

collective decision-making and political economy

unanimous consent on public good levels: Lindahl taxation

mechanisms for aggregating individual preferences

majority rule and the Condorcet paradox

Arrow impossibility theorem

single-peaked preferences and median voter

public choice theory: foundations of government failure

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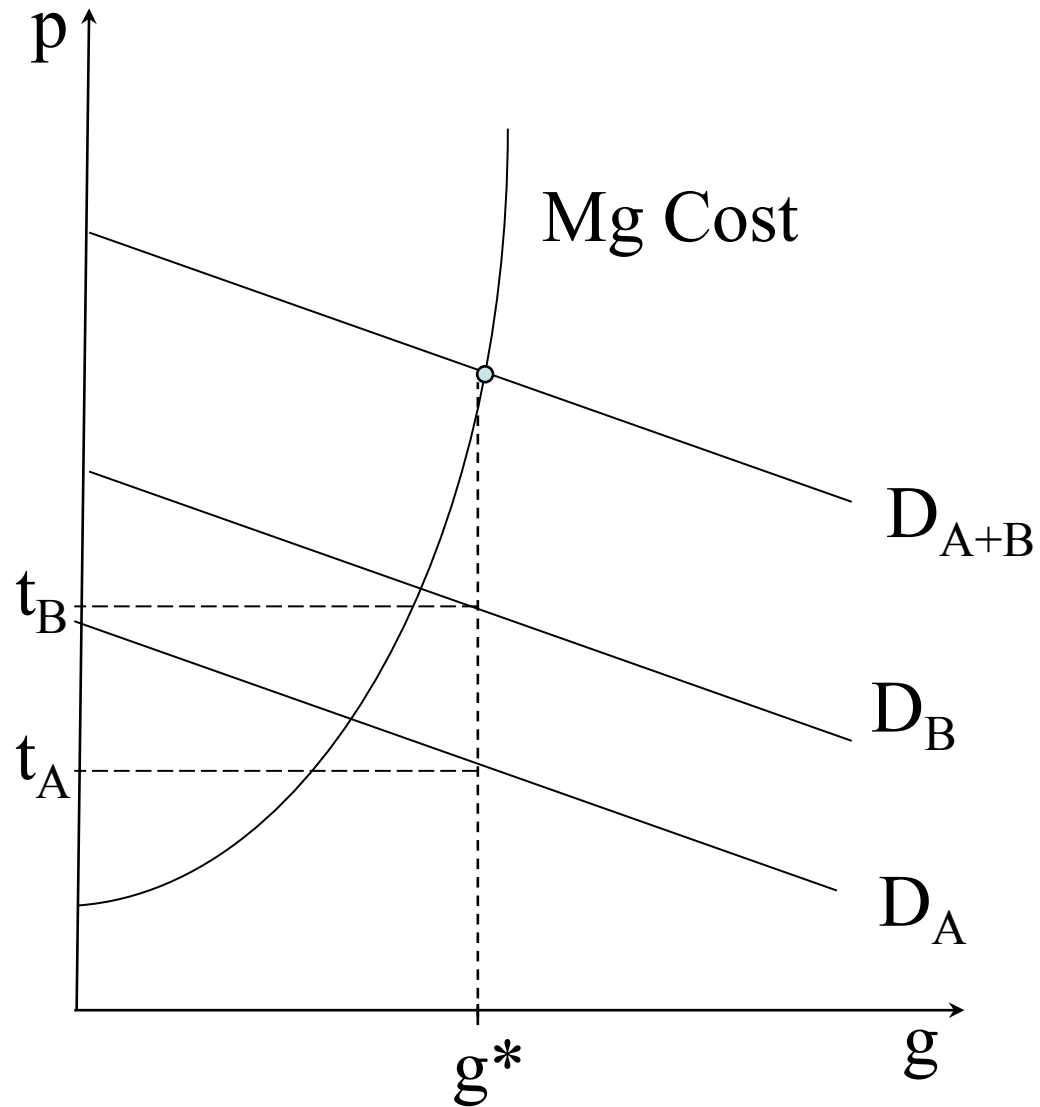
Introduction

Why do governments do what they do?

