



# Public Choice

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## WHAT ARE WE TALKING ABOUT TODAY

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PUBLIC CHOICE

INDIVIDUAL PREFERENCES  
AND PUBLIC GOODS

VOTING PROBLEMS



**Don't forget!**



# Public Choice

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Public Choice and its problems

## Public vs Private Choice

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In previous classes, we explained the rationale behind public provision of both public and private goods.

But how can we decide the quantity of those goods?

Market economy uses the price mechanism to reach an effective allocation of resources.

Equilibrium is determined at the intersection of the demand and supply curves. Thus, when demand increases, price rises and this induces firms to produce more.

Decisions about resource allocations in the public sector are quite different. Individuals vote for representatives and these elected representatives, in turn, vote for a public budget, and the money is spent by a variety of administrative agencies.

Representatives must ascertain and weigh the views of their constituents.

## The problem of preference revelation

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Individuals express their desirability of one private good versus another by a simple action: buying the good.

Elections of public officials convey only limited information about voters attitudes towards specific public goods. At best, they convey a general notion that voters prefer more or less government spending.

For example polls show strong sentiment against deficits however no consistent picture emerges regarding the trade-offs. Some polls suggest that voters would be willing to pay higher taxes and accept expenditure cuts, while others say otherwise. Unless faced with concrete trade-offs it is hard to get voters think seriously about their choices.

In private decisions, the decision maker knows his/her own preferences. In public decisions, the decision maker must ascertain the preferences of those on whose behalf he/she is making the decision.

## Hidden preferences



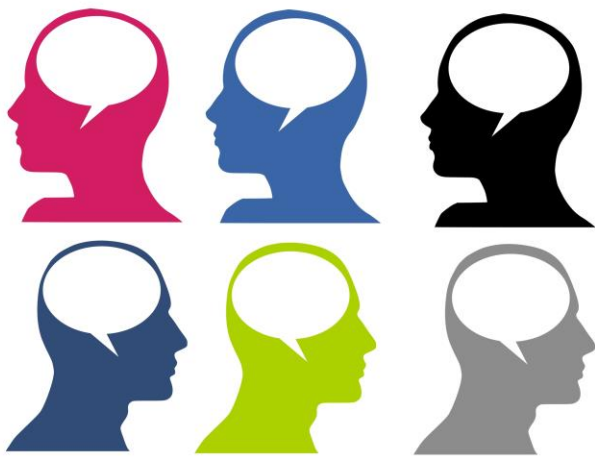
Even if individuals were asked directly about their preferences the may hide their true preferences:

- If what they have to pay does not depend on their answer, people tend to demand for more. People demand more of something they don't have to pay for.
- If what they have to pay does depend on their answer, people have an incentive to pretend that they enjoy the good much less than they really do. They know that their individual answer will have a negligible effect on the total amount supplied, and they would like to be free riders.



## Individual Preferences for Public Goods

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Different individuals have different views on how much should be spent on public goods or publicly provided private goods.

They differ for three main reasons:

1. Differences in tastes
2. Income
3. Taxation

Just as some people prefer one ice cream flavour over another. Similarly some individuals prefer public parks and national defence, whereas others prefer private goods such as restaurant dinners and cars.



## Income and taxation effect on preferences for public goods

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The other two sources of differences in preference are income and taxation.

Individuals with higher income would normally like to consume more of all goods, public and private. However their preference will be affected by the price they are asked to pay.

For private goods rich and poor pay the same price. Regarding public goods, richer individuals usually face a higher price, as they often contribute more to the additional taxes required to finance public goods.

The **tax price** is the additional amount an individual must pay when government expenditure increases.

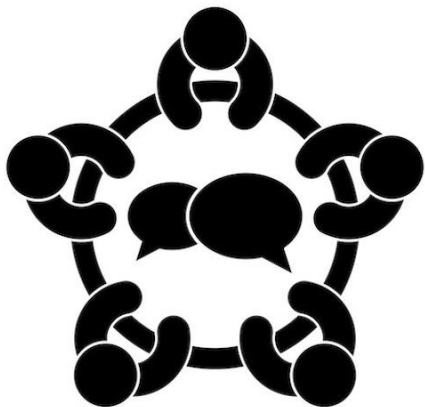
If everyone pays the same richer individuals prefer more public goods. If richer individuals often pay a higher tax price, they will have a lower preference for public goods, while those at lower incomes will have a higher preference.





