Public Finance (First part)

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Lecture 7:

Political economy

Direct vs. representative democracy

- **Direct Democracy:** In the case of *direct democracy*, voters directly cast ballots in favor of or in opposition to particular public projects
- **Representative Democracy:** Mediated use of political power of the citizens. In the case of *representative democracy*, voters elect representatives, who in turn make decisions on public projects (example: US congress)

Representative democracy

- In modern democratic systems, decisions are not directly taken by the voters (except for referenda), but are rather delegated to bodies responsible for doing so (e.g., Congresses or Parliaments)
- In representative democracies, it becomes crucial how representants are selected, thus the political system should pursue four main aims:
  1. **Representation**: allocation of seats in Congress should reflect the voters' preferences
  2. **Governability**: allocation of seats in Congress should allow a majority to form a stable government
  3. **Selection of good politicians**: a representative democracy, when there are more or less capable types of politicians, should be able to select the best types
  4. **Politicians' accountability**: a representative democracy should give incentives to politicians to well behave after election
- Being very different purposes, it may be that electoral laws that satisfy one requirement are less able to satisfy others
  - Trade-off between different qualities!

Representative Democracy: focus on political candidates

- In representative democracies, individual preferences are mediated by political agents
  - Parties and candidates
- There exists several ways to think of the candidates' preferences
  - Office-motivated candidates: they are only interested in winning the elections, and they are willing to promise anything in order to win
  - Policy-motivated candidates: they are only interested in the policy that society will implement after the election
- Arrow's theorem shows that it is not always possible to maximize social welfare
- Even if it was, why would governments choose to do so in a democratic context?

The Downsian model of electoral competition

- Downs (1953) in the book "An Economic Theory of Democracy" argues that politicians are office-motivated: they implement policies in order to win elections
  - Politicians do not win elections in order to implement policies
- Voters are rational and vote for the party that will deliver them the highest (private) utility

The Downsian model of electoral competition

- It draws similarities with respect to the **Hotelling's spatial model of competition** and applies the results of the **median voter theorem**.
- We ask: Where would candidates locate themselves on the left-right scale to win the election given the other candidate's choice?
  - Strategic interaction between the two candidates $\rightarrow$ we need to apply game theory tools.

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The Downsian model of electoral competition

- 2 candidates (or 2 parties): D and S, whose unique aim is winning the elections (office-motivated)
- Utility of candidate D is $V_D(G_D, G_S) = p_D(G_D, G_S)w$ where w is (exogenous) wage of elected politician
- Commitment rule: what a candidate promises is implemented if elected
- Competition is only along one dimension, as for example the level of public spending (G): the proposals are G_D and G_S and are announced at the same time before the election
- Every voter i has single-peaked (unimodal) preferences on G: G_i
- Majority voting: the candidate that receives most votes is elected (coin toss in case of a tie)
- Voters vote for the proposal closest to their G_i

The Downsian model of electoral competition

- We are facing a two-period game
  - In the second period, elections occur (given proposed platforms)
  - In first period, candidates decide platforms anticipating election results
- Second period: all the assumptions of the median voter theorem are satisfied. Hence, individuals will support the candidate that implements the policy preferred by the median voter
- We call G_M the preferred policy of the median voter. The party D knows that its probability of winning P_D is as follows:

$$p_D = \begin{cases} 0, & \text{if} U_M(G_D) < U_M(G_S) \\ \frac{1}{2}, & \text{if} U_M(G_D) = U_M(G_S); \\ 1, & \text{if} U(G_S) > U_M(G_D). \end{cases}$$

Notice that p_D is a discontinuous and monotonically increasing function of $U_M(G_D) - U_M(G_S)$.

The Downsian model of electoral competition

- First period: where will candidates stand when they make their G_D and G_S political proposals?