- Different ways of organizing government produce different results.
- Ideal case: Government measures preferences and acts accordingly.
- *Direct democracy*: Voters directly cast ballots in favor of or in opposition to particular public projects.
- *Representative democracy*: Voters elect representatives, who decide on public projects.

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public goods: Lindahl taxation



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public goods: Lindahl taxation and unanimous consent

- The **Lindahl tax** for each agent is equal to the agent's marginal benefit from the public good evaluated at the socially optimal level.
 - allows for full financing of public good
 - ensures both global and individual equilibria i.e. ensures unanimous choice of socially optimal level

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public goods: Lindahl taxation

Lindahl's procedure operates as follows:

1. Announce *tax prices* for the public good.
2. Everyone says how much of the public good she wants at those tax prices.
3. Repeat to construct a *marginal willingness to pay schedule* for each individual.

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public goods: Lindahl taxation

Recall that efficient provision requires that (Total marginal willingness to pay) = MC .

4. Add up individual willingnesses to pay at each quantity of public good provided.
5. Find Q such that total (Total marginal willingness to pay) = MC .
6. Finance the public good by charging individuals their willingnesses to pay for that quantity.

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public goods: Lindahl taxation

Under Lindahl pricing, the government produces the efficient amount of the public good.

- This is because $MC = \text{Total marginal willingness to pay}$.
- Each person's price is equal to their own marginal willingness to pay, so this is an equilibrium.
- Lindahl pricing also exemplifies benefit taxation.
- Benefit taxation: Taxation in which individuals are taxed for a public good according to their valuation of the benefit they receive from that good.

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Problems with Lindahl Pricing

Lindahl pricing faces several problems that keep it from being used in practice:

1. Preference revelation problem: Individuals have an incentive to lie about their WTP, to lower their price.
2. Preference knowledge problem: Individuals may not know their WTP.
3. Preference aggregation problem: It is not obvious how to aggregate individual preferences into a social welfare function.

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Role of Preference Aggregation Rule

- market failure but also Government failure
- public production vs. public provision (public financing)
- aggregation of individual preferences into a social preference:
aggregation rule



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Majority Voting: When It Works

- Lindahl pricing requires *unanimous* consent to implement the public good.
- Most governments only use majority voting.
 - Majority voting: The typical mechanism used to aggregate individual votes into a social decision, whereby individual policy options are put to a vote and the option that receives the majority of votes is chosen.

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Majority Voting: When It Works

- To consistently aggregate preferences, majority voting must satisfy three goals:
 1. *Dominance*
 2. *Transitivity*
 3. *Independence of irrelevant alternatives*
- So majority voting can consistently aggregate individual preferences if and only if preferences are restricted to take a certain form.

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Majority Voting: When It Works

- There are three types of voters in a town: *parents*, *elders*, and *young couples without children*.
- They have different preferences over the level of school spending (high, medium, or low).

	Parents (33.3%)	Elders (33.3%)	Young Couples (33.3%)
First choice	<i>H</i>	<i>L</i>	<i>M</i>
Second choice	<i>M</i>	<i>M</i>	<i>L</i>
Third choice	<i>L</i>	<i>H</i>	<i>H</i>

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Majority Voting: When It Works

How to vote among the three options?

- The town could proceed as follows:
 - First, vote on funding level H versus funding level L .
 - Then, vote on H versus M .
 - Then, vote on L versus M .
- M will win each head to vote, and win.
- M would win for *any* order of voting, so majority voting is consistent.

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Majority Voting: When It Doesn't Work

- Cycling: When majority voting does not deliver a consistent aggregation of individual preferences (*Condorcet paradox*).

