

An electoral system or voting system is a set of rules that determine how elections and referendums are conducted and how their results are determined. Political electoral systems are organized by governments, while non-political elections may take place in non-profit organizations, business, and informal organizations. These rules govern all aspects of the voting process: when elections occur, who is allowed to vote, who can stand as a candidate, how ballots are marked and cast, how the ballots are counted, how votes translate into the election outcome, limits on campaign spending, and other factors that can affect the result. Political electoral systems are defined by constitutions and electoral laws, are typically conducted by election commissions, and can use multiple types of elections for different offices.

Some electoral systems elect a single winner to a unique position, such as prime minister, president, or governor, while others elect multiple winners, such as members of parliament or boards of directors. When electing a legislature, voters may be divided constituencies with one or more into representatives, and may vote directly for individual candidates or for a list of candidates put forward by a political party or alliance. There are many variations in electoral systems, with the most common systems being firstpast-the-post voting, block voting, the tworound system, proportional representation and ranked voting. Some electoral systems, such as mixed systems, attempt to combine the benefits of non-proportional and proportional systems.

<sup>1</sup> Arrow's impossibility theorem is a social-choice paradox illustrating the flaws of ranked voting systems. It states that a clear order of preferences cannot be determined while adhering to mandatory principles of fair voting procedures.

# A new model in the study of the **Canadian** Flectoral system

The study of formally defined electoral methods is called social choice theory or voting theory, and this study can take place within the field of political science, economics, or mathematics, and specifically within the subfields of game theory and mechanism design. Impossibility proofs such as Arrow's impossibility theorem<sup>1</sup> demonstrate that when voters have three or more alternatives, no preferential voting system can guarantee the between two candidates race remains unaffected when an irrelevant candidate participates or drops out of the election.

### Types of electoral systems

#### Plurality systems

Plurality voting is a system in which the candidate with the highest number of votes wins, with no requirement to get a majority of votes. In cases where there is a single position to be filled, it is known as first-past-the-post<sup>2</sup>; it is adopted in Canada to elect the Canadian Parliament. It is the second most common electoral system for national legislatures, with 58 countries using it to elect their legislatures, the vast majority of which are current or former British or American colonies or territories. It is also the second most common system used for presidential elections, being used in 19 The totals achieved by each countries. candidate determine the winners.

#### Majoritarian systems

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Majoritarian voting is a system in which candidates must receive a majority of votes to be elected, either in a runoff election or final round of voting. There are two main forms of

<sup>2</sup> Members of Parliament are elected in single-member districts according to the "first-past-the-post" (FPTP) principle, meaning that the candidate with the plurality of votes is the winner of the congressional seat. The losing party or parties win no representation at all.

majoritarian systems, one conducted in a single election using ranked voting<sup>3</sup> and the other using multiple elections, to successively narrow the field of candidates. Both are primarily used for single-member constituencies.

Majoritarian voting can be achieved in a single election using instant-runoff voting, whereby voters rank candidates in order of preference; this system is used for parliamentary elections in Australia and Papua New Guinea. If no candidate receives a majority of the vote in the first round, the second preferences of the lowest-ranked candidate are then added to the totals. This is repeated until a candidate achieves over 50% of the number of valid votes. If not, all voters use all their preference votes, then the count may continue until two candidates remain, at which point the winner is the one with the most votes. A modified form of IRV<sup>4</sup> is the contingent vote where voters do not rank all candidates but have a limited number of preference votes.

If no candidate has a majority in the first round, all candidates are excluded except the top two, with the highest remaining preference votes from the votes for the excluded candidates then added to the totals to determine the winner. This system is used in Sri Lankan presidential elections, with voters allowed to give three preferences.

The other main form of majoritarian system is the two-round system, which is the most common system used for presidential elections around the world, being used in 88 countries.

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It is also used in 20 countries for electing the legislature. Argentina uses this system, which is known as ballotage.

An exhaustive ballot is not limited to tworounds but sees the last-placed candidate eliminated in each round of voting. Due to the potentially large number of rounds, this system is not used in any major popular elections but is used to elect the Speakers of parliament in several countries and members of the Swiss Federal Council. In some formats there may be multiple rounds held without any candidates being eliminated until a candidate achieves a majority, a system used in the United States Electoral College<sup>5</sup>.