- The same reasoning applies to proposed spending levels greater than G_M. Then:
  - A party that proposes a spending level G farther from G_M than its competitor will certainly lose
  - If the proposals are equal, the probability of winning is 50%;
  - If the offer is closer to G_M then it will win

Downs' theorem

Theorem

If the preferences of all voters are unimodal, there is a single subgame-perfect Nash equilibrium of the competition game between candidates D and S, in which both announce the preferred policy of the median voter: $G_D^* = G_S^* = G_M$

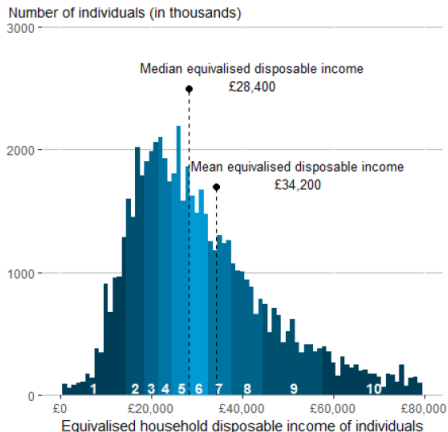
- Does the center always win an election? **It depends on where the median voter is located**
  - If all voters are located in the left half of the distribution, then also the right party is forced to propose left-leaning policies

Efficiency of the median voter's choice

- The median voter outcome is usually inefficient, unless Median = Average (true only for very specific distributions of voters' preferences)
- This result arises because the median voter's choice maximizes the median voter's utility, does not matter the utility of all other individuals.

Median voter and income distribution

- For many choices it is reasonable to expect that the level of income plays a major role in defining the preferences of individuals
- The income distribution in the population is usually such that the income of the median voter is lower than the average income



Policy-motivated candidates

- Downsian model assumes candidates are **office-motivated**
  - Their only focus is to be elected
  - Intuition: professional politicians care about their wage, which depends on whether they win or lose the election
- Does the same reasoning hold if we think of party as **policy-motivated**?
  - Candidates' unique focus is that society implements their preferred policy

Policy-motivated candidates

- Short answer: yes!
- Long answer:
- Office-motivated candidate A maximizes $V_A(G_A, G_B) = p_A(G_A, G_B)w$
  - Solution when $p_A(G_A, G_B)$ is maximized given G_B
- Policy-motivated candidate A maximizes
  $V_A(G_A, G_B) = p_A(G_A, G_B) \times U_A(G_A) + (1 - p_A(G_A, G_B)) \times U_A(G_B)$
  - Since $p_A(G_A, G_B)$ can only be equal to 0, 0.5, and 1, solution is again when p_A is maximized
  - Intuition: moving slightly away from G_M reduces the probability of winning to 0 and hence reduces the probability of implementing the policy to 0

This result arises because $\frac{dp_A}{dG_A} \to \infty$

Example of Downsian model of electoral competition

Example

- Two groups in society: 7 individuals are from the working class (income $Y^i = 100$); 3 individuals are from the upper class (income $Y^i = 300$)
- Preferences of voter i: $C^i + 3\sqrt{G}$
- Individual i's budget constraint: $C^i = (1 - t)Y^i$
- Government budget constraint: $G = 7 \times 100 \times t + 3 \times 300 \times t = 1600t$

- Median voter belongs to working class $\rightarrow$ $Y^M = 100$
- Parties will commit to the policy preferred by working class individual
- Solution (next slides)

Example of Downsian model of electoral competition

Example

- Both parties maximize the difference between utility of the median voter subject to their proposal and the utility of the median voter subject to the other party's proposal
- Party A:

$$\max_{C_A^M, G_A} C_A^M + 3\sqrt{G_A} - C_B^M - 3\sqrt{G_B}$$

- Analogous for party B:

$$\max_{C_B^M, G_B} C_B^M + 3\sqrt{G_B} - C_A^M - 3\sqrt{G_A}$$

- Subject to $C^M = 100(1 - t)$ and $G = 1600t$

Example of Downsian model of electoral competition

Example

- Party A and party B face same problem: we solve for party A and apply same solution to party B
- Substitute the constraints into objective function

$$\max_{t_A} 100(1 - t_A) + 120\sqrt{t_A} - 100(1 - t_B) - 120\sqrt{t_B}$$

- First-order conditions

$$-100 + \frac{1}{2}120t_A^{-\frac{1}{2}} = 0 \rightarrow t_A^{\frac{1}{2}} = \frac{3}{5} \rightarrow t_A^M = t_B^M = \frac{9}{25} = 36\%$$

