Political Economics - Explaining Economic Policy

T. Persson and G. Tabellini (Book - 2000; Chapters 1-5)
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Macro Reading Group UC3M

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The Motivation

- Economic policies vary greatly across time and place: in the late 1990s total government spending was more than 60% of GDP in Sweden, above 50% in many continental Europe countries, around 35% in Japan, Switzerland, USA.

- The composition of the spending is also characterized by a great variability across countries (e.g. transfers are high in Europe but low in Latin America).

- How can we explain the variations in the data? Is there any systematic correlation with other aspects of the economic and social environment?

- Final goal: explain economic policy in modern democracies, size/form of redistributive programs, extent/type of public good provision, size of government deficits, extent of corruption. We are at the boundary between political science and economics.
Politics

- Motivation of Politicians:
  - opportunistic (office seeking, rent seeking) - standard assumption.
  - partisan (they maximize a social welfare function with disproportionate weights).

- Timing of Politics:
  - Preelection Politics: electoral promises are binding and enforceable; candidates propose policies to maximize their chances of winning.
    - Voters only like economic policies $\implies$ median voter theorem $\implies$ assumptions on the motivation of politicians become unimportant.
    - Voters also like other fixed factors of politicians (ideology) $\implies$ the motivations of politicians matter.
  - Postelection Politics: electoral promises are not binding or too vague to even matter; voters select the politician, not directly the policy.
    - Winner takes all: one politician free to set the policy.
    - Legislative Bargaining.
Heterogeneous agents (characterized by $\alpha^i$ specific feature), affected by a policy vector $\mathbf{q}$.

$$W(\mathbf{q}, \mathbf{p}; \alpha^i) = \max_{c^i} \left[ U(c^i, \mathbf{q}, \mathbf{p}; \alpha^i) \mid H(c^i, \mathbf{q}, \mathbf{p}; \alpha^i) \geq 0 \right].$$

The policymaker sets $\mathbf{q}$, respecting the market-determined value of $\mathbf{p}$ and some other constraints: $G(\mathbf{q}, \mathbf{p}) \geq 0$. The constraint will typically be binding $\implies \mathbf{p} = P(\mathbf{q})$.

Therefore, we can define the preferred policy of voter $i$:

$$\mathbf{q}(\alpha^i) = \arg \max_{\mathbf{q}} W(\mathbf{q}; \alpha^i)$$
Restricting Preferences

Arrow (1951) has shown that no general rule enables a democracy to consistently aggregate individual preferences \( \Rightarrow \) majority rule does not always generate well-defined equilibrium policies.

**Definition 1**

A **Condorcet winner** is a policy \( q^* \) that beats any other feasible policy in a pairwise vote.

**Definition 2**

Policy preferences of voter \( i \) are **single peaked** if:

If \( q'' \leq q' \leq q(\alpha^i) \) (or if \( q'' \geq q' \geq q(\alpha^i) \)) \( \Rightarrow \) \( W(q''; \alpha^i) \leq W(q'; \alpha^i) \).

**Proposition 1**

If all the voters have single-peaked preferences over a given ordering of policy alternatives, a Condorcet winner always exists and coincides with the median-ranked bliss point. This equilibrium is also unique.
Restricting Preferences

Definitions 3

- The preferences of voters in A satisfy the **single-crossing property** if:
  If \( q > q' \) and \( \alpha^i' > \alpha^i \) (or if \( q < q' \) and \( \alpha^i' < \alpha^i \)), then
  \[ W(q; \alpha^i) \geq W(q'; \alpha^i) \implies W(q; \alpha^i') \geq W(q'; \alpha^i') \]

- Voters in A have **intermediate preferences** if:
  \[ W(q; \alpha^i) = J(q) + K(\alpha^i)H(q) \], where \( K(\alpha^i) \) is monotonic in \( \alpha^i \).

Both these conditions guarantee existence and unicity of the equilibrium.