### Proportional systems

Proportional representation is the most widely used electoral system for national legislatures, with the parliaments of over eighty countries elected by various forms of the system.

Party-list proportional representation is the single most common electoral system and is used by 80 countries and involves voters voting for a list of candidates proposed by a party. In closed list systems voters do not have any influence over the candidates put forward by the party, but in open list systems voters are able to both vote for the party list and influence the order in which candidates will be assigned seats. In some countries, notably Israel and the Netherlands, elections are carried out using 'pure' proportional representation, with the votes tallied on a national level before assigning

<sup>5</sup> The number of electors each state gets is equal to its total number of Senators and Representatives in Congress. A total of 538 electors forms the Electoral College. Each elector casts one vote following the general election. The candidate who gets 270 votes or more wins.

<sup>&</sup>lt;sup>3</sup> The electors rank their nominees, first candidate, second candidate, third candidate, etc.

<sup>&</sup>lt;sup>4</sup> Instant-runoff voting (IRV) is a type of ranked preferential vote counting method used in single-seat elections with more than two candidates. Like all ranked ballot voting systems, instead of indicating support for only one candidate, voters in IRV elections can rank the candidates in order of preference.

seats to parties. However, in most cases several multi-member constituencies are used rather than a single nationwide constituency, giving an element of geographical representation<sup>6</sup>; but this can result in the distribution of seats not reflecting the national vote totals. As a result, some countries have leveling seats to award to parties whose seat totals are lower than their proportion of the national vote.

In addition to the electoral threshold, there are several different ways to allocate seats in proportional systems. There are two main types of systems: highest average and largest remainder.

Highest average systems involve dividing the votes received by each party by a series of divisors, producing figures that determine seat allocation; for example, the D'Hondt method and the Webster/Sainte-Laguë method.

Under largest remainder systems, parties' vote shares are divided by the quota. This usually leaves some seats unallocated, which are awarded to parties based on the largest fractions of seats that they have remaining. Examples of largest remainder systems include the Hare quota, Droop quota, the Imperiali quota and the Hagenbach-Bischoff quota.

Single transferable vote is another form of proportional representation; in STV<sup>7</sup>, voters rank candidates in a multi-member constituency rather than voting for a party list; it is used in Malta and the Republic of Ireland. To be elected, candidates must pass a quota. Candidates that pass the quota on the first count are elected. Votes are then reallocated from the least successful candidates, as well as

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surplus votes from successful candidates, until all seats have been filled by candidates who have passed the quota. San Marino has a modified two-round system, which sees a second round of voting featuring the top two parties or coalitions if there is no majority in the first round. The winner of the second round is guaranteed 35 seats in the 60-seat Grand and General Council.

In Uruguay, the President and members of the General Assembly are elected by on a single ballot, known as the double simultaneous vote. Voters cast a single vote, voting for the presidential, Senatorial and Chamber of Deputies candidates of that party. This system was also previously used in Bolivia and the Dominican Republic.

### Primary elections

Primary elections are a feature of some electoral systems, either as a formal part of the electoral system or informally by choice of individual political parties as a method of selecting candidates, as is the case in Italy. Primary elections limit the risk of vote splitting by ensuring a single party candidate.

In Argentina primary elections are a formal part of the electoral system and take place two months before the main elections; any party receiving less than 1.5% of the vote is not permitted to contest the main elections. In the United States, there are both partisan and nonpartisan primary elections.

**Indirect elections** 

representation using multiple-member constituencies and each voter casting a single ballot on which candidates are ranked.

<sup>&</sup>lt;sup>6</sup> This is to represent remote and sparsely populated areas; Also, a similar system is used to represent minorities in the country.

<sup>&</sup>lt;sup>7</sup> Single transferable vote (STV) is a voting system designed to achieve or closely approach proportional

Some elections feature an indirect electoral system, whereby there is either no popular vote, or the popular vote is only one stage of the election; in these systems the final vote is usually taken by an electoral college. In several countries, such as Mauritius or Trinidad and Tobago, the post of President is elected by the legislature. In others like India, the vote is taken by an electoral college consisting of the national legislature and state legislatures. In the United States, the president is indirectly elected using a two-stage process; a popular vote in each state elects members to the electoral college that in turn elects the President. This can result in a situation where a candidate who receives the most votes nationwide does not win the electoral college vote, as most recently happened in 2000 and 2016.

