Theories of Electoral Competition: (Median) Voters and (Citizen) Candidates

Dilip Mookherjee

Boston University

Ec 721 Lectures 13 & 14
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 \(\tau\); 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 \(\tau^*_i\) 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: $\tau^w$ maximizes
  $$\sum_{i=1}^{2N+1} U_i = \bar{y}(1 - \tau) + H(\tau\bar{y})$$
- $\tau^w$ 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
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): $x_j^* = \arg\max_{x \in A} V^j(x, j)$ (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 $C$

- Stage 2: citizen $i$ casts vote or abstains (selects $\alpha_i \in C \cup \{0\}$, 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 \( C \), a **sincere partition** \((N_i)_{i \in C \cup \{0\}}\) 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) $\nu_{ii} - \nu_{i0} \geq \delta$

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

either

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

or:

$$\frac{1}{2} (\nu_{kk} - \nu_{ki}) \leq \delta \quad \text{and} \quad \#N_k = \#N_i$$
Corollary to Proposition 2: Suppose citizens care only about policies. If for all sufficiently small $\delta$ 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 $\delta$ 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 \(C = \{i, j\} \cup \{0\}\) 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.