Models of Probabilistic Voting, Lobbying and Special Interest Capture

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Lectures 14-15

Outline of This Lecture

- We shall examine models of probabilistic voting, where voters care both about policy and non-policy (candidate image, loyalty, ethnic/gender identity) dimensions
- Models in the Downsian tradition: two candidates/parties, pre-election commitments to policy platforms
  - **1.** Conditions for First-Best Accountability
  - **2.** Imperfections:
    - Voter Turnout/Awareness
    - Pork-Barrel programs
    - Lobbies and Elite Capture

Analytical Framework

- Downsian political economy model, extended to incorporate probabilistic voting
- Advantage of the extension is that the policy space and citizen preferences are very general
- Policy space: P is set of feasible policies for a local government
- Citizen groups: $i = 1, \ldots, G$ with demographic weights $\alpha_i > 0, \sum_i \alpha_i = 1$ and utility functions $U_i(p) : P \rightarrow \Re$
- Groups classified on the basis of location, age, occupation, assets
- Utilitarian first-best/optimal policy: p^* which maximizes $W(p) \equiv \sum_j \alpha_j U_j(p)$ over P, where welfare weights are demographic weights

Assumptions

- Two candidates A, B in the election
- Elected official gets a large fixed salary or attains ego-rent R, which is exogenous and fixed
- Candidates objective is to maximize probability of winning the election (chance to earn R)
- No scope for siphoning off resources (corruption/embezzlement)

Elections

- First stage: candidates announce their policy platforms p_A, p_B, and commit to these if elected
- Second stage: citizens vote
- Third Stage: votes are counted, candidate with more votes is elected

Probabilistic Voting

- Candidates are also differentiated on the basis of personal characteristics (history, appearance, ethnicity, gender etc)
- Voters care about both policy and candidate characteristics
- Dispersed (subjective) preferences over candidate characteristics: relative preference of voter of type i for candidate represented by realization of random variable ϵ_i with a given (smooth) probability distribution

Probabilistic Voting, contd.

- Voters are of two types: *informed* and *uninformed*
- Fraction λ_i of type i citizens are informed; random fraction τ_i of voters of type i (both informed and uninformed) turn out to vote
- Informed voter of type i prefers candidate A if $U_i(p_A) + \epsilon_i > U_i(p_B)$
- Uninformed voter of type i prefers candidate A if $\epsilon_i > 0$
- Vote counting errors: candidate A wins with probability $\phi(v_A)$ if v_A is vote share of A, where ϕ is smooth, increasing, $\phi(\frac{1}{2}) = \frac{1}{2}$, convex below and concave above $\frac{1}{2}$
- Sincere voting is a dominant strategy (given two candidates)

Simplifying Assumption

- Assume that ϵ_i is uniformly distributed with constant density σ_i on $[b_i - \frac{1}{2\sigma_i}, b_i + \frac{1}{2\sigma_i}]$
- b_i: average bias of type i citizen in favor of candidate A
- σ_i: swing propensity of type i citizen (assume it is small enough so we can focus on interior solutions for policy choice)
- Large number of citizens within every group i

Vote Shares

- Fraction of type i informed voters that vote for A equals probability of event that $\epsilon_i > U_i(p_B) - U_i(p_A)$:

$$\sigma_i[b_i + \frac{1}{2\sigma_i} - U_i(p_B) + U_i(p_A)] = \frac{1}{2} + \sigma_i b_i + \sigma_i[U_i(p_A) - U_i(p_B)]$$

- Fraction of i uninformed voters that vote for A equals probability of event that $\epsilon_i > 0$:

$$\frac{1}{2} + \sigma_i b_i$$

- Fraction τ_i of either type turn out to vote; total votes cast $\sum_j \alpha_j \tau_j$
- Vote share of A:

$$v_A = \frac{1}{\sum_j \alpha_j \tau_j} \sum_i \alpha_i \tau_i [\frac{1}{2} + \sigma_i b_i + \lambda_i \sigma_i \{U_i(p_A) - U_i(p_B)\}]$$

Conditions for Ideal Democracy

Proposition

Suppose turnout, information and swing propensity do not vary across groups ($\tau_i = \tau, \lambda_i = \lambda, \sigma_i = \sigma$ for all i). Then both candidates will have a dominant strategy to select the first-best utilitarian optimal policy p^*.

