Public Finance

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Collective choice theory 3

Beyond the Downsian Model of Electoral Competition

- We have seen how the assumptions underlying the Downsian model are very restrictive.
- While some assumptions are necessary for a solution, other conditions can be relaxed.

- We will analyze some models that relax the assumptions of the Downs model:
  1. Probabilistic Voting Model (Lindbeck and Weibull 1987)
     - ⋆ Allows the analysis of multidimensional situations; ideologically driven voters; imperfect information; presence of lobbies or election campaigns.
  2. Political Accountability Model (Barro 1973, Ferejohn 1986)
     - ⋆ Allows the analysis of the possibility that incumbents are not bound to fulfill promises made before the elections.
  3. Parliamentary Bargaining Model (Baron and Ferejohn 1989)
     - ⋆ Allows the analysis of situations with more than 2 parties; parliamentary dynamics; situations where rule of kept promises is violated.
     - ⋆ Limitation: No elections. The focus is on post-electoral bargaining.

Probabilistic Voting Model

- We depart from the Downsian model of electoral competition, assuming that politicians cannot perfectly predict the number of votes they will receive.
  - In reality, a median voter always exists, but we don't know beforehand who this person is before the elections.
- To achieve this, Lindbeck and Weibull (1987) assume that voters vote based on both their policy preferences (i.e., the levels of G_A and G_B promised by the parties if elected) and a random shock.
  - The realization of the shock is observed by each voter but not by the politician.
  - We can think of ideology, the probability of abstaining, or the probability that the voter informs about the platforms or decides to vote randomly.

Probabilistic Voting Model

- In its simplest form, the probabilistic voting model assumes that the probability that individual i votes for party A is a continuous and differentiable function of the difference between the utility that the individual would receive from party A's proposal and the utility from party B's proposal.

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

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

  - Note: In Downs' model, $f^i(U^i(G_A) - U^i(G_B))$ is a discontinuous function that can only take values of 0, 0.5, and 1.

Probabilistic Voting Model

- Other assumptions align with Downs' model (1953):
  - 2 candidates (or 2 parties)
  - Rule of kept promises
  - Unidimensional voting (this assumption is no longer necessary, but we will maintain it in this course)
  - Each voter i has unimodal preferences with respect to G: G_i
  - Majority voting: the winner is the one with more votes (in case of a tie, flip a coin)

Probabilistic Voting Model

- Candidates must form rational expectations regarding the number of votes they will receive in the elections.
- Summing the probability that each individual votes for party A, we can determine the function that calculates the expected number of votes for party A (the same problem applies to 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: The candidate A office-motivated maximizes:

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

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

Probabilistic Voting Model

- First-order conditions

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

- Similar conditions 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** that takes into account the preferences of all individuals
- Each individual receives a positive social weight depending on $\frac{df^i(U^i(G_A)-U^i(G_B))}{dG_A}$
- Higher weight is assigned to **swing** voters $\rightarrow$ those voters who respond more to a marginal change in G's proposal
- Usually, the solution is inefficient (some individuals receive a higher weight just because they are swing voters)

Probabilistic Voting Model

- Analogy to the Downsian model:
  - Office-motivated candidates propose the same platform since they face the same problem.
- Differences from the Downsian model:
  - Candidates cannot use the preferences of the median voter as a target since each voter has a positive probability of being the median voter.
  - The solution is such that candidates assign a positive weight to all voters, and the weight reflects the probability that each individual is the median voter.
- In the Downs' model, even *policy-motivated* candidates are forced to converge toward different platforms. **What happens in the probabilistic voting model**?

Policy-Motivated Candidates in the Probabilistic Voting Model

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

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

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

- First-order conditions:

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

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

- The optimal choice of G_A and G_B will be somewhere between the party's preferred platform and full convergence (the platform proposed by office-motivated candidates)

Example of Probabilistic Voting Model

Example

- Two groups in society: 7 individuals belong to the working class (income $Y^i = 100$); 3 individuals belong to the upper class (income $Y^i = 300$)
- Voter i preferences: $C^i + 3\sqrt{G}$
- Individual i's budget constraint: $C^i = (1-t)Y^i$
- Government's budget constraint: $G = 7 \times 100 \times t + 3 \times 300 \times t = 1600t$
- New compared to the previous example: each working-class individual has a probability $\alpha^W = \frac{1}{2}$ of voting; each upper-class individual has a probability $\alpha^U = 1$ of voting

- Candidates cannot anticipate if the median voter will be from the upper or working class.
- They must consider the preferences of both groups.
- Solution (next slide).