### Systems used outside politics

In addition to the various electoral systems in use in the political sphere, there are numerous others, some of which are proposals and some of which have been adopted for usage in business or for organizations but not for public elections.

Ranked systems include Bucklin voting, the various Condorcet methods, the Coombs' method and positional voting. There are also several variants of single transferable vote, including CPO-STV, Schulze STV and the Wright system. Dual-member proportional representation is a proposed system with two candidates elected in each constituency, one with the most votes and one to ensure proportionality of the combined results.

Bi-proportional apportionment is a system whereby the total number of votes is used to calculate the number of seats each party is due, followed by a calculation of the constituencies

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in which the seats should be awarded in order to achieve the total due to them.

Cardinal electoral systems allow voters to candidates independently. evaluate The complexity ranges from approval voting where voters simply state whether they approve of a candidate or not to range voting, where a candidate is scored from a set range of numbers. Other cardinal systems include proportional approval / voting, sequential proportional approval voting, satisfaction approval voting, highest median rules, and the D21 – Janeček method where voters can cast positive and negative votes.

Historically, weighted voting systems were used in some countries. These allocated a greater weight to the votes of some voters than others, either indirectly by allocating more seats to certain groups, or by weighting the results of the vote. The latter system was used in colonial Rhodesia for the 1962 and 1965 elections. The elections featured two voter rolls; the seats of the House Assembly were divided into 50 constituency seats and 15 district seats. Although all voters could vote for both types of seats, 'A' roll votes were given greater weight for the constituency seats and 'B' roll votes greater weight for the district seats. Weighted systems are still used in corporate elections, with votes weighted to reflect stock ownership.

#### Rules and regulations

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In addition to the specific method of electing candidates, electoral systems are also characterized by their wider rules and regulations, which are usually set out in a country's constitution or electoral law. Participatory rules determine candidate nomination and voter registration, in addition to the location of polling places and the availability of online voting, postal voting, and

absentee voting. Other regulations include the selection of voting devices such as paper ballots, machine voting or open ballot systems, and consequently the type of vote counting systems, verification and auditing used.

Electoral rules place limits on suffrage and candidacy. Most countries' electorates are characterized by universal suffrage, but there are differences on the age at which people are allowed to vote, with the youngest being 16 and the oldest 21. People may be disenfranchised for a range of reasons, such as being a serving prisoner, being declared bankrupt, having committed certain crimes or being a serving member of the armed forces. Similar limits are placed on candidacy, and in many cases the age limit for candidates is higher than the voting age. A total of 21 countries has compulsory voting, although in some there is an upper age limit on enforcement of the law. Many countries also have the none of the above option on their ballot papers.

In systems that use constituencies, apportionment or districting defines the area each constituency. covered by Where constituency boundaries are drawn has a strong influence on the likely outcome of elections in the constituency due to the geographic distribution of voters. Political parties may seek to gain an advantage during redistricting by ensuring their voter base has a majority in as many constituencies as possible, process known gerrymandering. as а Historically rotten and pocket boroughs, constituencies with unusually small populations, were used by wealthy families to gain parliamentary representation.

Some countries have minimum turnout requirements for elections to be valid. In Serbia this rule caused multiple re-runs of presidential elections, with the 1997 election re-run once and the 2002 elections re-run three times due

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insufficient turnout in the first, second and third attempts to run the election.

The turnout requirement was scrapped prior to the fourth vote in 2004. Similar problems in Belarus led to the 1995 parliamentary elections going to a fourth round of voting before enough parliamentarians were elected to make a quorum. Reserved seats are used in many countries to ensure representation for ethnic minorities, women, young people, or the disabled. These seats are separate from general seats, and may be elected separately, or be allocated to parties based on the results of the election; in Jordan the reserved seats for women are given to the female candidates who failed to win constituency seats but with the highest number of votes, whilst in Kenya the Senate seats reserved for women, young people and the disabled are allocated to parties based on how many seats they won in the general Some countries achieve vote. minority representation by other means, including requirements for a certain proportion of candidates to be women, or by exempting minority parties from the electoral threshold, as is done in Poland, Romania, and Serbia.

