

An introduction to Electoral Systems

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Structure of the presentation

- What is an electoral system?
- Presidential election
 - Plurality
 - Majority
- Legislative election
 - Plurality
 - Majority
 - PR
 - Mixed
- Other voting systems
 - Approval
 - Borda
 - Point

What is an electoral system?

The rules that define

- what the structure of outcome will be (districts/seats)
- how people will vote (ballot)
- how votes will be converted into seats (formula)

The district

- How many candidates to be elected (seats)?
- How many districts (small or large)?
- Districts of equal magnitude or not?
- Upper tiers or not?

The ballot

- How people express their views
- Voting for a party or a candidate or both?
- One or many votes?
- One or many rounds?
- Votes are: nominal/ordinal/numerical?

The components of an electoral system

- First: the district (seats). The outcome
- Second: the vote (ballot). The beginning
- Third: the formula. How to get from votes to the outcome (seats)
- Each is essential
- Concepts usually refer to a single component

The formula

- Plurality
- Majority
- Quota

Presidential election

- Is the president elected?
- Is she directly elected?
- Which system is used?
- One district/one seat

Presidential election Plurality system (FPTP)

- Voters vote for one candidate
- The candidate with most votes is elected
- Ex: Mexico

Presidential election

Majority system

- The candidate must win the majority of the votes
- Possible that no candidate has a majority
- There are three ways to solve this problem

Presidential election

Majority system

Majority – Runoff

- Voters vote for one candidate
- A majority is required on the first ballot
- If no candidate has a majority, there is a second ballot, called the 'runoff'
- Only the two candidates with most votes in the first round can compete in the second round
- The candidate with most votes in the second ballot is elected
- Ex: Austria, France

Presidential election

Majority system

Majority – Plurality

- A majority is required on the first ballot
- If no candidate has a majority, a second ballot is conducted with the plurality rule
- In some cases, candidates must have reached a threshold on the first ballot
- The candidate with the most votes on the second ballot is elected

Presidential election

Majority system

Alternative Vote

- A single ballot.
- Each voter ranks candidates.
- If no candidate has a majority of first choices, the candidate with the least first choices is eliminated, and we consider the second choice of voters whose first choice is eliminated.
- The procedure is repeated until a candidate has a majority.
- Ex: Ireland

Legislative election

- Which formula is used to convert votes into seats in legislative elections?
- Also necessary to take into account the type of district and the type of vote/ballot

Legislative election

Plurality system

- Typically single-member districts
- One vote for one candidate/party
- One round
- The candidate with most votes is elected

Legislative election

Plurality system

- Possible to have multi-member districts
- Then usually as many votes as seats
- Block vote (but can be majority)
- Also SNTV (Japan, until 1994)
- And limited voting (Spanish senate: 4 seats/3 votes)

Legislative election

Majority system

Majority – Runoff

- Usually single-member districts
- One vote
- A majority is required in the first round
- If no candidate has a majority, there is a second ballot, called the 'runoff'
- Only the two candidates with the most votes in the first round can compete in the second round. The candidate with the most votes is elected

Legislative election

Majority system

Majority – Plurality

- A majority is required in the first round
- If no candidate has a majority, a second round is conducted with the plurality rule
- Usually, the candidates must have reached a threshold in the first round (12.5% of electors in France)
- The candidate with the most votes is elected
- Ex: France

Legislative election

Majority system

Alternative Vote

- Usually single-member district
- A single round is organized
- Each voter ranks candidates
- If no candidate has a majority of first choices, the candidate with fewest first choices is eliminated and we consider the second choices of voters whose first choice is eliminated
- The procedure is repeated until a candidate has a majority
- Ex : Australia

Proportional system

- PR is widely used in legislative elections
- PR is not a formula; there is a series of so-called PR formulas
- PR refers to some kind of purpose: correspondence between votes and seats
- Ambiguous concept (like 'majoritarian')
- But part of the common vocabulary
- Huge variety of PR systems
- First distinction: party-list or not (STV)?

Proportional system (non list)

Single transferable vote

How does it work? (Ireland)

- Multimember districts (let us say 4 seats)
- Parties decide how many candidates to present (one or two?)
- Voters rank order the candidates (no vote for the party list)

Proportional system

Single transferable vote

- Only first choices are initially counted
- A quota is computed for the district
- Candidates with first choices equal to or greater than the quota are elected

Proportional system

Single transferable vote

- Surplus votes cast for those elected are transferred to the remaining candidates on the basis of second choices
- If some seats are unallocated, the candidate with the fewest first choices is eliminated and we consider the second choices of those whose first choice was eliminated candidate
- This goes on until all seats are allocated

Proportional system

List systems

What are list systems?