## The problem of aggregating preferences

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In private markets, firms don't have to balance the interests of one group against those of another. If an individual is willing to pay a price for a commodity above the marginal cost, then the firm has incentive to sell it. Decisions are made on an individual basis.

Contrary, in the public sector decisions are made collectively.

A politician voting to increase expenditure on a public good does not spend his/her money. Politician is meant to represent his/her constituents, but their opinions are not unanimous. Some might like more military spending, other less.

The problem of reconciling differences arises whenever collective decision making is required.

In a dictatorship, the answer is easy: the dictator's preferences dominate. However, things are more complicated in democracy.





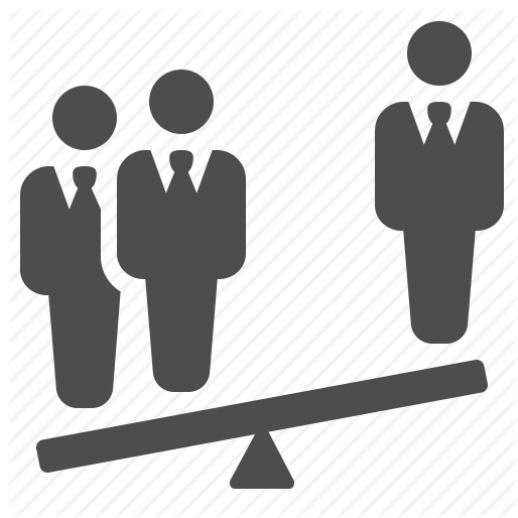
# Voting problems

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Majority voting and paradoxes

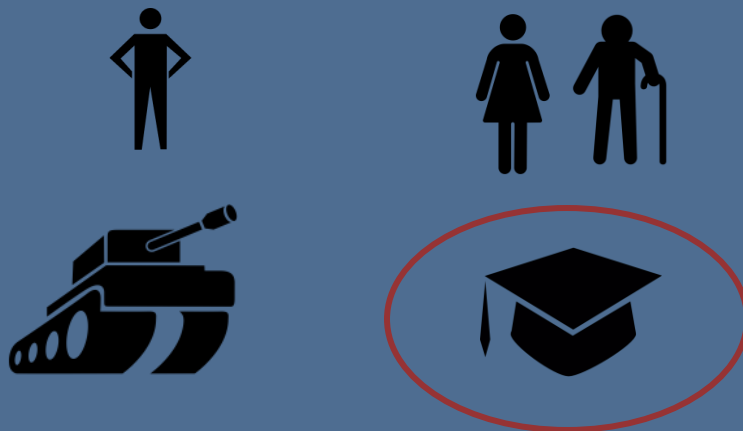
## Majority voting

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Simple majority voting is one of the most commonly used rules in democracy.

Suppose three individuals have to choose between spending on national defence and education. They take a vote and if two of them vote for education that's where money is spent.

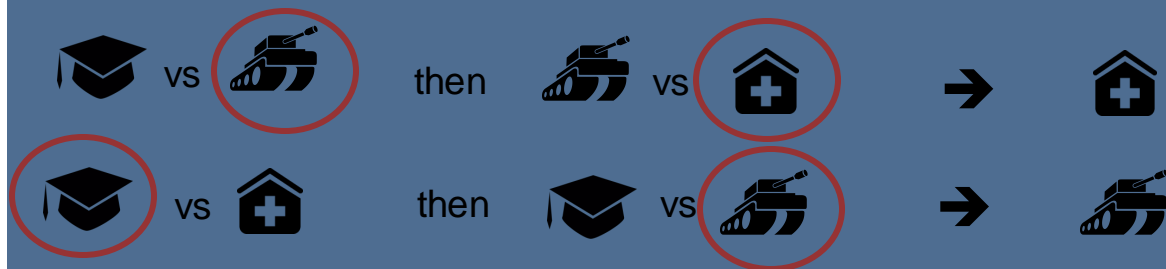
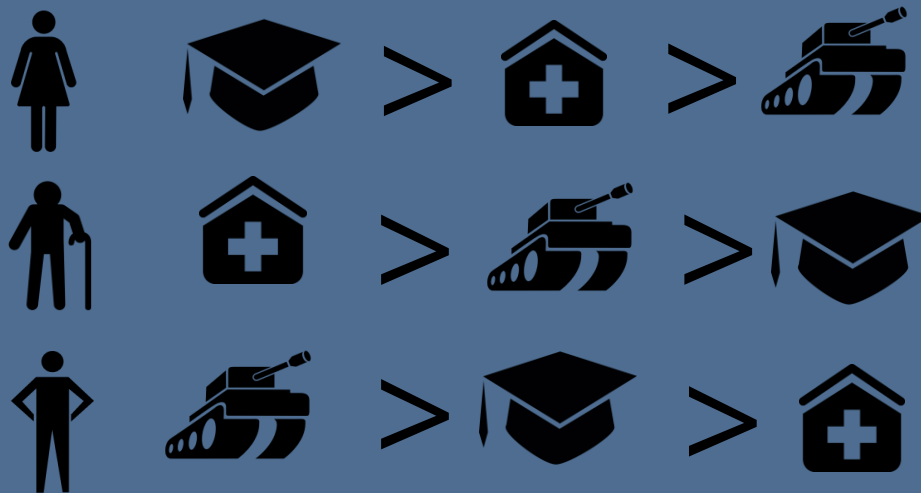