Example of Probabilistic Voting Model

Example

- Both office-motivated parties maximize a weighted sum of individual utilities, where the weight assigned to each individual is given by the probability that they vote.
- 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:

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

- Adhering to the budget constraints $C^i = 100(1-t)$ and $G = 1600t$

Example of Probabilistic Voting Model

Example

- Party A and Party B face the same problem: solving for Party A, and applying the same solution to Party B.
- Substitute the budget constraints into the objective function

$$\begin{aligned}\max_{t_A} \quad & 7\frac{1}{2}\left[100(1-t_A)+120\sqrt{t_A}\right]+3\left[300(1-t_A)+120\sqrt{t_A}\right] \\ & -7\frac{1}{2}\left[100(1-t_B)+120\sqrt{t_B}\right]-3\left[300(1-t_B)+120\sqrt{t_B}\right]\end{aligned}$$

- First-order condition:

$$-1250+390t_A^{-\frac{1}{2}}=0 \quad \rightarrow \quad t_A^{\frac{1}{2}}=\frac{39}{125} \quad \rightarrow \quad t_A^O=t_B^O=\frac{1521}{15625}\simeq 9.7\%<14\%$$

Example of Probabilistic Voting Model

Example

- The result is inefficient (as $\alpha^O \neq \alpha^U$)
- The tax rate is lower than desired by working-class individuals and higher than desired by upper-class individuals.
- Consider now the case where candidates are *policy-motivated*.
  - $U_A = -(t-1)^2 \rightarrow$ extreme left-wing party wanting maximum redistribution ($t = 1$)
  - $U_B = -t^2 \rightarrow$ extreme right-wing party wanting no redistribution ($t = 0$)

Example of Probabilistic Voting Model

Example

- If candidates are policy-motivated, 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

- Adhering to the budget constraints $C^i = 100(1 - t)$ and $G = 1600t$
- Omitting the formal solution as the algebra would become very complicated.
- Important to remember: in the probabilistic voting model, Party A and Party B solve different problems when they are policy-motivated.
  - Positive weight on their own preferences
  - Positive weight on the EV function
- Result: More moderate platform than their preferences but still different from the other party.

Interests of Politicians vs. Interests of Voters

- One of the most important lessons we can draw from the probabilistic voting model is that electoral incentives lead politicians to mitigate their interests with those of the voters.
- The interests of politicians are not fully mitigated.
- Therefore, we can rationalize behaviors that do not gain votes but exist in reality, such as corruption or the simple pursuit of self-interest.

Interests of Politicians vs. Interests of Voters

- So far, we have considered one of the fundamental functions of elections: **voters choose between alternative policies**.
- This is not the only function of elections. Another important function is to ensure that the elected officials take responsibility for their actions in front of the voters (*accountability*).
- A limitation of previous models is the assumption that politicians are **bound to the proposed** policies announced to voters before the elections.
  - Each of us is aware of various examples where a political decision differed from what was announced before the elections.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Assumptions

- Elections take place regularly, and a certain type of behavior today can lead to better or worse electoral results in the future.
- Voters vote based on expectations about the future government's activity. However, they use the current government's activity to form their own expectations.
- **"Retrospective" voters**: If election promises are not credible, the only usable signal to predict political activity is past activity.
  - Difference between the incumbent and the challenger.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Assumptions (Continued)

- Two periods
  1. A politician is already in office. At the end of the period, elections between the incumbent and a challenger (randomly selected).
  2. After the elections, the elected politician is in office and implements his agenda.
- All voters have the same preferences: $U(G_t) = \log(G_t)$.
- Exogenous lump-sum tax set at $\tau > 1$.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Assumptions (Continued)

- The incumbent politician is honest with probability $0 < p < 1$ and corrupt with probability $1 - p$.
  - Utility function of the honest politician: $U(G_t^H) = \log(G_t)$;
  - Utility function of the corrupt politician: $U(G_t^C) = r_t + \log(G_t)$.
  - r_t is a rent that the politician can obtain for themselves by diverting resources from the government's budget.
- Government budget constraint: $\tau = G_t + r_t$.
- Voters ignore the type of the incumbent politician: their goal is to find out before the elections whether there is an honest or a corrupt incumbent.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Solution: Second Period

- In the second period, each type of politician, if in office, would implement what they prefer based on their utility function.
  - Honest politician: $r_2^H = 0$; $G_2^H = \tau$.
  - Corrupt politician: $r_2^C = \tau - 1$; $G_2^C = 1$.