	Public school parents (33.3%)	Public school parents (33.3%)	Young Couples (33.3%)
First choice	<i>H</i>	<i>L</i>	<i>M</i>
Second choice	<i>M</i>	<i>H</i>	<i>L</i>
Third choice	<i>L</i>	<i>M</i>	<i>H</i>

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Arrow's Impossibility Theorem

- Majority-runoff voting didn't work, but maybe something else would.
 - We could let everyone vote on their first choice.
 - We could do weighted voting by assigning.
- In fact, there is no good way to consistently aggregate these preferences.
- Arrow's Impossibility Theorem: There is no social decision (voting) rule that converts individual preferences into a consistent aggregate decision without either (a) restricting preferences or (b) imposing a dictatorship.

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Arrow's Possibility Theorem

- Aggregation of Rational Individual Preferences into a Rational Social Preference
- Unrestricted Preference Domain
- Pareto principle
- Independence of Irrelevant Alternatives



Dictatorship

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Arrow's Impossibility Theorem

- Aggregation of Rational Individual Preferences into a Rational Social Preference
- Unrestricted Preference Domain
- Pareto principle
- Independence of Irrelevant Alternatives
- No dictatorship



Impossibility

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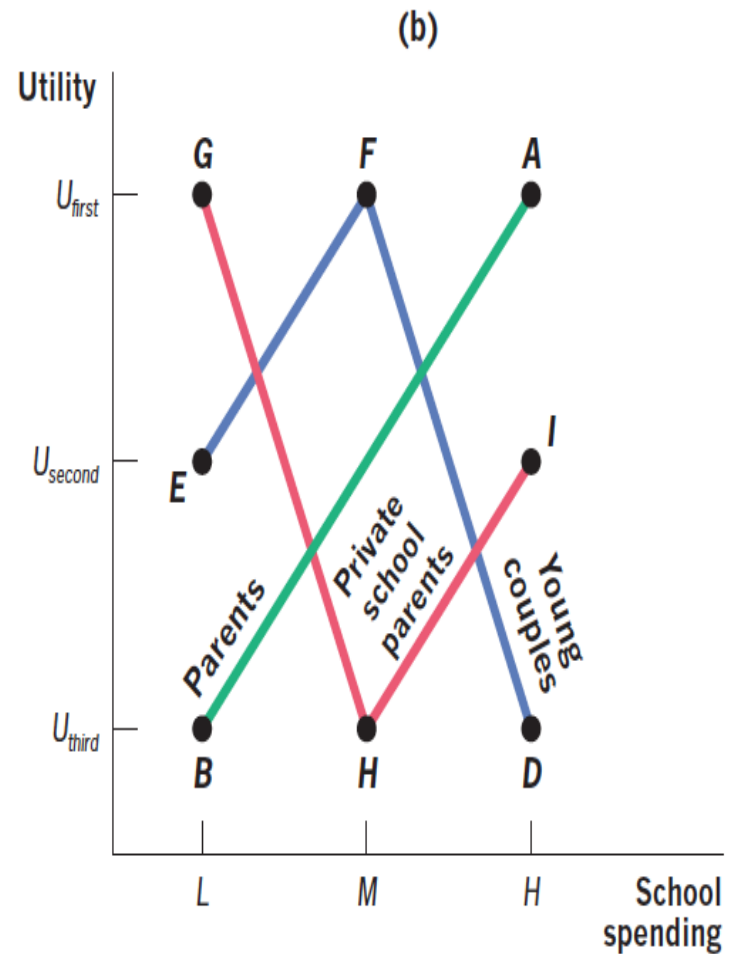
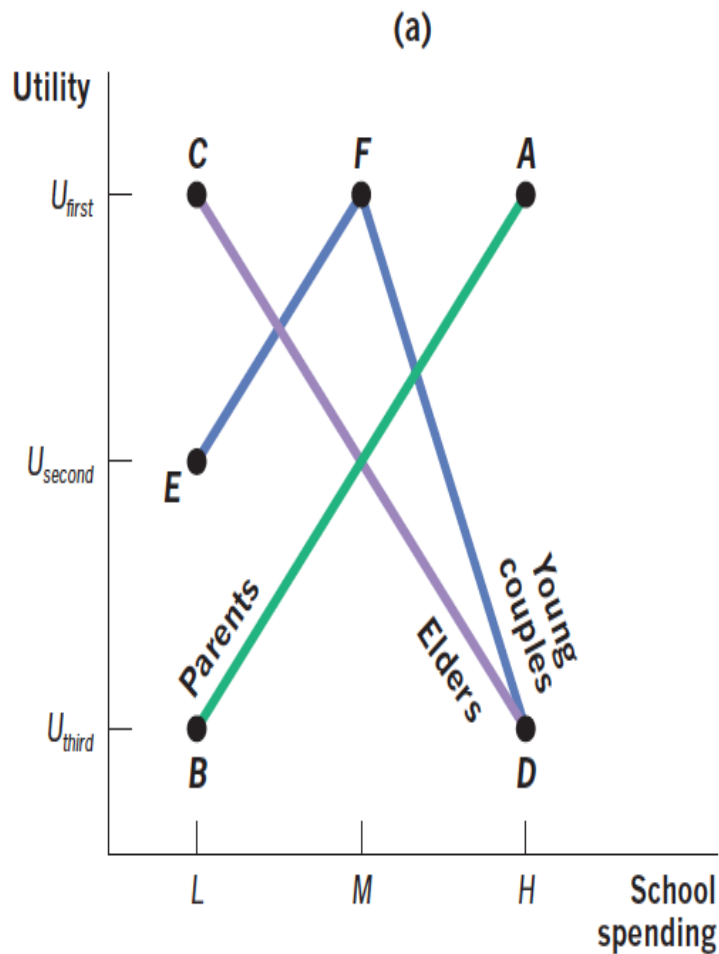
Restricting Preferences to Solve the Impossibility Problem

