \left(U^g(p_A) - U^g(p_B)\right)\right] + \\ \min\left[0, \psi\eta\alpha^g \left(U^g(p_A) - U^g(p_B)\right)\right] \end{array} \right) \right.$$

- Party B will try to minimize this object.
- It is clear that this is a concave problem, so the parties will again adopt symmetric platforms.
- This has a very important implication: in equilibrium the lobbies will make no contribution from (4), but still influence policy with the threat of campaigning against the party that deviates from a particular equilibrium platform!

Campaign Contributions (continued)

- In the symmetric equilibrium, the first-order conditions become

$$\sum_g \alpha^g \left[\psi + O^g \alpha^g (\psi\eta)^2\right] \nabla U^g(p_A) = 0.$$

- In other words, parties will again be maximizing a weighted utility function.

$$\sum_g \alpha^g \left[1 + O^g \alpha^g \psi \eta^2\right] U^g(p_A).$$

- When no group is organized, i.e., $O^g = 0$ for all g, this is equivalent to the maximization of utilitarian social welfare (the assumption that $\phi^g = \phi$ this of course important for this).
- Otherwise, organized groups will get more weight, and interestingly larger groups will get more weight, because they can generate greater campaign contributions.
- The additional weight that organized groups receive will be a function of η, the effectiveness of lobbies.