Solution: First Period

- Voters must choose whether to confirm the incumbent politician — observed in the first period — or replace them with a *random* challenger, honest with probability p and corrupt with probability $1 - p$.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

- The goal of voters is to re-elect the incumbent politician if and only if $P(H|G_1) \geq p$.
- Voters can calculate $P(H|G_1 = \tau)$ using Bayes' rule:

$$P(A|B) = \frac{P(A) \times P(B|A)}{P(B)}$$

- That is

$$P(H|G_1 = \tau) = \frac{P(H) \times P(G_1 = \tau|H)}{P(G_1 = \tau|H) \times P(H) + P(G_1 = \tau|C) \times P(C)}$$

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

- We need to consider 3 cases:
  1. The incumbent politician is honest ($r_1^H = 0;\ G_1^H = \tau$).
  2. The incumbent politician is corrupt and pretends to be honest to get re-elected ($r_1^C = 0;\ G_1^C = \tau$).
  3. The incumbent politician is corrupt and behaves dishonestly even in the first period ($r_1^C = \tau - 1;\ G_1^C = 1$).

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Honest Politician

- This is the least interesting case: the honest politician will always implement their preferred platform, which aligns with voter preferences.

Corrupt Politician

- The corrupt politician has two viable paths.
- They must decide whether it is more convenient for them to obtain a positive rent r_1^C even in the first period (increasing the risk of losing subsequent elections, leading to $r_2^C = \tau - 1$ if elected) or to pretend to be honest to increase the chances of re-election.
- Assumption: The corrupt politician pretends to be honest with probability $0 < \theta < 1$ and will behave according to their preferences with probability $1 - \theta$.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

- We have all the elements to solve voters' Bayes' rule:

$$P(H|G_1 = \tau) = \frac{p}{p + (1-p)\theta} > p$$

- Where
  - $P(H) = p$
  - $P(G = \tau|H) = 1$
  - $P(C) = 1 - p$
  - $P(G = \tau|C) = \theta$

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

- Similarly, we obtain that the probability that a politician is corrupt if they obtained rents in the first period is 1 (obviously $> 1 - p$):

$$P(C|G_1 = 1) = \frac{(1-p)(1-\theta)}{(1-p)(1-\theta)} > 1 - p$$

- Therefore, voters will re-elect the incumbent politician if and only if they implement $G_1 = \tau$.
- The "signal" that voters receive from the incumbent's activity in the first period is considered informative if $P(H|G_1) \neq p$ and $P(C|G_1) \neq 1 - p$.
  - Observing the performance of the incumbent has an impact on voters' *beliefs* about the type of incumbent.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

Example

- $p = \frac{1}{2}$; $\theta = \frac{1}{2}$.
- In the absence of electoral incentives, the corrupt politician obtains $r = \tau - 1$ with $p = \frac{1}{2}$ in both the first and second periods.
- Elections bring a benefit to voters:
  - The corrupt politician imitates the honest one in the first period with probability $\theta = \frac{1}{2}$.
  - The probability that the politician obtains rents in the first period is $(1 - p)(1 - \theta) = \frac{1}{4}$.
  - With probability $(1 - p)(1 - \theta) = \frac{1}{4}$, the incumbent politician is removed in the elections. They can be replaced by an honest one ($p = \frac{1}{2}$) or a corrupt one ($1 - p = \frac{1}{2}$).

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

- Therefore, the politician in the second period will obtain rents with probability

$$\theta(1-p) + (1-\theta)(1-p)(1-p) = \frac{1}{4} + \frac{1}{8}$$

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

What does this model teach us?