Example - Redistributive Distortionary Taxation

\[
\begin{align*}
  w^i &= c^i + V(x^i) \\
  c^i &= (1 - q)l^i + f, \text{ where } f \leq ql = qL(q) \text{ (gov. budget constraint)} \\
  1 - \alpha^i &\geq x^i + l^i \\
  \text{Optimal labor supply: } l^i &= 1 - \alpha - V_x^{-1}(1 - q) - (\alpha^i - \alpha). \\
  W^i(q; \alpha^i) &= L(q) + V(1 - L(q) - \alpha) - (1 - q)(\alpha^i - \alpha).
\end{align*}
\]
Nonexistence of a Condorcet Winner

Voters 1, 2 prefer $q_b$ to $q_c$. Voters 1, 3 prefer $q_a$ to $q_b$. Voters 2, 3 prefer $q_c$ to $q_a$. 
Electoral Competition

A Simple Model of Public Finance

A society inhabited by a continuum of citizens.

\[ w^i = c^i + H(g) \]  \hspace{1cm} (1)

\[ c^i = (1 - \tau) y^i \]  \hspace{1cm} (2)

Government budget constraint:

\[ \tau y = g \]  \hspace{1cm} (3)

\[ \Rightarrow W^i(g) = (y - g) \frac{y^i}{y} + H(g) \]

\[ \Rightarrow g^i = H_g^{-1}(\frac{y^i}{y}) \]

Normative benchmark: \[ \int_i W^i(g) dF = W(g) \Rightarrow g^* = H_g^{-1}(1) \]
Electoral Competition

1. Candidates A, B commit to a policy $g$, in order to maximize the chance of winning $p$.

2. Elections are held.

3. The elected candidate implements his announced policy.

$$p_A = \begin{cases} 
0 & \text{if } W^m(g_A) < W^m(g_B) \\
\frac{1}{2} & \text{if } W^m(g_A) = W^m(g_B) \\
1 & \text{if } W^m(g_A) > W^m(g_B) 
\end{cases}$$

Trivially, the equilibrium will be: $g^m = H^{-1}_{g} \left( \frac{y^m}{y} \right) \implies \text{Suboptimality}$. 
Candidates may differ in other dimensions unrelated to the policy (ideology, a second policy dimension in which they cannot make credible commitments).

Three groups: $R, M, P \ (y_R > y_M > y_P)$. Share of group $j$ is $\alpha_j$, such that $\sum_j \alpha_j = 1$.

Voter $i$ of group $J$ prefers candidate A if:

$$W^J(g_A) > W^J(g_B) + \sigma^{ij} + \delta$$

$\sigma^{ij}$ and $\delta$ are distributed as $U\left[-\frac{1}{2\phi^j}, \frac{1}{2\phi^j}\right]$ and $U\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$.

Swing voter of group $j$: $W^J(g_A) = W^J(g_B) + \sigma^j + \delta$
Electoral Competition

Probabilistic Voting

1. The two candidates announce their electoral platforms: \( g_A, g_B \).
2. The actual value of \( \delta \) is realized and all the uncertainty is resolved.
3. Elections are held.
4. The elected candidate implements his announced policy.

Candidate A will maximize the following:

\[
\pi_A = \sum_J \alpha^j \phi^j \left( \sigma^j + \frac{1}{2\phi^j} \right) 
\]

\[
p_A = \text{Prob} \left[ \pi_A \geq \frac{1}{2} \right] = \frac{1}{2} + \frac{\psi}{\phi} \left[ \sum_J \alpha^j \phi^j [W^j(g_A) - W^j(g_B)] \right]
\]

where \( \phi = \sum_J \alpha^j \phi^j \) is the average density across groups.

\[
FOC : \sum_J \alpha^j \phi^j H_g(g) = \frac{1}{y} \sum_J \alpha^j \phi^j y^j \implies g^S = H_g^{-1} \left( \frac{\sum_J \alpha^j \phi^j y^j}{\phi y} \right)
\]
Probabilistic Voting