### <mark>History</mark>

#### **Pre-democratic**

In ancient Greece and Italy, the institution of suffrage already existed in a rudimentary form at the outset of the historical period. In the early monarchies it was customary for the king to invite pronouncements of his people on matters in which it was prudent to secure its assent beforehand. In these assemblies the people recorded their opinion by clamoring, or by the clashing of spears on shields.

### Early democracy

Voting has been used as a feature of democracy since the 6th century BC, when democracy was introduced by the Athenian democracy. However, in Athenian democracy, voting was seen as the least democratic among methods used for selecting public officials, and was little used, because elections were believed to inherently favor the wealthy and well-known over average citizens. Viewed as more democratic were assemblies open to all citizens, and selection by lot, as well as rotation of office.

Generally, the taking of votes was affected in the form of a poll. The practice of the Athenians, which is shown by inscriptions to have been widely followed in the other states of Greece, was to hold a show of hands, except on questions affecting the status of individuals: these latter, which included all lawsuits and proposals of ostracism, in which voters chose the citizen they most wanted to exile for ten years, were determined by secret ballot. At Rome the method which prevailed up to the 2nd century BCE was that of division. But the system became subject to intimidation and corruption.

Hence a series of laws enacted between 139 and 107 BCE prescribed the use of the ballot, a slip of wood coated with wax, for all business done in the assemblies of the people.

For the purpose of carrying resolutions a simple majority of votes was deemed sufficient. As a general rule equal value was made to attach to each vote; but in the popular assemblies at Rome a system of voting by groups was in force until the middle of the 3rd century BCE by which the richer classes secured a decisive preponderance.

The Venetians' method for electing the Doge: Chief Justice of the Republic of Venice, was a particularly convoluted process, consisting of

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five rounds of drawing lots and five rounds of approval voting. By drawing lots, a body of 30 electors was chosen, which was further reduced to nine electors by drawing lots again. An electoral college of nine members elected 40 people by approval voting; those 40 were reduced to form a second electoral college of 12 members by drawing lots again. The second electoral college elected 25 people by approval voting, which were reduced to form a third electoral college of nine members by drawing lots. The third electoral college elected 45 people, which were reduced to form a fourth electoral college of 11 by drawing lots. They in turn elected a final electoral body of 41 members, who ultimately elected the Doge. Despite its complexity, the method had certain desirable properties such as being hard to game and ensuring that the winner reflected the opinions of both majority and minority factions. This process, with slight modifications, was central to the politics of the Republic of Venice throughout its remarkable lifespan of over 500 years, from 1268 to 1797.

### Development of new systems

Jean-Charles de Borda proposed the Borda count in 1770 as a method for electing members to the French Academy of Sciences. His method was opposed by the Marquis de Condorcet, who proposed instead the method of pairwise comparison that he had devised. Implementations of this method are known as Condorcet methods. He also wrote about the Condorcet paradox, which he called the intransitivity of majority preferences. However, recent research has shown that the philosopher Ramon Llull devised both the Borda count and a pairwise method that satisfied the Condorcet criterion in the 13th century. The manuscripts in which he described these methods had been lost to history until they were rediscovered in 2001.

Later in the 18th century, apportionment methods came to prominence due to the United States Constitution, which mandated that seats in the United States House of Representatives had to be allocated among the states proportionally to their population but did not specify how to do so. A variety of methods were proposed by statesmen such as Alexander Hamilton, Thomas Jefferson, and Daniel Webster. Some of the apportionment methods devised in the United States were in a sense rediscovered in Europe in the 19th century, as seat allocation methods for the method party-list newly proposed of proportional representation. The result is that many apportionment methods have two names; Jefferson's method is equivalent to the D'Hondt method, as is Webster's method to the method, while Sainte-Laguë Hamilton's method is identical to the Hare largest remainder method.

### <mark>Single-winner revival</mark>

Perhaps influenced by the rapid development of multiple-winner electoral systems, theorists began to publish new findings about singlewinner methods in the late 19th century. This began around 1870, when William Robert Ware proposed applying STV to single-winner elections, yielding instant-runoff voting. Soon, mathematicians began to revisit Condorcet's ideas and invent new methods for Condorcet completion; Edward J. Nanson combined the newly described instant runoff voting with the Borda count to yield a new Condorcet method called Nanson's method. Charles Dodgson, better known as Lewis Carroll, proposed the straightforward Condorcet method known as Dodgson's method. He also proposed a proportional representation system based on multi-member districts, quotas as minimum requirements to take seats, and votes transferable by candidates through proxy voting.