One way to avoid the impossibility problem is to restrict preferences.

- The problem with the private school parents is that their preferences are not single peaked.
- Single-peaked preferences: Preferences with only a single local maximum, or peak, so that utility falls as choices move away in any direction from that peak.

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Single-Peaked versus Non-Single-Peaked Preferences



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Median Voter Theorem

- Median Voter Theorem:
 - single-peaked preferences
 - median aggregates
rational individual preferences
into a rational social preference
that satisfies Pareto and IIA

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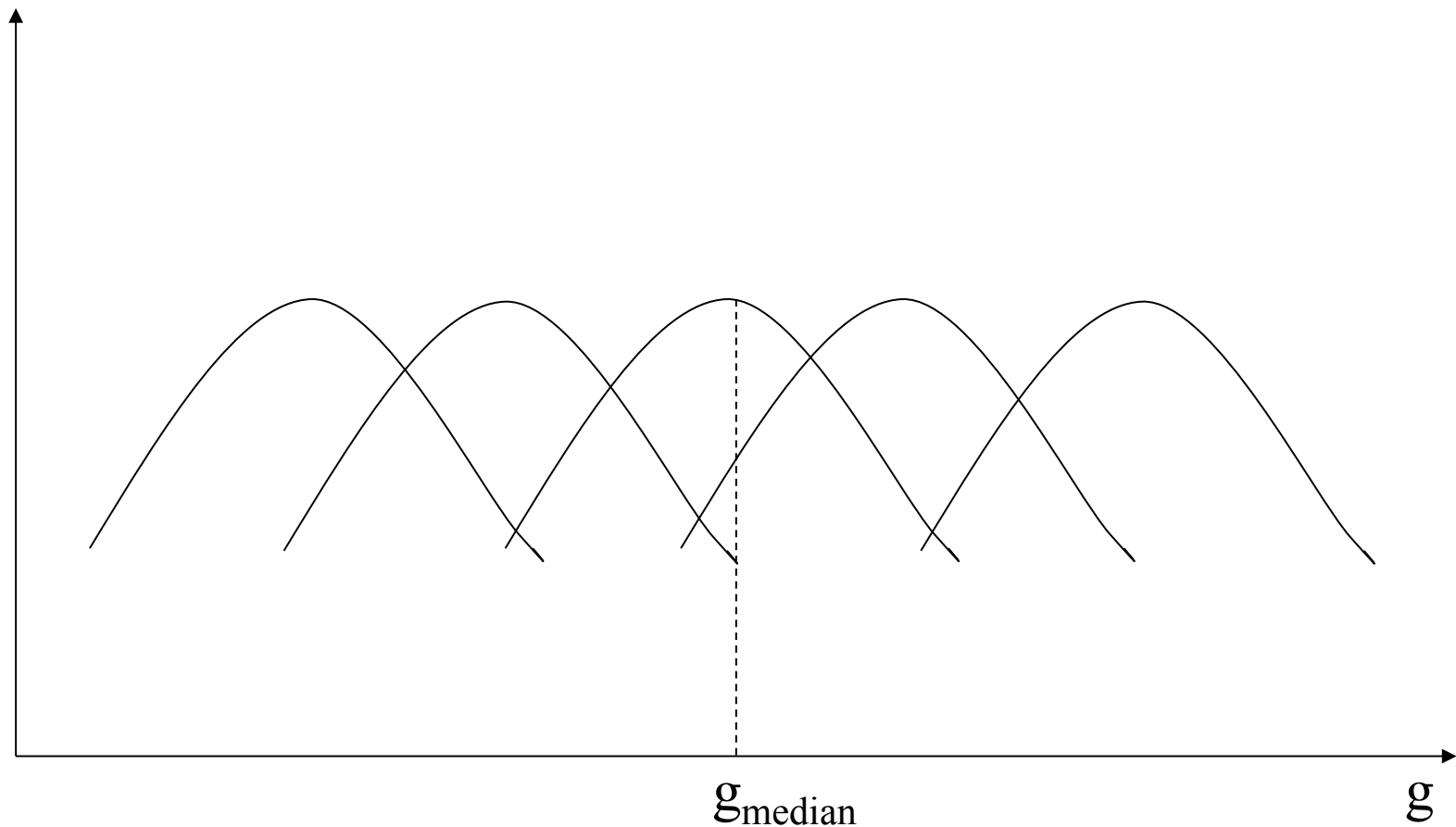
Median Voter Theory

With single peaked preferences, voting works well.

- Median Voter Theorem: Majority voting will yield the outcome preferred by the median voter if preferences are single-peaked.
- Median voter: The voter whose tastes are in the middle of the set of voters.
- The government need find only the *one voter* whose preferences for the public good are right in the middle of the distribution of social preferences and implement the level of public goods preferred by that voter.