Example of Downsian model of electoral competition

Example

- Compare with efficient outcome (utilitarian SWF)

$$\max_{C^1, C^2, \ldots C^{10}, G} \sum_{i=1}^{10} [C^i + 3\sqrt{G}]$$

- Subject to $C^i = 100(1-t)$ and $G = 1600t$
- Substitute the constraints into objective function

$$7[100(1-t) + 120\sqrt{t}] + 3[300(1-t) + 120\sqrt{t}]$$

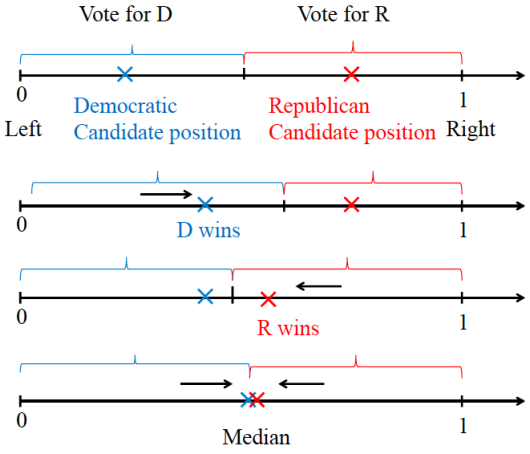
- First-order conditions

$$-1600t + 1200\frac{1}{2}t^{-\frac{1}{2}} = 0 \rightarrow t^{\frac{1}{2}} = \frac{3}{8} \rightarrow t^U = \frac{9}{64} \approx 14\%$$

Empirical evidence on the validity of the Downsian model of representative democracy

- While the median voter model is a potentially powerful tool of political economy, its prediction rests on some strong assumptions that may not be valid in the real world
- A large political economy literature has tested the median voter model by assessing the role of voter preferences on legislative voting behavior relative to other factors such as party or personal ideology
- In principle, candidates should adjust their position toward the median voter to win the election (see graph below)
  - Elected officials should represent the view of the median voter in their district

Empirical evidence on the validity of the Downsian model of representative democracy



Both candidates positions converge to median

Empirical evidence on the validity of the Downsian model of representative democracy

Evidence from US congress representatives:

Senate: 2 senators for each state in US senate: represent the same constituency and hence should vote in the same way in the senate if median voter model is right (Poole and Rosenthal, (1996))

$\rightarrow$ Yet, in the US, when a state has 1 republican senator and 1 democratic senator, those 2 senators vote very differently in the senate (contradicts the median voter model)

Empirical evidence on the validity of the Downsian model of representative democracy

- **House of Representatives:** Using close elections for US representatives (Lee, Moretti, Butler (2004))
  - When a candidate crosses 50%, he/she gets elected. However, the constituency is virtually the same whether a candidate gets 49.9% or 50.1% of the vote
  - Therefore, median voter implies that a Democratic representative elected with 50.1% should vote similarly in congress to a Republican representative elected with 50.1% of the votes
- According to the Downsian model, a republican candidate elected with 50.1% percent of the votes should behave exactly as a democratic candidate elected with 50.1% percent of the votes (i.e, where the republican candidate failed to win election by random chance
- In reality, closely elected representatives vote very differently (measured by Americans for Democratic Action ADA scores) if they are Democratic vs. Republican

Limitations of the Downs' theorem

- Although the Downsian model of representative democracy is a convenient way to predict outcomes, it does so by making a number of simplifying assumptions
  - **Single-dimensional voting**:
    - The median voter model assumes that voters are basing their votes on a single issue
    - In reality, representatives are elected not based on a single issue but on a bundle of issues
    - Individuals 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
  - **No commitment**:
    - Politicians are assumed to commit (before elections) on a policy proposal that they have to implement if elected
    - Strong assumption! In practice, it is not always the case that politicians exactly implement what they promised to voters
    - Problem of accountability: need to make sure that campaign promises are credible and they are not cheap talk

Limitations of the Downs' theorem

- **Only two candidates**
  - Downsian model assumes that there are only two candidates for office
  - If there are more than two candidates, the simple predictions of the median voter model break down
  - Indeed, there is no stable equilibrium in the model with three or more candidates because there is always an incentive to move in response to your opponents' positions
  - In many countries, three or more candidates run for office with high chances of success
- **No ideology or influence**:
  - Downsian model assumes that politicians care only about maximizing votes and voters only about maximizing utility.
  - Ideological convictions could lead politicians to position themselves away from the center of the spectrum and the median voter and voters to support policies that do not maximize their consumption utility.