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Ranked voting electoral systems eventually gathered enough support to be adopted for use in government elections. In Australia, IRV was first adopted in 1893, and continues to be used along with STV today. In the United States in the early-20th-century progressive era, some municipalities began to use Bucklin voting, although this is no longer used in any government elections, and has even been declared unconstitutional in Minnesota.

#### Recent developments

The use of game theory to analyze electoral systems led to discoveries about the effects of certain methods. Earlier developments such as Arrow's impossibility theorem had already shown the issues with Ranked voting systems. Research led Steven Brams and Peter Fishburn to formally define and promote the use of approval voting in 1977. Political scientists of the 20th century published many studies on the effects that the electoral systems have on voters' choices and political parties, and on political stability. A few scholars also studied which effects caused a nation to switch to a particular electoral system.

The study of electoral systems influenced a new push for electoral reform beginning around the 1990s, when proposals were made to replace plurality voting in governmental elections with other methods. New Zealand adopted mixedmember proportional representation for the 1993 general elections and STV for some local elections in 2004. After plurality voting was a key factor in the contested results of the 2000 presidential elections in the United States, various municipalities in the United States began to adopt instant-runoff voting, although some of them subsequently returned to their method. However, prior attempts introducing more proportional systems were not always successful; in Canada there were two referendums in British Columbia in 2005

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and 2009 on adopting an STV method, both of which failed. In the United Kingdom, a 2011 referendum on adopting IRV saw the proposal rejected.

In other countries there were calls for the restoration of plurality or majoritarian systems or their establishment where they have never been used; a referendum was held in Ecuador in 1994 on the adoption the two-round system, but the idea was rejected. In Romania a proposal to switch to a two-round system for parliamentary elections failed only because voter turnout in the referendum was too low. reintroduce single-member Attempts to constituencies in Poland and two-round system in Bulgaria via referendums both also failed due to low turnout.

#### Comparison of electoral systems

Electoral systems can be compared by different means. Attitudes towards systems are highly influenced by the systems' impact on groups that one supports or opposes, which can make the objective comparison of voting systems difficult. There are several ways to address this problem:

- One approach is to define criteria mathematically, such that any electoral system either passes or fails. This gives perfectly objective results, but their practical relevance is still arguable.
- Another approach is to define ideal criteria that no electoral system passes perfectly, and then see how often or how close to passing various methods are over a large sample of simulated elections. This gives results which are practically relevant, but the method of generating the sample of simulated elections can still be arguably biased.
- A final approach is to create imprecisely defined criteria, and then assign a neutral

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body to evaluate each method according to these criteria. This approach can look at aspects of electoral systems which the other two approaches miss, but both the definitions of these criteria and the evaluations of the methods are still inevitably subjective.

Arrow's theorem and the Gibbard-Satterthwaite theorem prove that no system using ranked voting can meet all such criteria simultaneously, while Gibbard's theorem proves the same for all deterministic voting methods. Instead of debating the importance of different criteria, another method is to simulate many elections with different electoral systems, and estimate the typical overall happiness of the population with the results, their vulnerability to strategic voting, their likelihood of electing the candidate closest to the average voter, etc.

According to a 2006 survey of electoral system experts, their preferred electoral systems were in order of preference:

Mixed member proportional Single transferable vote Open list proportional Alternative vote Closed list proportional Single member plurality Runoffs Mixed member majoritarian Single non-transferable vote.

### Canadian Election System

Canada holds elections for legislatures or governments in several jurisdictions: for the federal government, provincial and territorial governments, and municipal governments.

Elections are also held for self-governing First Nations and for many other public and private organizations including corporations and trade unions. Municipal elections can also be held for both upper-tier and lower-tier governments. Formal elections have occurred in Canada since at least 1792, when both Upper Canada and Lower Canada had their first elections.

All Canadian citizens aged 18 or older who currently reside in Canada as of the polling day may vote in federal elections. The most recent Canadian federal election occurred on September 20, 2021.

Elections for other levels of government may have additional residency or ownership requirements. For example, some municipalities allow both residents and nonresident landowners to vote.