## The voting paradox or paradox of the cyclical voting



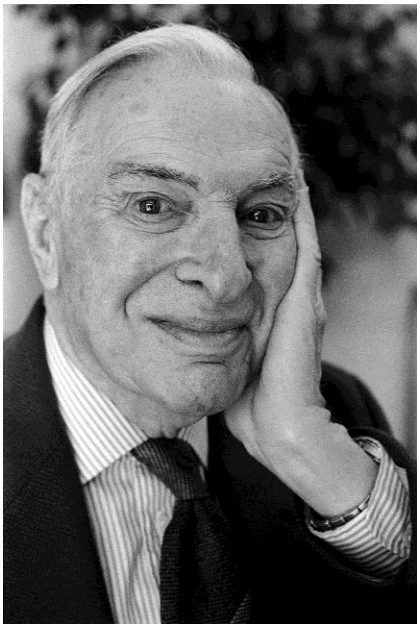
However things become more complicated when dealing with more than two options.

For example national defence, education, and healthcare.



## Arrow's impossibility theorem

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An ideal political mechanism should have four characteristics:

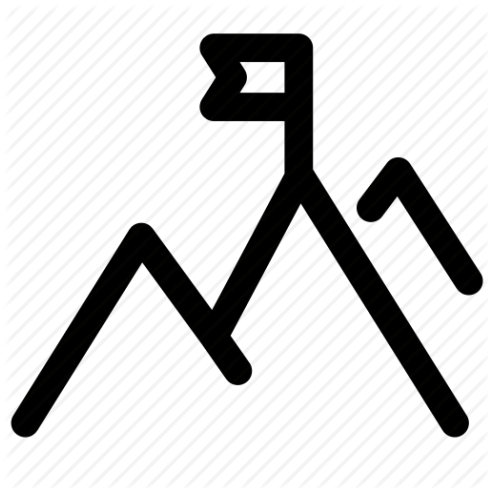
- *Transitivity*. If the rule shows that A is preferred to B, and B is preferred to C, then A should be preferred to C.
- *Nondictatorial choice*. The outcome does not simply reflect the preferences of a single individual.
- *Independence of irrelevant alternative*. The outcome should be independent of irrelevant alternatives. E.g. if we have to choose between A and B, the outcome should not be affected by the existence of a third alternative C.
- *Unrestricted domain*. The mechanism must work no matter what the set of preferences and no matter what the range of alternatives over which choices are to be made.

Nobel Laureate Kenneth Arrow showed that there was no rule that would satisfy all the desired characteristics. This theorem is referred to as **Arrow's impossibility theorem**.

Government should not be expected to act with the same degree of consistency and rationality as an individual.