Limitations of the Downs' theorem

- **No campaigning / No lobbying / No legislature / No bargaining**
  - The median voter and downsian electoral competition ignore other fundamental channels of the democratic process
  - For instance, taking an extreme position on a topic may maximize fundraising even if it does not directly maximize votes
- **Full information**
  - The downsian 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 pretty strong

Limitations of the Downs' theorem

- **No selective voting**
  - Downsian model assumes that all people affected by public goods vote, but in fact, only a fraction of citizens vote in elections. Appealing to the base (increasing turnout by moving away from median voter)

Beyond Downsian electoral competition

- The assumptions of the Downsian model of electoral competition are rather strong
- Some are needed in order to get a solution, but other can be relaxed
- We will briefly analize some models that relax the median voter model's assumptions
  1. Probabilistic voting model (Lindbeck and Weibull 1987)
     - ⋆ Relax single-dimensional voting; Relax no ideology; Relax full information; Relax no lobbying/campaigning
  2. Model of legislative bargaining (Baron and Ferejohn 1989)
     - ⋆ Relax 2 candidates; Relax no commitment; Relax no legislature/bargaining
     - ⋆ Limitation: suppress elections and focus on post-election bargaining

Probabilistic voting model

- We diverge from the Downsian model of electoral competition by assuming that politicians cannot predict perfectly the number of votes they receive
  - In reality, there always exists a median voter, but we do not know who this person is
- To do so, Lindbeck and Weibull (1987) assume that voters cast their choice based on both policy preferences (i.e., the level of G_A and G_B that parties promise to deliver if elected) and a random shock
  - Realization of random shock is known to the voter but not to the politician
  - Think of it as ideology; probability of abstension; probability that voter is informed about platforms or just votes randomly

Probabilistic voting model

- In the simplest form, probabilistic voting model assumes that probability that individual i votes for party A is a continuous and differentiable function of the difference between the utility that individual receives from proposal made by party A and utility that individual receives from proposal made by party B

$$\pi_A^i = f^i(U^i(G_A) - U^i(G_B))$$

where $\frac{df^i(U^i(G_A)-U^i(G_B))}{dU^i(G_A)} > 0$; $\frac{df^i(U^i(G_A)-U^i(G_B))}{dU^i(G_B)} < 0$

  - Notice: in Downs model, $f^i(U^i(G_A) - U^i(G_B))$ is a stepwise function that moves discontinously between 0, 0.5, and 1.

Probabilistic voting model

- The other assumptions are akin the Downs (1953) model:
  - 2 candidates (or 2 parties)
  - Commitment rule
  - Competition is only along one dimension (this can be relaxed, not in this course)
  - Every voter i has single-peaked (unimodal) preferences on G: G_i
  - Majority voting: the candidate that receives most votes is elected (coin toss in case of a tie)

Probabilistic voting model

- Candidates need to form expectations about the number of votes they will receive in the elections
- By summing the probability that each individual i votes for party A, we can determine the function that calculate the expected votes for party A (analogous for party B)

$$EV_A(G_A, G_B) = \sum_{i=1}^{N} \pi_A^i = \sum_{i=1}^{N} f^i(U^i(G_A) - U^i(G_B))$$

- Case 1: Office-motivated candidate A maximizes

$$\max_{G_A} \; EV_A(G_A, G_B)w$$

$$s.t. \; EV_A(G_A, G_B) = \sum_{i=1}^{N} f^i(U^i(G_A) - U^i(G_B))$$

Probabilistic voting model

- First-order condition

$$w \sum_{i=1}^{N} \frac{df^i(U^i(G_A) - U^i(G_B))}{dU^i(G_A)} \frac{dU^i(G_A)}{dG_A} = 0$$

- Analogous for party B

$$w \sum_{i=1}^{N} \frac{df^i(U^i(G_B) - U^i(G_A))}{dU^i(G_B)} \frac{dU^i(G_B)}{dG_B} = 0$$