### National elections

The Parliament of Canada has two chambers: the House of Commons has 338<sup>8</sup> members, elected for a maximum four-year term in single-seat electoral districts, and the Senate has 105 members appointed by the governor general on the advice of the prime minister. Senators are given permanent terms and thus often serve much longer than the prime minister who was primarily responsible for their appointment.

National elections are governed by the Canada Elections Act and administered by an independent agency, Elections Canada. Using the plurality voting system, Canadians vote for their local Member of Parliament, who represents one specific constituency in the

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House of Commons. The leader of the party most likely to hold the confidence of the House of Commons becomes the prime minister.

Most MPs are members of a political party, although candidates may stand for election as independents unaffiliated with any political party. Since the practice of listing candidates' party affiliation on ballots began with the 1972 election, the Canada Elections Act has required that all local candidates be directly approved by the leader of their affiliated party, effectively centralizing the candidate nomination process. Once candidates are elected, sitting members of parliament are permitted to "cross the floor" switching party affiliation without having to first resign and re-stand for office under their new affiliation. Sitting members may also be dismissed from or voluntarily leave their party and become independents. As a result, the distribution of seats by party affiliation often fluctuates in between elections.

Although several parties are typically represented in parliament, Canada has historically had two dominant political parties: the Liberal Party and the Conservative Party, which was preceded by the Progressive Conservative Party and the Conservative Party. Every government since Confederation has been either Liberal or Conservative with the exception of the Unionist government during World War I, which was a coalition of Conservatives and Liberals. However, in the 2011 federal election, the New Democratic Party of Canada, came a close second, only behind by few seats. While other parties have a sometimes formed the Official Opposition, the 41st Parliament was the first in which the

out in the Seats Re-Adjustment Act. The process of redefining electoral boundaries is called "redistribution." The 2003 Representation Decision set the number of Parliament seats at 308. The 2012 redistribution increased Parliament seats to 338.

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<sup>&</sup>lt;sup>8</sup> The 338 seats are distributed among the regions and territories of Canada according to population, economic and social considerations. New committees are created every ten years to make any necessary revisions to the current distribution, in accordance with the criteria set

Liberals did not form either the government or the Official Opposition.

If a government loses a confidence motion, traditionally the prime minister will ask the governor general to call an election and the governor general follows that advice. However, the viceroy's compliance is not assured; the governor general also has the right to seek out another party leader who might be able to command the confidence of the House and ask him or her to form a government. This happened in 1926 and is referred to as the King-Byng Affair<sup>9</sup>.

The five-year time limitation is strictly applied to the life of the parliament or assembly in question—this body is not deemed to have been formed until the return of the writs and ceases to exist the moment it is dissolved. It is therefore possible to run slightly longer than five years between election days, as was the case between the 1930 and 1935 elections. Although the law has allowed for a five-year gap between elections, there have in fact only been two five-year gaps in the last 50 years: between 1974 and 1979 and between 1988 and 1993, and there have in fact been six general elections since 2000.

It is also possible for a general election to be delayed should Canada be embroiled in a war or insurrection. This provision was enacted to allow Prime Minister Sir Robert Borden to delay a federal election for about a year during World War I. Since then, the provision has only been used twice, both times by provincial governments—Ontario delayed an election for a few weeks in the year following the Armistice in 1918. Saskatchewan was the only jurisdiction

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to delay a general election by more than a year, due to World War II, but held an election in 1944, six years after the previous vote.

### Fixed dates

Section 4 of the Canadian Charter of Rights and Freedoms limits the term of any federal, provincial, or territorial parliament to a maximum of five years after the return of the writs of the last election. On November 6, 2006, the Parliament of Canada amended the Canada Elections Act to introduce a requirement that each federal general election must take place on the third Monday in October in the fourth calendar year after the previous poll, starting with October 19, 2009. Since then, most provinces and territories have introduced similar legislation establishing fixed election dates.

These laws, nevertheless, do not curtail the power of the governor general or a provincial lieutenant governor to dissolve a legislature prior to the fixed election date on the advice of the relevant first minister or due to a motion of no confidence.

### By-elections and referendums

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By-elections can be held between general elections when seats become vacant through the resignation or death of a member. The date of the byelection is determined by the governor general, who must call it between 11 and 180 days after being notified of the seat vacancy by the Speaker of the House of Commons.