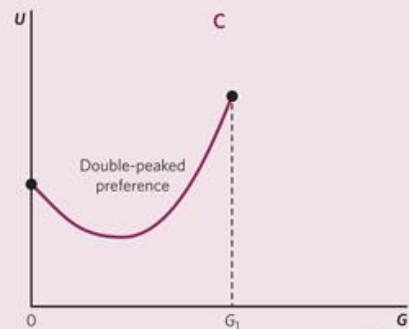
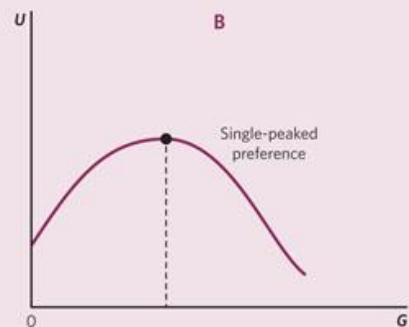
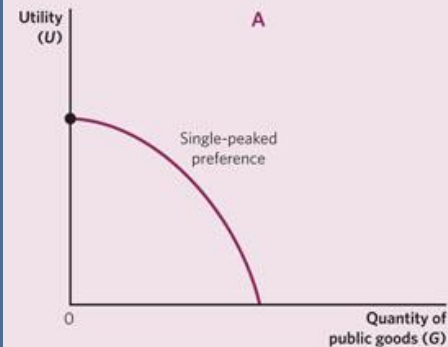
## Single-peaked and double peaked preferences



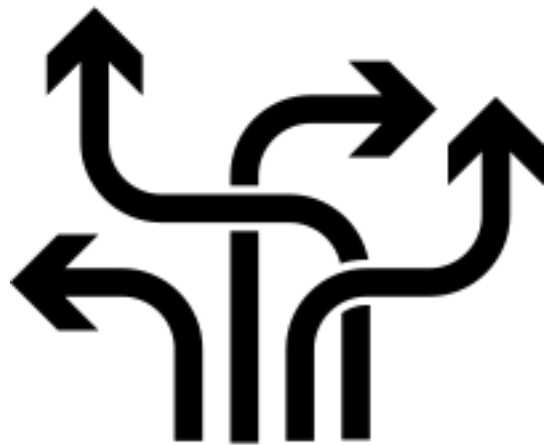
Even if it is imperfect, majority voting can give a determinate outcome when there is a single peaked preference. However this is not always the case.

For instance, if the level of expenditure on education is below a certain minimum level, a rich individual may prefer sending his/her children to private schools. Thus his/her utility decreases with government expenditures up to a critical level at which he/she decides to use public education. For increases beyond that level, the individual derives some benefit (up to the point that taxes offset benefits).

For that individual a high level of expenditure is preferred to no expenditure, but no expenditure is preferred to an intermediate level of expenditure.



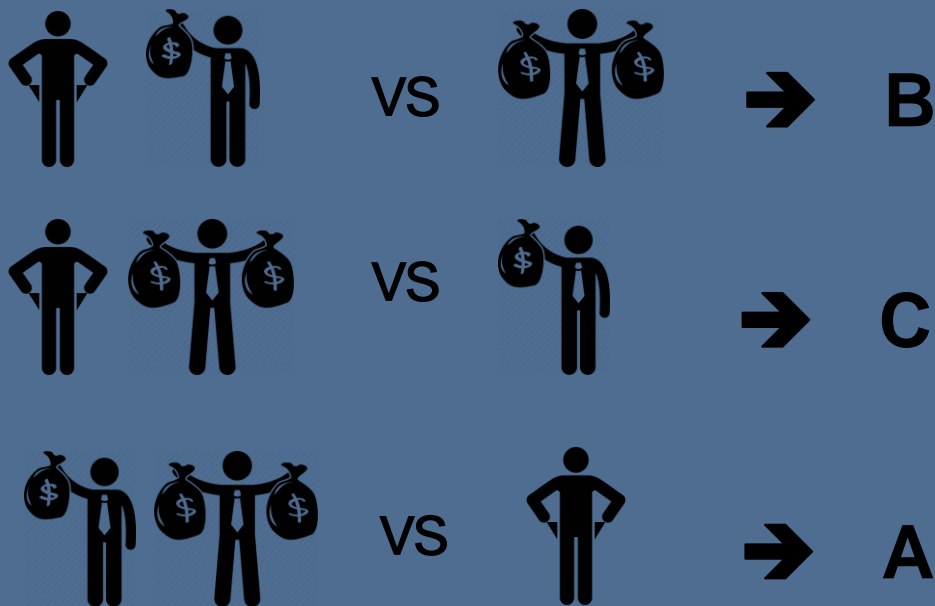
## No majority voting equilibrium



For most distribution issues there will not be a majority voting equilibrium.