- Candidates maximize a **Social welfare function** by taking the preferences of all individuals into account
- Each individual is given a positive weight that depends on $\frac{df^i(U^i(G_A) - U^i(G_B))}{dG_A}$
- Highest weight to **swing voters** $\rightarrow$ those voters that are more responsive to a marginal change in proposed G
- Solution is in general inefficient (some individuals are given higher weights than others just because they are swing voters)

Probabilistic voting model

- Analogy to Downs model:
  - Office-motivated candidates propose the same platform because they face the same problem
- Differences w.r.t. Downs model:
  - Candidates cannot target the specific preferences of the median voter because each voter has a positive probability of being the median voter
  - Solution puts positive weight on all voters, with weights reflecting the probability that individual i is the median voter
- In Downsian model also policy-motivated parties are forced to converge to the same platform. **What about the probabilistic voting model**?

Policy-motivated candidates in probabilistic voting model

- Short answer: policy-motivated candidates will propose different platforms!
- Case 2: Policy-motivated candidate A maximizes

$$\max_{G_A} EV_A(G_A, G_B)U_A(G_A) + (N - EV_A(G_A, G_B)) \times U_A(G_B)$$

$$s.t.\ EV_A(G_A, G_B) = \sum_{i=1}^{N} f^i(U^i(G_A) - U^i(G_B))$$

- First-order condition:

$$\frac{dU_A(G_A)}{dG_A} \sum_{i=1}^{N} f^i(U^i(G_A) - U^i(G_B)) + (U_A(G_A) - U_A(G_B)) \sum_{i=1}^{N} \frac{df^i(U^i(G_A) - U^i(G_B))}{dU^i(G_A)} \frac{dU^i(G_A)}{dG_A} = 0$$

- Optimal choice of G_A and G_B will be somewhere in between the party's preferred platform and the full convergence (office-motivated) platform

Example of probabilistic voting model

Example

- Two groups in society: 7 individuals are from the working class (income $Y^i = 100$); 3 individuals are from the upper class (income $Y^i = 300$)
- Preferences of voter i: $C^i + 3\sqrt{G}$
- Individual i's budget constraint: $C^i = (1-t)Y^i$
- Government budget constraint: $G = 7 \times 100 \times t + 3 \times 300 \times t = 1600t$
- New: each individual in working class group has a probability $\alpha^W = \frac{1}{2}$ to go to polling station; each individual in upper class has a probability $\alpha^U = 1$ to go to polling station

- Politician cannot anticipate whether the median voter is from the lower or the upper class
- Parties have to take into account the preferences of both groups
- Solution (next slide)

Example of probabilistic voting model

Example

- Both office-motivated parties maximize weighted sum of individual utilities
- Party A:

$$\max_{C_A^1, C_A^2, \ldots C_A^{10}, G_A} \sum_{i=1}^{10} \alpha^i [C_A^i + 3\sqrt{G_A} - C_B^i - 3\sqrt{G_B}]$$

- Party B:

$$\max_{C_B^1, C_B^2, \ldots C_B^{10}, G_B} \sum_{i=1}^{10} \alpha^i [C_B^i + 3\sqrt{G_B} - C_A^i - 3\sqrt{G_A}]$$

- Subject to $C^i = 100(1-t)$ and $G = 1600t$

Example of probabilistic voting model

Example

- Party A and party B face same problem: we solve for party A and apply same solution to party B
- Substitute the constraints into objective function

$$\max_{t_A} 7\frac{1}{2}[100(1-t_A)+120\sqrt{t_A}]+3[300(1-t_A)+120\sqrt{t_A}]$$
$$-7\frac{1}{2}[100(1-t_B)-120\sqrt{t_B}]-3[300(1-t_B)+120\sqrt{t_B}]$$

- First-order conditions

$$-1250t_A+390t_A^{-\frac{1}{2}}=0\rightarrow t_A^{\frac{1}{2}}=\frac{39}{125}\rightarrow t_A^O=t_B^O=(\frac{39}{125})\approx 9.7\%$$

Example of probabilistic voting model

Example

- Inefficient outcome (recall $\alpha^O \neq \alpha^U$)
- Lower-than-optimal weight on working class individuals; higher-than-optimal weight on upper-class individuals
- Let us consider next the case of policy-motivated candidates.
  - $U_A = -(t-1)^2 \rightarrow$ extreme-left party who wants full redistribution ($t = 1$)
  - $U_B = -t^2 \rightarrow$ extreme-right party who wants no redistribution ($t = 0$)
- For simplicity, let us assume $0 < \alpha^W = \alpha^U < 1$ so that optimal choice for office-motivated candidates would be efficient.