The federal government can also hold nationwide referendums on major issues. The

Instead, the Governor-General called on the Conservative Party to form a government. This government lost the motion of no-confidence on July 2, 126, and the Governor-General agreed to dissolve Parliament at once.

<sup>&</sup>lt;sup>9</sup> The King–Byng Affair was a Canadian constitutional crisis that occurred in 1926, when the Governor General of Canada, Lord Byng of Vimy, refused a request from his Liberal Prime Minister, William Lyon Mackenzie King, to dissolve Parliament and call a general election.

last federal referendum was held in 1992, on proposed constitutional changes in the Charlottetown Accord. On occasion, one particular issue will dominate an election, and the election will in a sense be a virtual referendum. The most recent instance of this was the 1988 election, which was considered by most parties to be a referendum on free trade with the United States.

#### **Qualifications**

Every Canadian citizen 18 years of age or older has the right to vote, except for the Chief Electoral Officer and the Deputy Chief Electoral Officer. In the Canada Elections Act, inmates serving a sentence of at least two years were prohibited from voting, but on October 31, 2002, the Supreme Court of Canada ruled in Sauvé v. Canada that such a law violated the section 3 of the Charter and was rendered of no force or effect, so prisoners have the right to vote.

The federal National Register of Electors is updated to reflect various changes in the Canadian population, including address changes, reaching voting age, naturalization, and death. Every year, about 3,000,000 address changes are processed by Elections Canada from information obtained from the Canada Revenue Agency, Canada Post, provincial and territorial motor vehicle registrars, and provincial electoral agencies with permanent voters' lists.

Every year, about 400,000 Canadians reach voting age and 200,000 Canadians die, resulting in changes to the National Register of Electors based on information obtained from the Canada Revenue Agency, provincial and territorial motor vehicle registrars, and provincial electoral agencies with permanent lists. Additionally, over voters' 150,000 become naturalized individuals a year

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Canadians, and are added to the National Register of Electors by Elections Canada based on information obtained from Citizenship and Immigration Canada.

### Canadian citizens abroad

Section Three of the Canadian Charter of Rights and Freedoms provides that "every citizen of Canada has the right to vote", including those residing abroad, Exemptions to the five-year limit existed for members of the Canadian Armed Forces, employees of the federal or a provincial government stationed abroad, employees of certain international organizations, and their cohabitants. In September 2005, Jean-Pierre Kingsley, then the Chief Electoral Officer of Canada for 15 years, explicitly recommended in his official report that Parliament remove the five-year limit by amendment, but no action was taken.

In May 2014, a court decision from the Ontario Superior Court of Justice invalidated the fiveyear limit as an unconstitutional restriction on the right to vote, in violation of Section Three, leading to a period of fourteen months during which all Canadian expatriates could apply to be on the register of electors. However, the decision was reversed 2-1 on appeal at the Court of Appeal for Ontario on July 20, 2015, in a judicial opinion citing Canada's history of using a residence-based electoral district system and a justification based on social contract theory, which held that the five-year limit was a permissible limitation of the constitutional right to vote under Section One. As of August 2015, Elections Canada has implemented changes to its registration process to comply with the latest court ruling and will require expatriates already on the register to declare an intended date of return. The decision from the Court of Appeal was subsequently appealed to Supreme Court of Canada, which the announced on April 14, 2016, that it would hear

the appeal. On January 11, 2019, the Supreme Court reversed the Court of Appeal's decision and ruled that non-resident citizens have the right to vote regardless of time living outside of Canada.

#### Length of election campaigns

The length of election campaigns can vary, but under the Elections Act, the minimum length of a campaign is 36 days, and the maximum length of the campaign is 50 days. Also, section 5 of the Charter requires that the Parliament sit at least once every twelve months, and thus a campaign would have to conclude in time for returns to be completed and parliament to be called into session within twelve months of the previous sitting. The federal election date must be set on a Monday.

The first two elections, the 1867 election and the 1872 election, took place over several weeks.

The 1872 election was both the second shortest and the longest campaign in history. Parliament was dissolved on July 8, 1872, while the writ was dropped on July 15, 1872. Voting occurred from July 20 to October 12. Therefore, the campaign started 12 days after dissolution of Parliament and 5 days after the writ and was concluded 96 days after dissolution and 89 days after the writ.