- Each party has a list of candidates
- Either voters vote for a party list and/or candidates but at some point the votes for all the candidates within a list are added up

Proportional system

List system

There are five major decisions involved in a list PR system

- 1) district magnitude?
- 2) formula?
- 3) tiers?
- 4) threshold?
- 5) type of list (ballot/vote)?

Proportional system

District magnitude

- Some countries have a single electoral district. For instance, Israel has a single national district with 120 seats
- The vast majority of countries have many districts
- Typical district: 10 seats
- Sometime huge variation (Spain: 2 to 36)
- Crucial for small parties

Proportional system

Electoral formula

- PR is not an electoral formula
- Many formulas are construed as PR
- Basic idea: Seats are to be divided among the parties according to their vote support
- Two types: 1. largest-remainder methods (with quotas) 2. highest-average methods (with divisors)

Proportional system

Electoral formula

largest-remainder methods

- Two steps
- First, the number of votes for each party is divided by a quota. The resulting whole number is the initial number of seats each party gets
- Second, unallocated seats are awarded to parties with the largest remainders

Proportional system

Electoral formula

- How to compute the quota?
- LR-Hare divides the number of votes by the number of seats (Austria)
- LR-Droop divides the number of votes by the number of seats plus one (South Africa)

An example: Droop quota

Party	Votes/Hare quota	Seats won
Blues	$57,000/10,834=5.260$	5
Whites	$26,000/10,834=2.400 (*)^a$	3
Reds	$25,950/10,834=2.395$	2
Greens	$12,000/10,834=1.100$	1
Yellows	$6,010/10,834=0.550(*)$	1
Pinks	$3,050/10,834=0.280$	0
Total	10 (2) ^b	12

- a. Seats going to the parties with the largest remainders
- b. Total number of seats allocated through largest remainders

An example: Hare quota

Party	Votes/Hare quota	Seats won
Blues	$57,000/10,001 = 5.669 (*)^a$	5
Whites	$26,000/10,001 = 2.5997$	2
Reds	$25,950/10,001 = 2.595$	2
Greens	$12,000/10,001 = 1.2$	1
Yellows	$6,010/10,001 = 0.6009 (*)$	0
Pinks	$3,050/10,001 = 0.305$	0
Total	$10 (2)^b$	12

- a. Seats going to the parties with the largest remainders
- b. Total number of seats allocated through largest remainders.

Proportional system

Electoral formula

- LR-Hare is more proportional
- Other methods: Hagenbach-Bischoff (Greece)

Proportional system

Electoral formula

Highest-average methods

- The number of votes for each party is divided successively by a series of divisors
- Seats are allocated to the parties with the highest quotients

Proportional system

Electoral formula

- There are three highest-average methods currently in use
- D'Hondt (1/2/3/4 and so on.) (Belgium)
- Pure Sainte-Laguë (1/3/5/7...) (Latvia)
- Modified Sainte-Laguë (1.4/3/5/7...) (Norway)

An example: D'Hondt (12 seats)

	Blues (57,000)	Whites (26,000)	Reds (25,950)	Greens (12,000)	Yellows (6,010)	Pinks (3,050)
1	57,000 A	26,000 C	25,950 D	12,000 I	6,010	3,050
2	28,500 B	13,000 G	12,975 H	6,000	3,005	1,525
3	19,000 E	8,667 L	8,650	4,000	2,003	1,017
4	14,250 F	6,500	6,488	3,000	1,503	763
5	11,400 J	5,200	5,190	2,400	1,202	610
6	9,500 K	4,333	4,325	2,000	1,002	508
7	8,143	3,714	3,707	1,714	859	436
Seats won	6	3	2	1	0	0

An example: Pure Sainte-Laguë (12 seats)

	Blues (57,000)	Whites (26,000)	Reds (25,950)	Greens (12,000)	Yellows (6,010)	Pinks (3,050)
1	57,000 A	26,000 B	25,950 C	12,000 E	6,010 J	3,050
3	19,000 D	8,667 F	8,650 G	4,000	2,003	1,017
5	11,800 E	5,200 K	5,190	2,400	1,202	610
7	8,428 H	3,714	3,707	1,714	859	436
9	6,333 I	2,889	2,883	1,333	668	339
11	5,181	2,364	2,359	1,090	546	277
13	4,385	2,000	1,996	923	462	235
Seats won	5	3	2	1	1	0

Proportional system

Electoral formula

- Sainte-Laguë is the most proportional
- D'Hondt is the most popular
- The formula matters more in small districts

Proportional system

Tier

- Most countries only have a single tier, but some have two or even three
- The presence of multiple tiers implies that there is a hierarchy of districts. For instance, local districts, regional districts, and a national district
- Tiers are (often) used to make the system more proportional

Proportional system

Tier

How are seats allocated in higher tiers?