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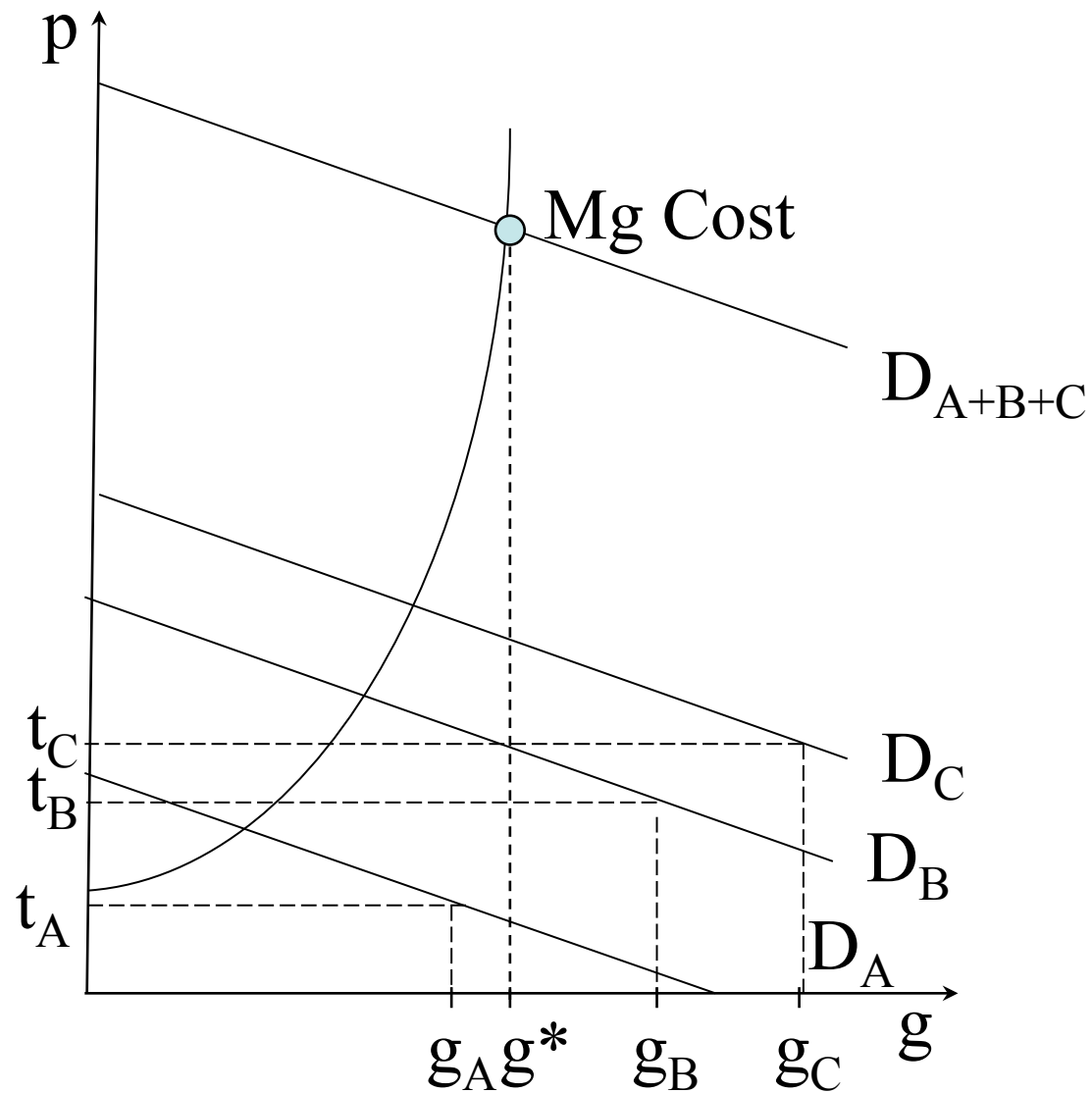
Median Voter Theorem



Note: in Condorcet paradox, preferences not single-peaked!

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Lindahl vs. Median Voter



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Potential Inefficiency of the Median Voter Theorem

Majority voting and the median voter theorem outcome are potentially inefficient.

- Suppose 51% of voters prefer a project that benefits them \$10 on net and 49% oppose it with a net benefit of -\$20.
- Under majority voting, the government undertakes the project and, on average, surplus falls by almost \$5.
- Majority voting does not recognize *intensity* of preferences.