**Figure:** Electorate in a Probabilistic Voting Model

**Figure:** Bliss Points of Different Swing Voters

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Partisan Politicians

- **Policy Convergence** (binding commitments)
  Two exogenous candidates \((L, R)\), same timing as before.

  \[ p_L = \begin{cases} 
  0 & \text{if } W^m(g_L) < W^m(g_R) \\
  \frac{1}{2} & \text{if } W^m(g_L) = W^m(g_R) \\
  1 & \text{if } W^m(g_L) > W^m(g_R) 
  \end{cases} \]

  Candidate \(L\) maximizes:
  \[ E[W^L(g)] = p_L W^L(g_L) + (1 - p_L) W^L(g_R) \]

  \[ \implies g_L = g_R = g^m \]

- **Policy Divergence** (no binding commitments)
  Only one credible announcement for \(L\): \(g_L = H_g^{-1}(\frac{y^L}{y})\)
  Candidate \(L\) wins if \(W^m(g_L) > W^m(g_R)\)
Partisan Politicians - Endogenous Candidates

1. Any citizen can enter as a candidate at a cost of $\epsilon$.
2. Elections are held.
3. The elected candidate sets the policy $g_P$; if nobody runs, $\bar{g}$ is implemented.

No policy commitment $\implies g_p = H^{-1}_g(y_P^y)$.

**Unicity of equilibrium** under: $W^m(g^m) - W^m(\bar{g}) \geq \epsilon$.

Otherwise, **infinitely many equilibria** under:

$$W^m(g_R) = W^m(g_L)$$

$$\frac{1}{2} [W^R(g_R) - W^R(g_L)] \geq \epsilon$$

$$\frac{1}{2} [W^L(g_L) - W^L(g_R)] \geq \epsilon$$
Can the voters discipline rent-seeking politicians?

Gov. budget constraint: \( \tau y = g + r \)

Candidates now maximize \( E(v_P) = p_P(R + \gamma r) \)

- Under efficient electoral competition:
  - Voters’ preferences: \( W^i(g) = (y - (g + r)) \frac{y^i}{y} + H(g) \)

\[
p_A = \begin{cases} 
0 & \text{if } W^m(g_A) < W^m(g_B) \\
\frac{1}{2} & \text{if } W^m(g_A) = W^m(g_B) \\
1 & \text{if } W^m(g_A) > W^m(g_B) 
\end{cases}
\]

\( g_A = g_B = g^m = H_g^{-1} \left( \frac{y^m}{y} \right) \)

\( r_A = r_B = r^m = 0 \)
Agency Problems

Under inefficient electoral competition (probabilistic voting):

\[ p_A = \frac{1}{2} + \psi [W(g_A, r_A) - W(g_A, r_B)] \]  

\[ \frac{\partial [E(v_A)]}{\partial g_A} = (R + \gamma r_A) \frac{\partial p_A}{\partial g_A} = (R + \gamma r_A) \psi W_g(g_A, r_A) = 0 \]  

\[ \frac{\partial [E(v_A)]}{\partial r_A} = (R + \gamma r_A) \frac{\partial p_A}{\partial r_A} + p_A \gamma = -(R + \gamma r_A) \psi + \frac{1}{2} \leq 0 \]  

\[ \frac{\partial p_A}{\partial r_A} = \psi W_r = -\psi \]  

\[ \implies r = \max \left[ 0, \frac{1}{2\psi} - \frac{R}{\gamma} \right] \]

Positive rents in equilibrium.
We analyzed two different electoral competition models: Downsian model and probabilistic voting $\rightarrow$ policy convergence.

Introducing partisan politicians it is possible to obtain policy divergence.

We analyzed the conflict of interests between voters and rent-seeking politicians. It is possible to obtain positive rents in equilibrium.

We abstained from agency problems in postelection politics models and from legislative bargaining.