Theories of Electoral Competition: The Median Voter Model

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Ec 721 Lecture 13

Governance Failures

- Many development problems owe to weak/imperfect political institutions or *governance*
- What is the benchmark/ideal political institution?
- For most people, it is a *representative democracy*, with accountability of appointed leaders
- Key components of (indirect) democracy:
  - executive selected via contested and fair elections (Schumpeter, Dahl)
  - separation of powers between executive, legislative and legal branches (Montesquieu, Madison)
  - free speech, civil liberties (Locke, Mill)

Contestability and Accountability

- When does contestability (electoral competition) give rise to accountable/representative government?
- First formal model: Median Voter Theorem (Hotelling (1929), Black (1948), Downs (1957))
- Analogue of Arrow-Debreu theory of perfect competition in the economic sphere: helpful in identifying ideal conditions when electoral competition generates representative policies
- Conversely, this helps generate a typology of 'governance frictions' that prevent actual democracies from achieving ideal outcomes

Preview: Varieties of Governance Frictions

- Aggregation: ordinal rather than cardinal preferences (Median Voter model)
- Lack of Commitment/Ideology/Politician preferences (Citizen Candidate model)
- Low political (voter) participation/awareness; non-issue-based preferences (e.g., identity politics) (Probabilistic Voting models; pork-barrel politics)
- Special interest groups and elite capture (Lobbying models); (de facto) autocracy instead of democracy
- Vote buying and political clientelism

Aggregation of Preferences

- Problem with Majority Voting rule: non-existence of a (Condorcet) winner (generalization: Arrow impossibility theorem)
- One resolution: restrict domain of preferences and policy spaces
- Median Voter model: single dimensional Euclidean policy space, single-peaked preferences
- Additional assumptions:
    - two contestants
    - commitment to policy platforms
    - purely opportunistic: maximize probability of winning/vote share
    - perfect turnout, voter awareness, no vote counting errors

MV Theorem

- Two stage game: first contestants A,B commit to policy platforms $p_A, p_B \in \mathcal{R}$, then citizens vote; contestant with more votes wins (50-50 coin toss if tie)
- Under stated assumptions, there is a unique SPNE of this game, where $p_A = p_B = p_m^*$, p_i^* ideal policy for voter i, m is the median ideal policy
- Zero-sum game, proposing p_m^* is a minmax strategy
- Median ideal policy: suitable notion of 'representativeness'

Alternative Notion of Representativeness

- Is the median ideal policy the utilitarian optimal policy? Always/sometimes?
- Utilitarianism: embodies cardinality/intensity of (interpersonally comparable) preferences
- Cannot be incorporated by any 0-1 voting mechanism

Application: 'Size' of Government (Persson-Tabellini, Ch 3)

- Two goods: one private, one public
- $2N + 1$ citizens, with exogenous income/endowments $y_1 < y_2 < \ldots < y_{2N+1}$
- Quasi-linear preferences: $U_i = c_i + H(g)$, where $H' > 0 > H$"
- Public good funded by linear income tax τ; B.C: $g = \tau \bar{y}$
- Sole policy variable: $\tau \in [0, 1]$
- Single-peaked (concave) preferences: $U_i(\tau) = y_i(1 - \tau) + H(\tau \bar{y})$, ideal policy τ_i^* satisfies:

$$y_i = \bar{y} H'(\tau_i^* \bar{y})$$

Application of MVT, contd.

- Electoral competition results in both candidates proposing $\tau^p = \tau_N^*$
- Utilitarian optimal policy: τ^w maximizes $\sum_{i=1}^{2N+1} U_i = \bar{y}(1-\tau) + H(\tau\bar{y})$
- τ^w is the ideal policy of the citizen with mean income $\bar{y}$
- Electoral competition results in utilitarian optimal outcome if and only if median and mean income coincide
- Size of government is too large if income distribution is positively skewed ('populism')
- Alesina-Rodrik (QJE 1994) extension to AK endogenous growth model: cross-country negative growth-inequality correlations

Citizen-Candidate Model (Besley-Coate QJE 1997)

- Primary alternative to the Downsian model, departs in various ways:
  - Political candidates have policy preferences of their own (ideology/corruption)
  - Candidates cannot commit to policy platforms prior to elections
  - Endogenous entry into politics
  - Multidimensional policy spaces
- Downsian MVT is robust to certain ranges of policy preferences of candidates, so the CC model needs to depart on other dimensions as well