Proof of Proposition 1

- Candidate A's objective is to maximize $\frac{1}{\sum_j \alpha_j \tau_j} \sum_i \alpha_i \tau_i \lambda_i \sigma_i U_i(p_A)$, no matter what p_B is
- Candidate B's objective is to minimize $-\frac{1}{\sum_j \alpha_j \tau_j} \sum_i \alpha_i \tau_i \lambda_i \sigma_i U_i(p_B)$, no matter what p_A is
- So both share the same objective: maximize $\frac{1}{\sum_j \alpha_j \tau_j} \sum_i \alpha_i \tau_i \lambda_i \sigma_i U_i(p)$ over P (*Downsian convergence*)
- If $\tau_i = \tau, \lambda_i = \lambda, \sigma_i = \sigma$, this objective function reduces to utilitarian welfare $\sum_i \alpha_i U_i(p)$

Imperfection #1: Pork Barrel Politics

- The Proposition states a sufficient condition for democracy to achieve perfect accountability
- When this condition does not hold, both parties have the common objective function $\sum_i \omega_i U_i(p)$ where the welfare weight on group i is $\omega_i \equiv \frac{\alpha_i \tau_i \lambda_i \sigma_i}{\sum_j \alpha_j \tau_j}$
- Consider the case of equal turnout rates across all groups $\tau_i = \tau$, and equal proportions of informed voters $\lambda_i = \lambda$, but different swing propensities σ_i
- Then $\omega_i = \alpha_i \sigma_i$
- Groups with higher swing propensity σ_i get higher welfare weight relative to utilitarian objective

Pork Barrel Politics (Dixit-Londregan 1996)

- Pork-Barrel politics: term in US politics for specific regions that get more projects than they need, as an implicit subsidy at the expense of other regions
- Groups with higher swing propensity get disproportionately favored (Dixit-Londregan theory)
- *Intuition:* groups with high σ_i place greater weight on policy issues relative to candidate characteristics $\longrightarrow$ they respond more in their votes to a unit increase in policy-based utility
- Recall expression for vote share of A among informed voters from group i:

$$\sigma_i[b_i + \frac{1}{2\sigma_i} - U_i(p_B) + U_i(p_A)] = \frac{1}{2} + \sigma_i b_i + \sigma_i[U_i(p_A) - U_i(p_B)]$$

Pork Barrel Politics, contd.

- Uneven swing propensities can be one possible source of pork-barrel politics
- Other sources: groups with low (τ_i) voter turnout rates, and with low (λ_i) levels of political awareness, will also get discriminated against
- For a similar reason: they respond less with votes to increases in policy-based utility
- One reason suggested for anti-poor bias in US politics: lowest 20% of the population have substantially lower rates of political participation and awareness (Rosenstone and Hansen 1993)

Imperfection#2: Lobbies and Elite Capture (Grossman-Helpman 1996)

- One form of elite capture arises if elite is more politically aware and turnout more to vote than other groups (Benabou AER 2000)
- Additional channel: elites can form lobby that make contributions to candidate campaign funds
- Campaign funds are used by candidates to spend on campaign advertising, which affect votes of the uninformed

Lobbies, Campaign Funds and Ads

- Abstract from differences in turnout, awareness and swing propensity between groups: $\sigma_i = \sigma, \tau_i = \tau, \lambda_i = \lambda$ so in the absence of lobbying the first-best welfare will be realized
- Elite group e which is wealthy, and well connected with candidates, forms a lobby which suggests policy p_k to candidate $k = A, B$ and offers funds $C_k \geq 0$ if candidate k selects p_k (instead of p^*)
- What can candidate k do with funds C_k — purchase political ads which affect voting of uniformed voters (only)
- Uninformed voters in group i vote for A if $h.C_A + \epsilon_i > h.C_B$ where h is relative weight on ads ('persuasion' parameter)

Vote Shares with Campaign Ads

- Fraction of uninformed voters in group i that vote for A is now $\frac{1}{2} + \sigma b_i + h(C_A - C_B)$
- Vote share of A is modified to

$$v_A = \frac{1}{2} + \sigma \sum_i \alpha_i b_i + \\ + \sigma \sum_i \alpha_i [\lambda \{U_i(p_A) - U_i(p_B)\} + (1-\lambda) h\{C_A - C_B\}]$$

- Party A objective: maximize $\sum_i \alpha_i U_i(p_A) + \chi C_A$ where $\chi \equiv \frac{h(1-\lambda)}{\lambda}$ is relative weight on campaign finance
- Party B objective: maximize $\sum_i \alpha_i U_i(p_B) + \chi C_B$
- Elite group objective: $\phi(v_A) U_e(p_A) + (1 - \phi(v_A)) U_e(p_B) - C_A - C_B$

Lobbying Game

- 1. Lobby representing e group offers p_k, C_k to candidate $k = A, B$
- 2. Candidates respond: accept or reject
- 3. Candidates that accept are committed to policy recommended by lobby, those that reject select a policy platform
- 4. Citizens vote, votes counted, winner declared

