The Supply of Public Goods Through Political Institutions

- Public Choice is when decisions are made through political interaction of many persons according to pre-established rules.
Political Equilibrium

- A political equilibrium is an agreement on the level of production of one or more public goods given the specified rule for making the collective choice and the distribution of tax shares among individuals.
Tax Shares or tax prices

- Tax shares, sometimes called tax prices, are pre-announced levies assigned to citizens.
- They are a portion of the unit cost of a good proposed to be provided by government.

\[ t_i = \text{tax share to individual } i \]
\[ \sum t_i = \text{average cost of good} \]
Individual's Choice

- The individual makes choices given what will be the most preferred political outcome to them.
- Each person will favor the quantity of the government-supplied good corresponding to the point at which the person’s tax share is exactly equal to the marginal benefit of the good to that person.
Figure 5.1 The Most Preferred Political Outcome of A Voter

Tax per Unit of Output

Tax

$\text{Output per Year}$

$Q^*$

$MB_i$

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The Choice to Vote or Not

- **Rational Ignorance** is the idea that, to many voters, the marginal cost of obtaining information concerning an issue is greater than the marginal benefit of gaining that information. This leads the voter not to gather the information and not to vote.
Determinants of Political Equilibrium

- the public choice rule
- average and marginal costs of the public good
- information available on the cost and benefit
- the distribution of the tax shares
- distribution of benefits among voters
Figure 5.2 Political Equilibrium Under Majority Rule With Equal Tax Shares

Marginal Benefit, Cost, and Tax (Dollars)

Security Guards per Week

$\Sigma MB$

$MC = AC$

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Median Voter Model

- The median voter model assumes that the voter whose most-preferred outcome is the median of the most-preferred political outcomes of all those voting will become the political equilibrium.
Voting to Provide Security Protection and Election Result under Simple Majority Rule

<table>
<thead>
<tr>
<th>Voters</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>B</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
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<td>M</td>
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<td>N</td>
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<tr>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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</tr>
<tr>
<td>H</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Increase Security Guards per Week to:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
<td>Fail</td>
<td>Fail</td>
<td>Fail</td>
</tr>
</tbody>
</table>

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Implications of Median Voter Model

- Only the median voter gets his most-preferred outcome.
- Others get too little or too much.
Political Externalities are the losses in well-being that occur when voters do not obtain their most-preferred outcomes given their tax shares.
Political Transactions Costs

- Political Transactions Costs are the measure of the value of time, effort, or other resources expended to reach or enforce a collective agreement.
Uniqueness and Cycling of Outcomes Under Majority Rule

Voter Rankings For Fireworks Displays per Year

<table>
<thead>
<tr>
<th>Voter</th>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Preferences

- Single-peaked preferences
  - a unique optimal outcome exists

- Multi-peaked preferences
  - as a person moves away from their most preferred outcome they become worse off until a certain point when moving further away from their most-preferred outcome makes them better off.
Figure 5.3 Voter Rankings of Alternatives

Net Benefit for A

Fireworks Displays per Year

Net Benefit for A

Multiple Peaks

Single Peak

Net Benefit for A

Single Peak

Net Benefit for A

Single Peak

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Election 1: How Many Fireworks Displays per Year, 1 vs 2

- B votes for 1
- A and C vote for 2

Result 2 wins
Election 2: How Many Fireworks Displays per Year, 3 vs 1

- A votes for 3
- B and C vote for 1

- Result 1 wins
Election 3: How Many Fireworks Displays per Year, 2 vs 3

- C votes for 2
- A and B vote for 3

- Result 3 wins
Pairwise Cycling

- **Pairwise cycling** is the phenomenon in which each outcome can win a majority depending on how it is paired for voting.
Arrow's Impossibility Theorem

- It is impossible to devise a voting rule that meets a set of conditions that can guarantee a unique political equilibrium for a public choice.
Conditions of Arrows Impossibility Theorem

- All voters have free choice; no dictator.
- We cannot rule out multi-peaked preferences.
- If all voters change their rankings of a particular alternative, the public choice that emerges must not move in the opposite direction.
- Public choices are not influenced by the order in which they are presented.
- Public choices must not be affected by the elimination or addition of an alternative to the ballot.
- Public choice should be transitive.
# Cause of Cycling: Multi-peaked preferences

Voter Rankings For Fireworks Displays per Year: All Voters with Single Peaked Preferences

<table>
<thead>
<tr>
<th>Voter</th>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
</tr>
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<td>3</td>
</tr>
<tr>
<td>C</td>
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<td>3</td>
</tr>
</tbody>
</table>
Election 1: How Many Fireworks Displays per Year, 1 vs 2

- B votes for 1
- A and C vote for 2

- Result 2 wins
Election 2: How Many Fireworks Displays per Year, 3 vs 1

- A votes for 3
- B and C vote for 1

- Result 1 wins
Election 3: How Many Fireworks Displays per Year, 2 vs 3

- A votes for 3
- B and C vote for 2

Result 2 wins

- Net Result: if “2” is on the ballot, it wins
Figure 5.4 The Median Peak as the Political Equilibrium under Majority Rule

Net Benefit

Medium Peak (Voter C)

Peak for Voter B'

Peak for Voter A

Fireworks Displays per Year

0 1 2 3
Figure 5.5 Declining Marginal Benefit of a Pure Public Good Meaning That Preferences are Single Peaked
Political Processes

▪ Constitutions
▪ Minority Rule
▪ Majority Rule
Costs and Benefits of Collective Action

- Benefit: decrease in political externalities
- Cost: increase in political transactions cost
Possible Alternatives Methods

- Unanimity
- Relative unanimity (2/3, 7/8 etc.)
- Plurality rule (more than 3 outcomes possible)
- Point-count voting (enables voters to register the intensity of their preference)
- Instant Runoffs
Figure 5.6 The Median Voter And Political Platforms

Net Benefit for the Median Voter
Forms of City Government and their Effects on Spending

- Manager/Council Government
  - Unelected city manager makes most executive decisions with policy recommendations by elected city council.

- Mayoral Government
  - Elected mayor makes most executive decisions.

- Results
  - Similar total expenditures
  - Mayoral systems utilize more capital intensive public goods production
Figure 5.7 Number of Voters and Government Output

Number of Voters

Output of Government Goods and Services per Year

$Q^*$
Logrolling

or vote trading

- Logrolling is the act of voting for something you would ordinarily vote against so that someone else will vote for something that they would ordinarily vote against.

- This is typically done when people care deeply about passage of their issue and less about the other issue.
Figure 5.8 Logrolling

Marginal Benefit, Cost, and Tax (Dollars)

Fireworks Displays per Week

Security Guards and Fireworks Displays per Week

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Special Interests

- Special Interests are groups that lobby on a particular issue.
- An example of a special interest is unions and/or steel companies lobbying for Tariffs and Import Quotas to protect their jobs or profits.
- Efficiency losses per job saved almost always exceed the pay of the retained worker.
- Estimates of the net effect run between –$9000 and –$38,000
Bureaucracy and the Supply of Public Output

- Officials measure their power in terms of the size of their budget, not the efficiency of the outcome they generate. This causes bureaucrats to have a self-interest in inefficiently high levels of government spending.
Figure 5.9 Bureaucracy and Efficiency

Output per Year

Benefit and Cost (Dollars)

MSC

MSB

E

Q*

TSB

TSB'

TSC

Output per Year

Q* Q' Q'_B

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