Citizen Candidate Model, Assumptions

- Citizens $i = 1, \ldots, N \geq 3$, all are potential candidates
- Policy space $\mathcal{A}$ unrestricted; default policy $0 \in \mathcal{A}$ ('shutdown', if no one runs for office)
- Citizen i preferences: $V^i(x, j)$ for policy x, candidate j
- $\delta \geq 0$: cost of running for office

Stages of

- Since candidates are citizens, they have preferences over policy
- *Key assumption:* candidates cannot commit to policy platforms before the election
- *Key implicit assumption:* static game, or myopic behavior: elected officials have no concerns about re-election
- Hence elected, they will select their own favorite policy (no checks and balances): $x_j^* = \arg\max_{x \in \mathcal{A}} V^j(x, j)$ (assumed unique)
- Citizen preferences are common knowledge, so candidate j identified by voters with expectation of policy x_j^*

Stages of Game

- Stage 1: citizens decide whether to run for office $s_i \in \{0, 1\}$: determines candidate set $\mathcal{C}$
- Stage 2: citizen i casts vote or abstains (selects $\alpha_i \in \mathcal{C} \cup \{0\}$, pure strategy)
- Stage 3: Candidate with highest number of votes wins, with coin toss determining winner in case of ties
- If j wins, selects policy x_j^*; if no one ran for office, government shuts down (policy 0)

Equilibrium concept, properties

- Subgame perfect equilibrium in weakly undominated strategies (to prevent some voter coordination problems)
- *Lemma:* Pure (voting) strategy equilibrium always exists in the second stage, for any given candidate set
- Candidate entry strategies: generally exist in mixed strategies
- This game tends to have 'too many' equilibria, as we shall soon see

Some Definitions

- $v_{ij} \equiv V_i(x_j^*, j)$, citizen i utility if j is elected; candidate utility is $v_{jj} - \delta$
- Given candidate set $\mathcal{C}$, a **sincere partition** $(N_i)_{i \in \mathcal{C} \cup \{0\}}$ is a partition of N, the set of voters such that:
  - $l \in N_i$ implies j is an optimal candidate for i
  - $l \in N_0$ implies l is indifferent between all candidates
- When there are two candidates, voting sincerely is optimal (not necessarily if there are more than two candidates)

One Candidate Equilibria

Proposition 2: An equilibrium where a single candidate i runs unopposed, exists if and only if:

(i) $v_{ii} - v_{i0} \geq \delta$

(ii) For any $k \neq i$ such that $\#N_k \geq \#N_i$ in a sincere partition of $\mathcal{C} = \{i, k\}$,

either

$$v_{kk} - v_{ki} \leq \delta \quad \text{and} \quad \#N_k > \#N_i$$

or:

$$\frac{1}{2}(v_{kk} - v_{ki}) \leq \delta \quad \text{and} \quad \#N_k = \#N_i$$

One Candidate Equilibria, contd.

Corollary to Proposition 2: Suppose citizens care only about policies. If for all sufficiently small δ an equilibrium where i runs unopposed exists, then x_i^* is a Condorcet winner amongst $\{x_j^* : j \in N\}$.

Conversely, if x_i^* is a strict Condorcet winner in this set, there is an equilibrium where i runs unopposed for all δ small enough.

Hence, *policy prediction coincides with the MVT under the assumptions of single peaked preferences over a unidimensional policy space*

Two Candidate Equilibrium

Proposition 3: If there is an equilibrium where exactly two candidates (i, j) enter, there exists a sincere partition (N_i, N_j, N_0) of $\mathcal{C} = \{i, j\} \cup \{0\}$ such that $\#N_i = \#N_j$ and $\frac{1}{2}\min\{v_{ii} - v_{ij}, v_{jj} - v_{ji}\} \geq \delta$.

If this condition holds, and in addition $\#N_0 + 1 < \#N_i = \#N_j$, such a two candidate equilibrium exists.

Proof: Necessity is obvious. For sufficiency, a third candidate does not want to enter if 'swing' voters (N_0) are few (e.g., less than one third of the population) relative to others (who could keep voting for the same candidate, expecting others to do so).

Two Candidate Equilibrium, contd.

- This applies even if **all** voters prefer the third candidate to i and j!
- Any pair of candidates who split the vote can form a two candidate equilibrium if their policies are 'not too close' (contrary to MV model predictions of policy convergence)
- Note also that i and j must split the vote, so every voter is pivotal!

Three Candidate Equilibrium

- Tend to be rare in elections based on plurality voting (Duverger's Law); voters tend to coordinate on two candidates
- Nevertheless, three candidate equilibria can exist
- Besley-Coate provide an example of three candidate equilibria where one wins for sure
- Why do the losing candidates enter? To affect the election outcome by diverting votes away from candidates they don't want to win