Solution to Lobbying Game

- Work backwards from stage 3: candidate that rejects lobby offer will select p to maximize $\sum_i \alpha_i U_i(p)$ $\longrightarrow$ select welfare optimal policy p^*
- Stage 2: candidate k will accept lobby offer if and only if $\sum_i \alpha_i U_i(p_k) + \chi C_k \geq \sum_i \alpha_i U_i(p^*)$, i.e.:

$$C_k \geq \underline{C}_k \equiv \frac{1}{\chi} \sum_i \alpha_i [U_i(p^*) - U_i(p_A)] \tag{1}$$

- Observe that $\underline{C}_k \geq 0$

Solution to Lobbying Game, contd.

- Stage 1: Elite e selects p_A, p_B, C_A, C_B to maximize

$$\phi(v_A)U_e(p_A) + (1 - \phi(v_A))U_e(p_B) - C_A - C_B$$

subject to

$$C_k \geq \underline{C}_k, k = A, B$$

and expression for vote share v_A as a function of p_A, p_B, C_A, C_B

Solution to Lobbying Game, contd.

- If the candidate acceptance constraints are binding (*pure influence motive*):

$$C_k = \underline{C}_k \equiv \frac{1}{\chi} \sum_i \alpha_i [U_i(p^*) - U_i(p_A)] \tag{2}$$

and vote shares are unaffected by lobbying

$$v_A = \frac{1}{2} + \sigma \sum_i \alpha_i b_i \equiv \bar{v}^A \tag{3}$$

- If candidate A is intrinsically more popular, $\sum_i \alpha_i b_i > 0$, will win with probability $\bar{\phi}^A \equiv \phi(\bar{v}^A) > \frac{1}{2}$) both with and without lobbying

Solution to Lobbying Game, contd.

- If only influence motive operates, elite's payoff reduces to:

$$
\begin{aligned}
& \bar{\phi}^A U_e(p_A) + (1 - \bar{\phi}^A) U_e(p_B) - \underline{C}_A - \underline{C}_B \\
= \; & \bar{\phi}^A U_e(p_A) + (1 - \bar{\phi}^A) U_e(p_B) - \frac{1}{\chi} \sum_i \alpha_i [U_i(p^*) - U_i(p_A)] \\
& - \frac{1}{\chi} \sum_i \alpha_i [U_i(p^*) - U_i(p_B)] \\
= \; & [\bar{\phi}^A U_e(p_A) + \frac{1}{\chi} \sum_i \alpha_i U_i(p_A)] \\
& + [(1 - \bar{\phi}^A) U_e(p_B) + \frac{1}{\chi} \sum_i \alpha_i U_i(p_B)] + K
\end{aligned}
$$

Solution to Lobbying Game, contd.

Proposition

If only influence motive operates, solution to the lobbying game is as follows:

(i) p_a *is chosen to maximize* $\sum_i \alpha_i U_i(p) + \chi\bar{\phi}^A U_e(p)$

(b) p_b *is chosen to maximize* $\sum_i \alpha_i U_i(p) + (1 - \chi\bar{\phi}^A) U_e(p)$

Implications

- Extra weight attached to elite's payoff by both parties — *elite capture*
- More popular party (A) is subject to more capture, as $\bar{\phi}^A > \frac{1}{2}$

Determinants of Elite Capture

- *Lack of Competition:* If election is not close (candidate A is much more popular, $\bar{\phi}^A$ is large), this candidate is more subject to elite capture and more likely to win
- *Lack of Political Awareness:* Extra weight on elite payoff depends on $\chi \equiv \frac{h(1-\lambda)}{\lambda}$, which is high if λ, proportion of informed voters, is low
- *Effectiveness of Political Advertising:* χ is high if h is high

Other Sources of Elite Capture

- If political awareness or participation is increasing in education/wealth $\longrightarrow$ poor groups are less aware and participate less in voting $\longrightarrow$ direct impact on pro-rich bias, even in the absence of any lobbying (Benabou 2000), which is additionally compounded by lobbying
- Lack of extension of franchise to the poor in various ways:
  - Historical and contemporary instances of lack of democracy (elites control policy directly)
  - Partial franchise for males, whites, those above a certain wealth etc in UK, US and Latin America until the 20th century
  - Voter registration rules, lack of electronic ballots (Brazil; Fujiwara (2015))

Link between Elite Capture and Inequality

- Higher inequality in wealth implies greater gap in awareness/participation between poor and rich, resulting in direct impact on pro-rich bias
- Compounded in the presence of lobbying: if political awareness is concave (and increasing) in education/wealth, **average** proportion of aware voters is decreasing in inequality, raising χ and hence elite capture