**TABLE 9.1 ALTERNATIVE TAX SCHEDULES**

PAID IN TAXES	FRACTION OF INCOME		
	A	B	C
Poor	20%	18%	17%
Middle	20%	18%	21%
Rich	20%	23%	22%



## The median voter



When preferences are single-peaked we can rank individuals by their preferences. The individual in the middle of this ranking is known as the **median voter**.

*The outcome of majority voting corresponds to the preference of the median voter.* This is known as the **median voter theorem**.

In the table below, Jim is the median voter. If any level of spending below \$1,000 is voted against \$1,000, Jim and those who want more than \$1,000 vote for Jim's choice. If any level of spending above \$1,000 is voted against \$1,000, Jim and those who want less than \$1,000 vote for Jim's choice. In both cases, Jim's choice of \$1,000 wins

**TABLE 9.2** PREFERRED LEVELS OF EXPENDITURE ON PUBLIC GOODS

LUCY	TOM	JIM	JOHN	JILL
\$600	\$800	\$1000	\$1200	\$1400

Jim is the median voter.



## The inefficiency of the majority voting equilibrium



Because the median voter determines the level of expenditure on public goods, we only need to examine how the median voter votes.

For a wide variety of public goods, with proportional or progressive taxation majority voting will result in oversupply.

If income distribution is symmetric (Fig. 9.5. A), the average income will be equal to the income of the median individual.

However income distribution is usually skewed (Fig. 9.5B). As individuals with lower income prefer more public goods, oversupply is likely to occur.

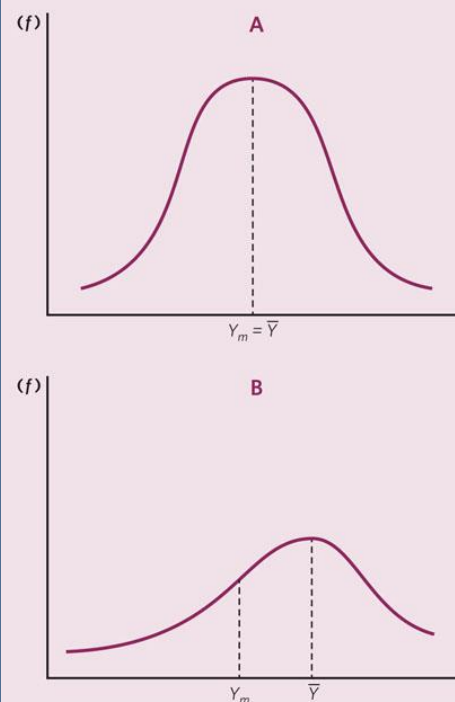
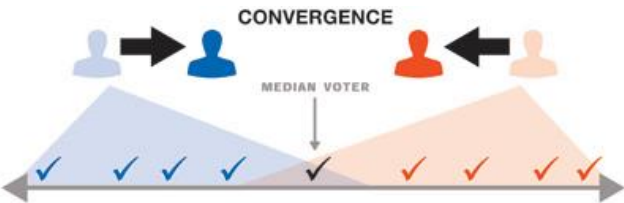
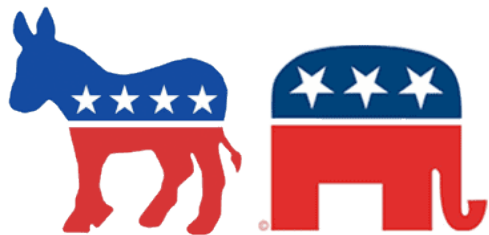


FIGURE 9.5

## The two-party system and the median voter



Trying to answer how politicians vote, a natural supposition is that they wish to stay in office and follow a vote maximizing strategy.

Assume that there are two parties R and D. Party R takes the position of the party D on an issue, say public expenditure, as given.

Party R chooses position  $G_R$  and between the median voter's choice  $G_m$  and  $G_D$  to win the majority. Then party D chooses position  $G'_D$  between  $G_m$  and  $G_D$  to win the majority. Then party R can move to  $G'_R$  between  $G_m$  and  $G'_D$  to win and so on. Eventually both parties will converge at  $G_m$ .