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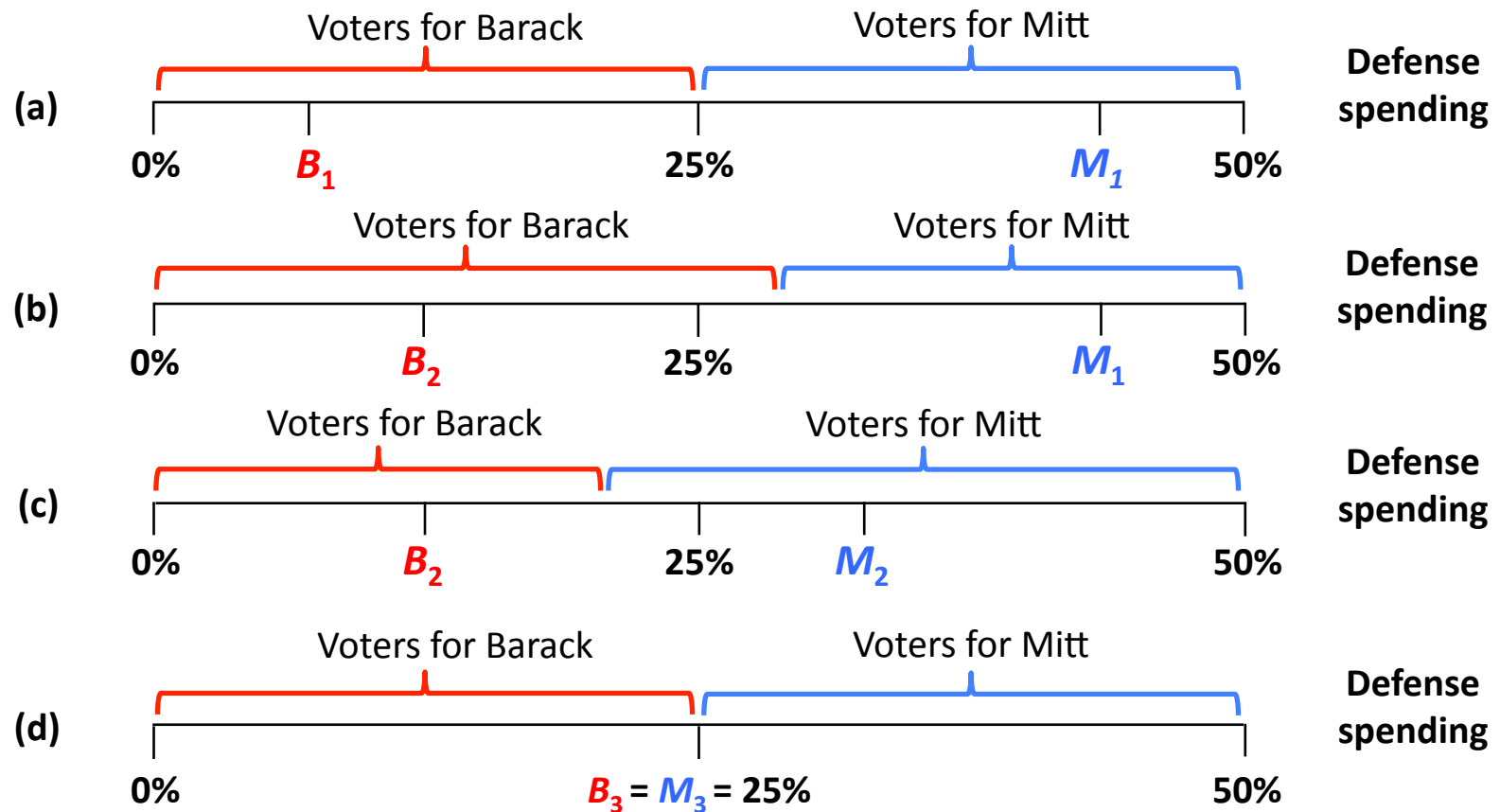
Vote-Maximizing Politicians Represent the Median Voter

The median voter model may apply to representative democracies.

- Key assumption: All politicians care about is maximizing the number of votes they get.
- Politicians strategically position themselves to get the most votes.
- End up enacting the median voters' preferences.

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Vote-Maximizing Politicians Represent the Median Voter



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Assumptions of the Median Voter Model:

Single-Dimensional Voting

The median voter model relies on several assumptions.