Example of probabilistic voting model

Example

- With policy-motivated candidates, A and B solve different problems
- Candidate A maximizes

$$\max_{C_A^1, C_A^2, \ldots C_A^{10}, G_A, t_A} \; -(t_A - 1)^2 \sum_{i=1}^{10} \alpha^i [C_A^i + 3\sqrt{G_A} - C_B^i - 3\sqrt{G_B}] + \\ -(t_B - 1)^2 \{N - \sum_{i=1}^{10} \alpha^i [C_A^i + 3\sqrt{G_A} - C_B^i - 3\sqrt{G_B}]\}$$

- Candidate B maximizes

$$\max_{C_B^1, C_B^2, \ldots C_B^{10}, G_B, t_B} \; -(t_B)^2 \sum_{i=1}^{10} \alpha^i [C_B^i + 3\sqrt{G_B} - C_A^i - 3\sqrt{G_A}] + \\ -(t_A)^2 \{N - \sum_{i=1}^{10} \alpha^i [C_B^i + 3\sqrt{G_B} - C_A^i - 3\sqrt{G_A}]\}$$

Example of probabilistic voting model

Example

- Subject to $C^i = 100(1 - t)$ and $G = 1600t$
- We omit the formal solution because the algebra becomes easily complicated.
- Important to remember: party A and party B solve two different problems in probabilistic voting if they are policy-motivated
  - Positive weight on their own policy preferences
  - Positive weight on EV
- Result: more moderated policy than their own optimal solution, but policy divergence

Multi-party system and legislative bargaining

- Suppose a state with a proportional system and parties "positioned" on a "left-right" line of the one-dimensional political space

- Suppose further that, since the system is proportional, each voter votes sincerely
- The distribution of seats obtained (total: 100) is as follows:

A	*B*	*C*	*D*	*E*	*F*	*G*
15	28	5	4	33	9	6

- It is necessary to form a coalition majority of 51 votes. The parties will therefore seek to unite ex-post to form a government

- A coalition is a set of parties that controls at least 51 votes. There are 61 possible coalitions of this type

Multi-party system and legislative bargaining

- Baron and Ferejohn (1989) consider a dynamic closed rule setup in committee voting
- Goal: allocate resources R to the members. Utility of member i is $U_i = r_i$
- N members (odd) are in a committee (Parliament). A proposal is approved if supported by $\frac{N+1}{2}$ members
  1. An agenda setter is chosen at random (for instance, based on exogenous election results) and proposes a non-negative allocation of resources to the other $N-1$ members
  2. If the proposal is accepted, payoffs are realized.
  3. Otherwise, a new agenda setter is randomly chosen and proposes a new allocation
  4. New vote and realization of payoffs
- In practice, this procedure can go on for very many rounds. For simplicity, we only focus on a simple version with two possible proponents.

Multi-party system and legislative bargaining

- Key assumption: each committee member will approve the proposal if and only if the amount allocated to the member is at least equal to the expected value of moving to the next round
- Backward induction solution
- In the final period, the expected value of moving to the next round is 0 (there is no next round). Hence, everybody would vote in support of any proposal made
- In the third period, anticipating what will happen in the third, the proponent will take everything and give nothing to others
- In the second period, each committee member's expected value of moving to the next round is equal to $r_i^2 = pR = \frac{R}{N}$
- Anticipating what will happen in the forthcoming periods, the first proponent can offer $r_i^1 = \frac{R}{N}$ to exactly $\frac{N-1}{2}$ members and secure the majority.
- Will this happen? Yes, as long as $R - \frac{N-1}{2}\frac{R}{N} \geq \frac{R}{N}$