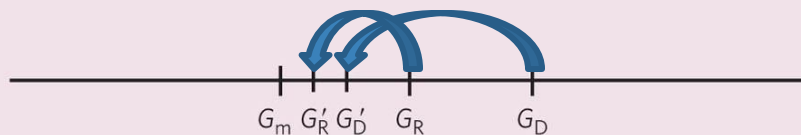


FIGURE 9.6

## Limitations of the median voter theorem

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There may not be a majority voting equilibrium (non single – peaked preferences).

Some people are liberal in some issues and conservatives in others, thus median voter is not well defined.

Being informed and voting is associated with costs (e.g. in time). The voters whose preferences are near the median voter have little incentive to be politically active and vote if they believe that the political process will reflect their preferences anyway.

There is greater tendency for political activism at the extremes of the political spectrum, which may partially offset the median-directed tendencies.



# Politics and Economics

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An economic interpretation of political phenomena

## Why do individuals vote?



In many elections participation rates are low and sensitive to chance occurrences as changes in the weather.

The reason for this is that benefits of voting for the individual are low. There is little chance that one person will affect the outcome. Moreover, the alternatives may differ so little that the outcome is inconsequential.

However, although in a fully rational calculation, no one would vote as the chance of affecting the outcome (who wins – not by how much) is essentially zero, individuals do vote.


The paradox is resolved by assigning utility to voting itself and participating in the political process. This also implies that voters may not act in the narrow self interested manner we have previously assumed.

## SPECIAL INTEREST GROUPS

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We have assumed that all votes have the same value. However some votes seem more effective than others due to the political power of special interest groups. Three factors contribute to special interest groups power:

- Individual Benefits
- Group Size
- Selective Incentives



We call ourselves the Mod Squad. M.O.D.  
Merchants of Death.

## How special interest groups exercise power

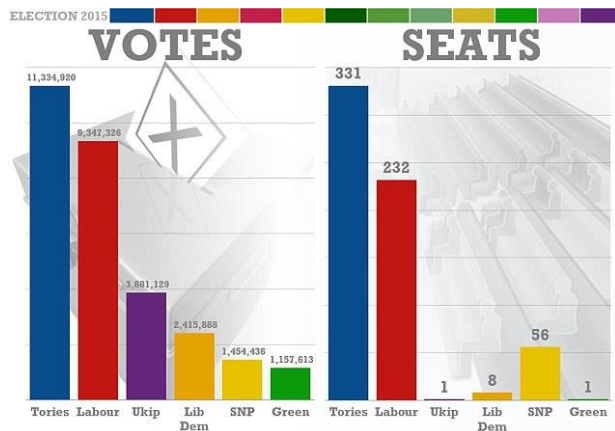
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Special interest groups exercise their power through three main mechanisms:

1. Through mobilizing their constituencies through a combination of targeted information campaigns and aggressive “get out the vote” efforts.
2. Through providing information to politicians.
3. Through direct and indirect bribery.

## The electoral system



The electoral systems can also affect the outcome of voting:

- First Past the Post



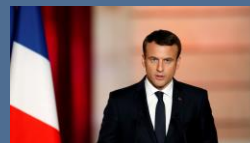
- Single Transferable Vote



- Additional Member System



- Two-round System



- Alternative Vote



- Supplementary Vote



- Borda Count



- Party List Proportional Representation





## The altruistic politician?

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An alternative view holds that many politicians do not behave in the narrow self interested manner we have previously assumed.

In many occasion, politicians seem to act on “principle” voting in a way that is inconsistent not only with their own narrowly defined self-interest, but also with the wishes of their voters.

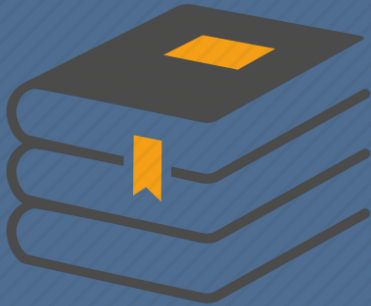
They thus risk not getting re-elected (although often voters appreciate such behaviour).

However, being altruistic does not guarantee that choices made will be the right ones.



**Thanks!**  
Any questions?

# Bibliography



Stiglitz, J. and J. Rosengard (2015) *Economics of the Public Sector* (4th ed.), W.W. Norton & Company