- Single-dimensional voting

- The median voter model assumes that voters are basing their votes on a single issue.
- Representatives are elected on a bundle of issues.
- Different people may lie at different points of the voting spectrum on different issues, so appealing to one end of the spectrum or another on some issues may be vote-maximizing.

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Assumptions of the Median Voter Model: Only Two Candidates

- Only two candidates
 - The model assumes only two candidates
 - No equilibrium in the model with three or more candidates: There is always an incentive to move in response to your opponents' positions.
 - In many nations, the possibility of three or more valid candidates for office is a real one.

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Assumptions of the Median Voter Model: No Ideology or Influence

- No ideology or influence
 - The median voter theory assumes that politicians care only about maximizing votes.
 - Ideological convictions could lead politicians to position themselves away from the center of the spectrum and the median voter.

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Assumptions of the Median Voter Model: No Ideology or Influence

- No selective voting
 - The median voter theory assumes that all people affected by public goods vote.
 - In fact, only a fraction of citizens vote in the United States.

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Assumptions of the Median Voter Model: No Money

- No money
 - The median voter theory ignores the role of money as a tool of influence in elections.
 - If taking an extreme position on a given topic maximizes fundraising, even if it does not directly maximize votes on that topic, it may serve the long-run interests of overall vote maximization by allowing the candidate to advertise more.

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Assumptions of the Median Voter Model: Full Information

- Full information
 - The median voter model assumes perfect information along three dimensions:
 - Voter knowledge of the issues
 - Politician knowledge of the issues
 - Politician knowledge of voter preferences
 - All three of these assumptions are unrealistic.

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Lobbying

Problems with the median voter model make lobbying likely.

- Lobbying: The expending of resources by certain individuals or groups in an attempt to influence a politician.
- Lobbying can help convey intensity of preferences.
- Lobbying can help inform politicians and the electorate about important issues.

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Lobbying and the Free Rider Problem

- Lobbying suffers from the free rider problem:
 - Many bills benefit a small number of people a great deal and harm a huge number of people by a small amount.
 - The smaller groups are much more able to organize and so can raise money to lobby more effectively.
 - Thus, lobbying helps pass inefficient bills.

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Public Choice Theory: The Foundations of Government Failure

The failure of the Median voter model indicates that the government may not enact citizens' preferences.

- Government failure: The inability or unwillingness of the government to act primarily in the interest of its citizens.
- Public choice theory: School of thought emphasizing that the government may not act to maximize the well-being of its citizens.

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Size-Maximizing Bureaucracy

- Theories of government failure began by examining bureaucracies.
 - Bureaucracies: Organizations of civil servants, such as the U.S. Department of Education or a town's Department of Public Works, that are in charge of carrying out the services of government.
- The *budget-maximizing bureaucrat* runs an agency that has a monopoly on the government provision of some good or service.
- Maximizes his own revenue or influence.

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Problems with Privatization

Privatization is not a panacea.

- Natural monopoly: A market in which, because of the uniformly decreasing marginal cost of production, there is a cost advantage to have only one firm provide the good to all consumers in a market.
- Might be addressed through contracting out.
- Contracting out: An approach through which the government retains responsibility for providing a good or service but hires private-sector firms to actually provide the good or service.

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Corruption

Corruption is an important form of government failure.

- Corruption: The abuse of power by government officials in order to maximize their own personal wealth or that of their associates.
- May be constrained by *electoral accountability*, the ability of voters to throw out corrupt regimes.
- Corruption also appears more rampant in political systems that feature more *red tape*, bureaucratic barriers that make it costly to do business in a country.

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Conclusion

- The government is a collection of individuals who have the difficult task of aggregating the preferences of a large set of citizens.
- The core model of representative democracy suggests that governments pursue policies preferred by the median voter. Evidence for this model is mixed.
- The extent to which government serves or fails to serve the interests of its citizens is a crucial one for future research in political economy.