Multi-party system and legislative bargaining

- The first-period proponent will form a coalition if what is left for her after compensating $N-1$ other members yields higher utility than advancing to next round and receive R with probability $p = \frac{1}{N}$ and 0 with probability $1-p = \frac{N-1}{N}$
- We call this condition *incentive compatibility* condition
- In this model, incentive compatibility is always satisfied as the previous equation holds for all $N \geq 1$.
- Incentive compatibility constraint is always satisfied because the first proponent receives a larger share of the pie than **everybody else**
  - Another example of agenda-setting power

Example on legislative bargaining

Example

- Consider the EU council: 27 members have to split 1,000 €
- We will make 3 examples of existing voting systems
  - Majority rule
  - Two-thirds majority
  - Unanimity rule
- Fourth period is equal under all systems: every country will vote for any proposal.
- Third period is equal under all systems: proposer country will propose to take all 1,000 €per se, and giving nothing to the others

Example on legislative bargaining

Example

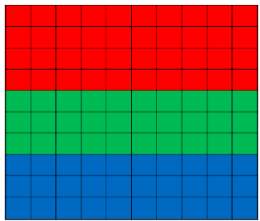
- Second period is equal under all systems: country i will vote for proposal if and only if country i receives at least $\frac{1000}{27} \approx 37$ €
- First period depends on voting system.
  1. Majority rule: first proponent will allocate $\frac{1000}{27}$ to 13 countries and keep $1000 - 13\frac{1000}{27} \approx 519$ €per se
     - Clearly incentive-compatible as $519 >> 37$
  2. Two-thirds majority rule: first proponent will allocate $\frac{1000}{27}$ to 17 countries and keep $1000 - 17\frac{1000}{27} \approx 370$ €per se
     - Clearly incentive-compatible as $370 >> 37$
  3. Unanimity rule: first proponent will allocate $\frac{1000}{27}$ to 26 countries and keep $1000 - 26\frac{1000}{27} \approx 37$ €per se
     - Incentive-compatible since $1000 - 26\frac{1000}{27} = \frac{1000}{27}$

The economic effects of voting rules

- The example above shows that voting system matter for economic outcomes
- Allocation of resources depends on voting system; potentially also size of public budget may depend on voting system
- Which country is given higher decision weight depends on voting system too
- This is true also when we consider voting system in nationwide elections
  - Two corner situations:
    1. **Proportional rule (PR)**: each party has a number of seats in parliament in proportion to the share of votes received. The whole country represent a single electoral district
    2. **Majoritarian rule (MA)**: the country is divided into a number of districts equal to the number of seats; whoever gets the relative majority of votes within the district wins the seat

Proportional rule

- Three parties: A, B and C
- Single national electoral district
- The share of votes at the national level are:
  - A: 40%
  - B: 30%
  - C: 30%
- Parliament (100 seats) will be divided in the following manner:



- **No majority: post-election bargaining is needed**!

Majoritarian rule

- Three parties: A, B and C
- Country is divided in 100 different electoral districts
- The share of votes at the national level are:
  - A: 40%
  - B: 30%
  - C: 30%
- How is Parliament composed? It depends on the distribution of votes within each district:
  - The votes are evenly distributed over the territory
  - In each district a candidate takes 100% of the preferences