1. If corrupt politicians exist, electoral incentives are not sufficient to remove them in 100% of cases.
2. Electoral incentives limit corruption.
   - The corrupt politician can extract rents either in the first period (and then be excluded) or in the second period (after pretending to be honest); not in both, as they would have preferred.
3. The electoral system matters.
   - Having more frequent elections can limit corruption as the corrupt politician must respond to incentives more often.
   - The two-term rule is not necessarily positive: a politician who knows they cannot be re-elected is free to pursue their agenda during the second term.

Interests of Politicians vs. Interests of Voters

Accountability Models [Barro (1973), Ferejohn (1986)]

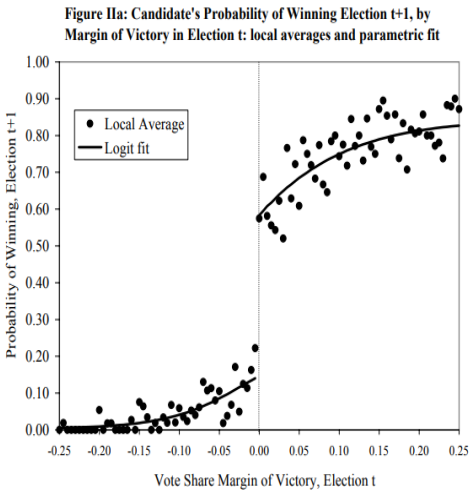
- For non-extreme values of p and θ, the model also explains how elections inherently favor the incumbent politician in subsequent elections (*incumbency advantage*).
- In the example, the probability of confirming the incumbent politician is

$$p + (1 - p)\theta = \frac{3}{4}$$

- While the probability of electing the random opponent is $(1 - p)(1 - \theta) = \frac{1}{4}$.
- Simply because a politician had been randomly selected as the incumbent in the first period.

Interests of Politicians vs. Interests of Voters

Incumbency Advantage



Problem: Does incumbency advantage cause corruption, or is it the screening applied by voters to reduce the percentage of corrupt politicians that causes incumbency advantage?

Systems with More Than Two Parties and Parliamentary Negotiation

- Suppose we are in a country with a proportional representation system where parties are positioned on a left-right axis in a one-dimensional space.
- Also, suppose that, due to the proportional representation system, voters express their preferences sincerely.
- The distribution of seats obtained by each party (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 to have a majority of 51 votes. The parties will try to join forces after the elections to form a government.
- A government coalition is a set of parties that control at least 51 seats. There are, in this example, 61 possible such coalitions.

Systems with More Than Two Parties and Parliamentary Negotiation

- Baron and Ferejohn (1989) consider the case of voting in a small committee.
- Goal: allocate resources R to the members. The utility of member i is $U_i = r_i$.
- N members (odd) in the committee (parliament). A proposal is approved if it receives the favorable votes of $\frac{N+1}{2}$ members.
  1. A proponent is chosen randomly (e.g., based on the election result) and proposes an allocation of resources to the other $N-1$ members, ensuring that no member receives $r_i < 0$.
  2. If the proposal is approved, resources are distributed.
  3. Otherwise, a new proponent is randomly selected and can make a counterproposal.
  4. The committee votes again, and resources are distributed. If the committee continues to fail to reach an agreement, no resources are distributed.
- In real dynamics, this procedure can go on for many rounds. For simplicity, we focus on a simplified case with only 2 proposal rounds.

Systems with More Than Two Parties and Parliamentary Negotiation

- Key assumption: each committee member will vote in favor of a proposal if and only if the resources assigned to them are at least equal to the expected value of waiting for the next turn.
- Solution using backward induction procedure.
- In the last period, the expected value of waiting for the next turn is 0 (no resources in case of no agreement). Therefore, all committee members will vote in favor of any proposal.
- Anticipating this, the proponent of the last turn will allocate all resources for themselves.
- In the preceding period, the expected value of waiting for the next turn for each member is $r_i^2 = pR = \frac{R}{N}$.
- Anticipating this, the proponent of the first turn can offer exactly $r_i^1 = \frac{R}{N}$ to exactly $\frac{N-1}{2}$ other members to ensure a majority. Convenient for the proponent to do so? Yes, if $R - \frac{N-1}{2}\frac{R}{N} \geq \frac{R}{N}$.