- There are three methods
 - 1) Remainders are regrouped in higher tiers (Belgium regional election)
 - 2) A fixed number of seats are reserved in a higher tier to correct distortions at lower tiers (Denmark)
 - 3) Independent tiers (Poland)

Proportional system Threshold

- Thresholds in most PR systems
- Refer to the % of votes required to be counted
- Often between 3% and 5%
- District and/or national

Proportional system

Type of list

- *Closed list*: voters vote for a list, not for candidates, who are elected in the order specified on the party list (Israel)
- *Open list*: voters may/must vote for candidates (Finland)

Types of *open list*

- Voting: voters may/must vote for one or many candidates
- Initial counting: votes for candidates count for parties
- Counting for candidates: votes for lists go to top candidates
- Threshold: required number or % of votes to surpass a higher candidate on the list

Panachage (Switzerland)

- Lists and candidates
- Voters have as many votes as there are seats in the district (let us say 10)
- They can vote for candidates from different lists
- First, counting of votes for lists, which determines how many seats each party gets
- Second, counting of votes for each candidate on each list, which determines which candidates are elected

Mixed Systems

- Possible to mix different electoral systems (PR with plurality, PR with majority, plurality with majority)
- Usually PR with majority or plurality

Mixed System

3 (main) ways to mix systems

- *Coexistence*: PR in parts of the territory and plurality or majority in other parts (French senate)
- *Independent (Parallel) Combination*: two sets of representatives elected separately and with different rules (Japan)
- *Corrective*: two sets of representatives elected with different rules BUT the total number of seats a party gets depends on the PR votes (Germany)

The German mixed system

- District: 299 single-member districts and 1 national district (299 seats or more)
- Ballot: Two votes
- First vote for a candidate in a single-member district
- Second vote for a closed regional list

The German Electoral Formula

- First votes
- 299 single-member districts
- Plurality rule
- 299 MPs elected

The German Electoral Formula

- Second votes
- Formula: Sainte-Lague
- Threshold: 5% of votes or 3 single-member seats
- Formula applies to the total number of seats in each region
- Number of list seats: total seats under PR – total seats under plurality

The German Electoral System

- Possible for a party to win more seats than it 'should' according to Sainte-Lague. The party keeps those 'extra' seats
- 2013 election: 631 seats instead of 598
- CDU/CSU: 42% of votes/49% of seats
- SPD: 26% of votes/31% of seats
- Die Linke: 9% of votes/10% of seats
- Green: 8% of votes/10% of seats
- FDP: 4.8% of votes, 0 seat
- Alternative: 4.7% of votes, 0 seat
- For total seat allocation among parties, same as PR (with 5% threshold). But half of candidates elected in SM districts

The Japanese mixed system

- Each voter votes in two parallel elections
- 300 MPs elected by plurality in single-member districts.
- 180 MPs elected in 11 multi-member districts with D'Hondt
- The distribution of seats in the PR election is unaffected by the results of the plurality election.

Other mixed systems: French municipal elections

- Multi-member districts
- Closed party lists
- Two rounds
- First round: if a list has a majority of votes, it gets an initial 50% of seats. The other 50% through D'Hondt
- Second round: the list with most votes gets an initial 50% of seats. The other 50% through D'Hondt

Other voting systems

- Approval
- Borda
- Points
- Refers to type of ballot/vote
- Often assumes one seat and plurality rule

Approval voting

- One votes for as many candidates/parties as one wishes (approves)
- Can be used with different types of districts
- And different formulas
- Usually: single-member districts and plurality
- Formerly used in Papal conclave and in the selection of the Doge of Venice, now used mostly in professional associations, such as the American Statistical Association

Borda Count

- Voters rank order the parties/candidates (like alternative voting and STV)
- When counting, points are given to ranks
- If 5 candidates: 5/4/3/2/1
- Can be used with any formula
- Usually single-member district and plurality

Point systems

- Voters give points to each party/candidate
- 0 to 10
- 0/1/2
- -1/0/+1
- Then the electoral formula

Frequency of Systems (Presidential)

- Blais and Massicotte (2002)
- Majority/runoff: 19
- Plurality: 6
- Alternative: 1
- Other: 6

Frequency of Systems (Legislative)

- Blais and Massicotte (2002)
- PR: 30
- Plurality: 9
- Majority: 3
- Mixed: 16

Frequency of Systems (Legislative)

- IDEA (Electoral System Design)
- List PR: 70
- FPTP: 47
- Two rounds: 22
- Mixed parallel: 21
- Block vote: 15

Frequency of Systems (Legislative)

- Carter and Farrell (2010)
- List PR: 67
- SM plurality: 36
- Mixed majoritarian: 26
- Majority runoff: 20
- Block: 11

CONCLUSION

- 3 crucial dimensions
- First, district (seats): the structure of outcome
- Second, ballot: how to vote
- Third, formula: how to get from votes to outcome