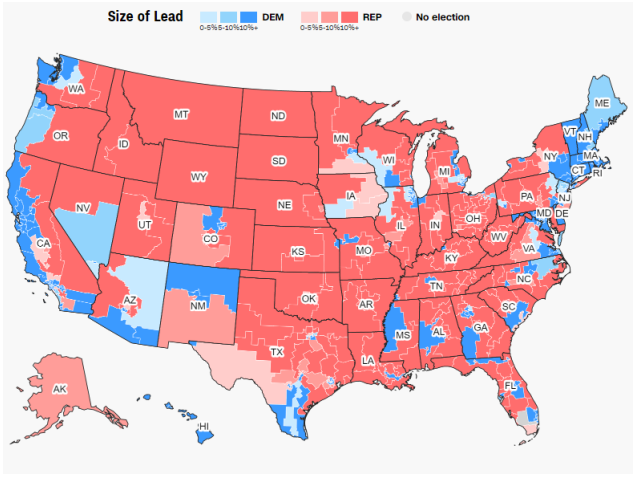
Majoritarian rule

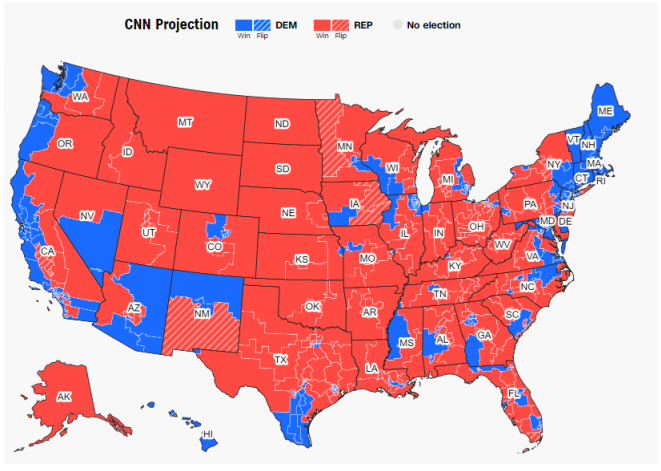
If the votes are distributed evenly within each district, that is:

- A: 40%
- B: 30%
- C: 30%

- Parliament (100 seats) will be composed as follows:

- **We have a majority, but very distort representation of voters' preferences**


Size of Lead
DEM
0-5%
5-10%
10%+
REP
0-5%
5-10%
10%+
No election
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DE
NJ
CT
RI
MA
VT
NH
ME
AK
HI


CNN Projection
DEM
Win
Flip
REP
Win
Flip
No election
WA
OR
CA
NV
ID
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
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OH
WV
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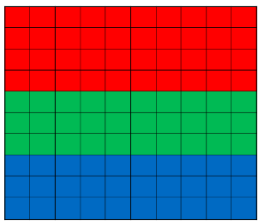
FL
SC
NC
VA
PA
NY
MD
DE
NJ
CT
RI
MA
VT
NH
ME
AK
HI

Majoritarian rule

If in each district one candidate got 100% of votes, that is:

- A: 100% in 40 districts
- B: 100% in 30 districts
- C: 100% in 30 districts

- Parliament (100 seats) will be composed as follows:



- **No majority: post-election bargaining is needed!**

The economic effects of electoral rules

Let us consider the effects on political choices in economics (level of redistribution, level of public expenditure, tax rate structure, fiscal federalism) of three different elements that differentiate the electoral rules:

1. **Size of electoral districts**: How many candidates can be elected in each district, that is from a single (national) one up to the number of seats in the parliament
2. **Electoral formula**: How votes become seats. With PR the seats are distributed in perfect proportion to the votes obtained; with MA, the one who has the relative majority wins in each district
3. **Voting procedure**: How citizens express their preferences, that is to a list (typical of PR) or to a single candidate (typical of MA)

The economic effects of electoral rules: district size

- Theoretical predictions focus on the winner's composition and allocation of public spending
  - **Big districts**: Promises, and their actual realization, in terms of public spending need to satisfy a wide share of citizens, who are typically very heterogeneous
    - ⋆ **Public spending is typically made up by nation-wide public goods and/or direct transfers**
  - **Small districts**: Competition focus on "swing" districts
    - ⋆ **Public spending is typically made up by districts-specific spending**
  - Which system is more expensive is still an open debate

The economic effects of electoral rules: electoral formula

- Usually, PR formula allows more parties to possibly run at the election and then eventually partecipating to the govenrment.
- At the same time, the need for larger coalitions might lead to a higher level of public spending to mantain them (inefficiency)

The economic effects of electoral rules: the voting procedure

- Expressing preferences on individual candidates and not on closed lists decided by parties increases the accountability of such candidates, the recognition of their merits (and responsibilities), and therefore the possibility that they will not be re-elected if they do wrong
- **Politicians elected in a closed-list system are generally less accountable** because:
  - The probability of their election depends on the position on the list: one is more sensitive to the party leader (who makes the lists) than to the voters;
  - The individual probability of being (re-)elected depends on party performance, leading to free riding among members of the same list

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