Systems with More Than Two Parties and Parliamentary Negotiation

- The proponent of the first period will form a coalition if what remains available to them after compensating $\frac{N-1}{2}$ other members ensures utility not lower than waiting for the next turn and receiving R with probability $p = \frac{1}{N}$ and 0 with probability $1 - p = \frac{N-1}{N}$.
- This condition is known as **incentive compatibility condition**.
- In this model, the incentive compatibility condition is always satisfied since $N \geq 1$.
- The incentive compatibility condition is satisfied as the proponent of the first period manages to obtain more resources than any other member.
  - Example of agenda-setting power.

Legislative Bargaining Example

Example

- Consider the European Council: 27 members have to divide 1B €.
- We will solve the problem according to three possible voting systems:
  - Majority Rule
  - Two-Thirds Majority Rule
  - Unanimity Rule
- The last period is the same in all systems. Each country will vote in favor of any proposal.
- Therefore, the proposing country will allocate 1B €to themselves, leaving nothing for others.

Legislative Bargaining Example

Example

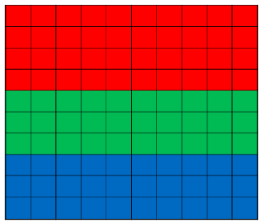
- The minimum amount of resources that makes a country willing to vote for the proposal received in the first period is the same in all systems: country i will vote for the proposal if and only if country i receives at least $\frac{1B}{27} \approx 37M$ €.
- The first-period proponent's offer **depends on the voting system**.
  1. Majority Rule: the first proponent will allocate $\frac{1B}{27}$ to 13 other countries and keep $1B - 13\frac{1B}{27} \approx 519M$ €for themselves.
     - Clearly satisfies the incentive compatibility condition as $519 >> 37$.
  2. Two-Thirds Majority Rule: the first proponent will allocate $\frac{1B}{27}$ to 17 other countries and keep $1B - 17\frac{1B}{27} \approx 370M$ €for themselves.
     - Clearly satisfies the incentive compatibility condition as $370 >> 37$.
  3. Unanimity Rule: the first proponent will allocate $\frac{1B}{27}$ to all other 26 countries and keep $1B - 26\frac{1B}{27} \approx 37M$ €for themselves.
     - Satisfies the incentive compatibility condition as $1000 - 26\frac{1000}{27} = \frac{1000}{27}$.

Economic Effects of Electoral Systems

- The previous example shows that electoral systems can (also) have economic consequences.
- The distribution of resources depends on the electoral law; potentially, even the size of the public budget can depend on the electoral system.
- Which country will have greater decision-making weights can, in turn, depend on the electoral law.
- This is true even when considering electoral systems used for elections.
  - Two extreme cases:
    1. **Proportional Representation (PR)**: each party receives a number of seats in parliament proportional to the percentage of votes received. The entire country represents a single electoral district.
    2. **Majoritarian System (MA)**: the country is divided into a number of electoral districts equal to the number of seats to be assigned; whoever receives a simple majority of votes in the district wins the seat for that district.

Proportional System

- Three parties: A, B, and C.
- Single national electoral district.
- The national vote percentages are:
  - A: 40%
  - B: 30%
  - C: 30%
- The parliament (100 seats) will be composed as follows:



- **No majority: post-electoral bargaining between parties is necessary!**

Majoritarian System

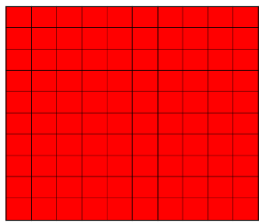
- Three parties: A, B, and C.
- The country is divided into 100 electoral districts.
- The national vote percentages are:
  - A: 40%
  - B: 30%
  - C: 30%
- What will be the composition of the parliament? It depends on the distribution of votes within each district:
  - Votes are distributed uniformly across the national territory.
  - In each district, a party receives 100% of the votes.

