**Voting**

Efficient level of public good

 Can be achieved thru cooperation if everyone revealed willingness to pay

 Incentive to lie causes cooperation to break down

The provision of public goods normally determined through political process

Consumers express demand for public goods though voting

**The Most Preferred Outcome for Individual Voters**

In determining allocation of a public good, voters compare private costs to private benefits

If benefits of allocation are greater than costs, the voter will support allocation

 Costs to voter is the tax used to finance allocation

Define simple tax scheme:

cost of each unit of public good shared equally by all voters

t – per unit cost to voter

represents Private Marginal Cost (PMC) to voter

Example with guards:

1. There were 3 resident/taxpayers
2. Cost of each guard $600

t = cost per guard/ taxpayers = $600/3 = $200

Each guard hired costs each resident $200

 t = PMC = $200 for each resident

An individual resident will demand public good up to the point: PMB = PMC

Point where marginal willingness to pay equals per unit tax cost

Each has individual demand for security guards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** |  |
| $400 | 0 | 0 | 1 |  |
| $300 | 0 | 1 | 2 |  |
| $200 | 1 | 2 | 3 |  |
| $100 | 2 | 3 | 4 |  |

Residents A, B, C

price

$1000

$800

dC

$600

dB

$400

t = $200 = PMC

dA

$200 0

4

$100

2

3

1

guards/month

At what allocation of guards does PMC = PMB for each resident?

Most preferred outcome

|  |  |
| --- | --- |
| Resident |  |
| A | 1 guard |
| B | 2 guards |
| C | 3 guards |

The allocations represent points where marginal willingness to pay equals PMC of $200 for each resident

Given individual demand and tax scheme, most preferred outcome maximizes net benefits for each resident

|  |  |  |
| --- | --- | --- |
|   | Net Benefit |   |
| Resident | 1 guard | 2 guards | 3 guards |
| A |   |   |   |
| B |   |   |   |
| C |   |   |   |

[**Voting**](http://milesfinney.net/433/handout/pdemand.pdf) **Example:**

Tax share (from linked example):

 t = $1000/5 = $200 = PMC for each resident/voter

Voter will support decision to hire additional guard if PMB ≥ PMC

Suppose Referenda undertaken to hire successively larger number of guards:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Voters | 1st guard | 2nd guard | 3rd guard | 4th guard | 5th guard |
| A |   |   |   |   |   |
| B |   |   |   |   |   |
| C |   |   |   |   |   |
| D |   |   |   |   |   |
| E |   |   |   |   |   |
| outcome |   |   |   |   |   |

Three guards is the political equilibrium given majority rule

This is the largest number of guards that can attain majority

Three guards come closest to most preferred outcome of majority of voters

Allocation would win over any other single allocation in a referendum

Example: (voters choose allocation that maximizes individual net benefits)

1. 1 guard or 3 guards

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Guards | Resident A | Resident B | Resident C | Resident D | Resident E |
| 1 |  |  |  |  |  |
| 3 |  |  |  |  |  |

1. 4 guards or 3 guards

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Guards | Resident A | Resident B | Resident C | Resident D | Resident E |
| 4 |  |  |  |  |  |
| 3 |  |  |  |  |  |

3 guards is voter C’s most preferred outcome

Voter C is in the middle of the distribution voters

The number of voters with stronger demand for guards than C equals the voters with weaker demand

The coalition the median voter joins will always win by at least one vote

Under majority rule the political equilibrium will gravitate to the median voters most preferred outcome

The median voter will be satisfied by the political equilibrium

Everyone else will be consuming “too much” or “too little” of the public good

**Efficiency of median voter allocation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **guards** | **SMB** | **SMC** | **total benefit** | **total cost** |
| 1 |   |   |   |   |
| 2 |   |   |   |   |
| 3 |   |   |   |   |
| 4 |   |   |   |   |
| 5 |   |   |   |   |

**Points:**

1. Markets underallocate public goods
2. Voters are modelled to evaluate net benefits in voting for provision of public goods
3. At the political equilibrium most people will be consuming “too much” or “too little” of a public good
4. The more dispersed demands are for public good, the more unsatisfied people are with the equilibrium
5. With majority rule, only the median voter (constituency) would be consuming public good at point that maximizes her individual net benefit

Empirical test median voter model

Study by Stratmann (2000) looked at how members of congress were affected by redistricting

 Changes in Congressional district lines occurs after each decennial Census

 Redistricting changes the composition of constituency of a congressperson

 Constituency may become more or less democratic/republican

 Study measured effect of redistricting on the change the percentage of district voting for Clinton in 1992 compared to Dukakis in 1988.

If the redistricted area increases its vote for the democrat, implies the median voter has moved to the “left”; voter is more of democrat than previously.

Study finds that a 1% increase in the presidential vote for the Democratic presidential candidate makes the Democrat house representative 1.3% more likely to vote with their party; whereas the Republican representative is 1.8% less likely to vote with theirs.

 Two senators elected to the US Senate from each state

 Each elected by statewide electorate

Median voter model suggests senators should support policies acceptable to median constituency of individual state

Influences on policies senators support:

1. Preferences of states voters
2. Position of the political party senator belongs to
3. Senator’s personal preferences or ideology

Difficult to separate effects

 Some states represented by senators from opposing parties

 Median voter hypothesis suggests senators from same state should vote alike, regardless of party differences

Both senators would be appealing to same median constituency

What’s found is senators are likely to vote with colleagues in own party

[Senator ADA Scores](http://milesfinney.net/433/handout/classification.pdf)