Majoritarian System

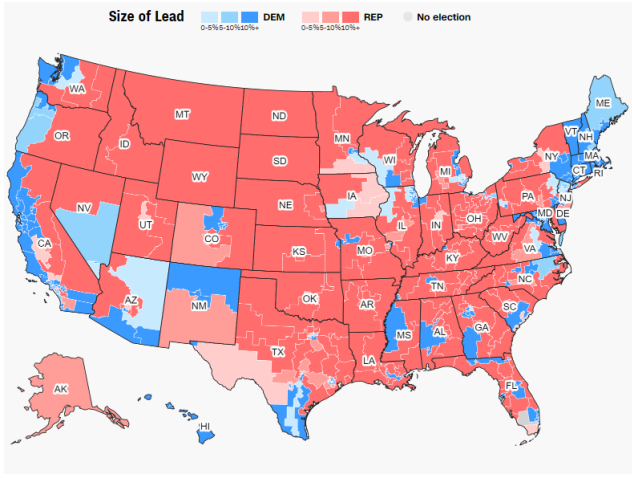
If votes are distributed uniformly across the national territory, so:

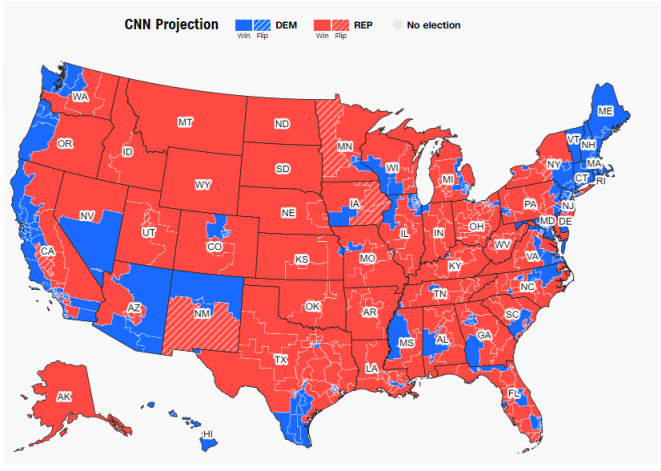
- A: 40%
- B: 30%
- C: 30%

- The parliament (100 seats) will be composed as follows:



- **We get a majority, but voters' preferences have been represented in a very distorted way**.


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
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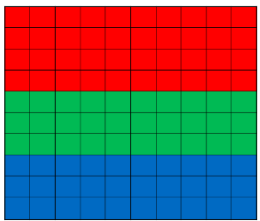
HI

Majoritarian System

If a party gets all the votes in a district, then:

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

- The parliament (100 seats) will be composed as follows:



- **No majority: post-electoral bargaining between parties is necessary**!

Economic Effects of Electoral Systems

Consider the effects on political choices relevant to the economy (level of redistribution, level of public spending, tax structure, fiscal federalism) of three elements characterizing electoral systems:

1. **Size of Electoral Districts**: How many candidates are elected in each district. From one (pure majority) to the total number of seats in parliament (pure proportional).
2. **Electoral Formula**: How votes are transformed into seats. With PR, seats are distributed in proportion to the votes received. With MA, anyone with a simple majority wins all seats in that district.
3. **Voting Procedure**: How individuals express their preferences. Do they vote for parties (typical in PR) or individual candidates (typical in MA).

Economic Effects of Electoral Systems: Size of Electoral Districts

- Theoretical predictions focus on the composition and distribution of public spending decided by the winner.
  - **Large Districts**: Electoral promises (and their realization) must satisfy a broad spectrum of citizens very different from each other.
    - ⋆ **Public spending is mainly composed of national public goods or direct transfers**.
  - **Small Districts**: Competition focuses on *swing* districts.
    - ⋆ **Public spending is mainly composed of local public goods**.
  - It is not clear which of the two systems is more expensive.

Economic Effects of Electoral Systems: Electoral Formula

- Usually, the proportional formula allows a greater number of parties to run for election and perhaps be part of the government.
- Maintaining broad coalitions can result in costly inefficiencies, and therefore higher public spending compared to the majoritarian formula, which encourages only two parties to run in elections.

Economic Effects of Electoral Systems: Voting Procedure

- Allowing voters to choose between different candidates rather than lists of candidates selected by parties improves control by voters (*accountability*) and therefore the possibility that they are not re-elected in case of failure.
- **Politicians elected under a closed list system** are more difficult for voters to control as:
  - Their probability of being elected depends on their position on the list: candidates are under the control of the party leader (who composes the list order) rather than under the control of voters.
  - The individual probability of being (re-) elected depends on the overall performance of the list, which is a public good among the various candidates on the list $\rightarrow$ free-riding.

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