Every subsequent election has occurred on a single day. Of these elections, the longest election campaign, in terms of days from dissolution to election day, was that of 1926 election, 2004 Quebec proposed electoral reform The Liberal government of Quebec proposed electoral reform in 2004, which was

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scheduled to be passed in the fall of 2006 without a referendum. The project was postponed due to divergent views on how to improve it.

Single Transferable Vote referendum in 2005

In a 2005 referendum 57.7% of British Columbians voted in favor of the Single Transferable Vote system. However, a vote of 60% was required to pass, and the motion was defeated.

### Provincial MMP<sup>10</sup> referendums

Prince Edward Island held a 2005 referendum regarding the adoption of mixed member proportional representation. The motion was defeated. A movement pushing for MMP in Ontario was similarly defeated in a 2007 referendum.

#### 2008 New Brunswick referendum

A referendum on the issue of electoral reform in New Brunswick was proposed for 2008 by the Progressive Conservative Party, but the party was defeated in the September 2006 election and the new Liberal government cancelled the vote.

2009 British Columbia Single Transferable Vote referendum

A referendum for the Single Transferable Vote system was held in British Columbia on May 12, 2009. The adoption of STV was defeated, with 39.09% of voters preferring STV over First Past The Post.

firstly, by the successful candidates in the constituency, and, secondly, by party candidates on the basis of the percentage of state-level or district-level votes obtained by each party. <u>https://emirate.wiki/wiki/Mixed-member\_proportional\_representation</u>

<sup>&</sup>lt;sup>10</sup> is a mixed electoral system in which voters get two votes: one to determine the representative for the individual seat of his or her constituency and the other for a political party. Seats in the legislature are filled,

#### 2015 federal election

In the 2015 federal election, both main opposition parties promised to implement electoral reform no later than the next scheduled election. The NDP has long supported Mixed Member Proportional, a hybrid system proposed by the Law Commission in which voters would cast two ballots. By comparison, the Liberals led by Justin Trudeau promised to review numerous electoral reform options through an "all party parliamentary committee" and to implement the changes in time for the next election. Trudeau promised to make the 2015 election "Canada's last first-past-the-post election".

There are divisions within the Liberal Party over which alternative system would be better; however, the promise by the Liberals, who won a majority in the House of Commons, created expectations that some sort of change will be introduced. The Liberal members of the special all-committee on electoral reform urged Prime Minister Justin Trudeau to break his promise to change Canada's voting system before the next federal election in 2019. That call for inaction came as opposition members of the committee pressured Trudeau to keep the commitment. In its final report, the government-minority committee recommended the government design a new proportional system and hold a national referendum to gauge Canadians' support.

67% of Canadians voted in 2015 for parties that promised to replace the voting system with one that doesn't distort the vote as much as first past the post. 88% of experts brought forward by the Liberal government recommending a proportional representation voting system, and 96% rejected Trudeau's preferred alternate voting system. Despite this, on February 1, 2017, the new Liberal Minister of Democratic Institutions, Karina Gould, announced that

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Trudeau instructed her that a change of voting system would no longer be in her mandate. She cited a lack of broad consensus among Canadians in favor of one particular type of electoral voting as the reason for the abandonment of the 2015 election promise.

During the 2015 election campaign, the Liberal Party of Canada made a promise to implement a process to review the costs of campaign platforms in future elections. It was implemented within an omnibus bill passed in 2017, with responsibility assigned to the Parliamentary Budget Office. was a nonbinding referendum held in the Canadian province of Prince Edward Island between October 27 – November 7, 2016. The referendum asked which of five voting systems residents would prefer to use in electing members to the Legislative Assembly of Prince Edward Island. The referendum, after four instant run-off rounds, indicated mixed member proportional representation was the preferred choice with over 52% support on the final ballot.

#### <mark>2018 British Columbia Electoral Reform</mark> Referendum

In accordance with campaign promises, the BC NDP scheduled a plebiscite to be held between October 22 and November 30, 2018, with voting done through mail for those registered to vote. 61.3% of voters voted for retaining First Past The Post.

### 2019 Prince Edward Island Electoral Reform Referendum

Like the 2016 referendum, the 2019 referendum ended in defeat.

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### <mark>Turnout</mark>

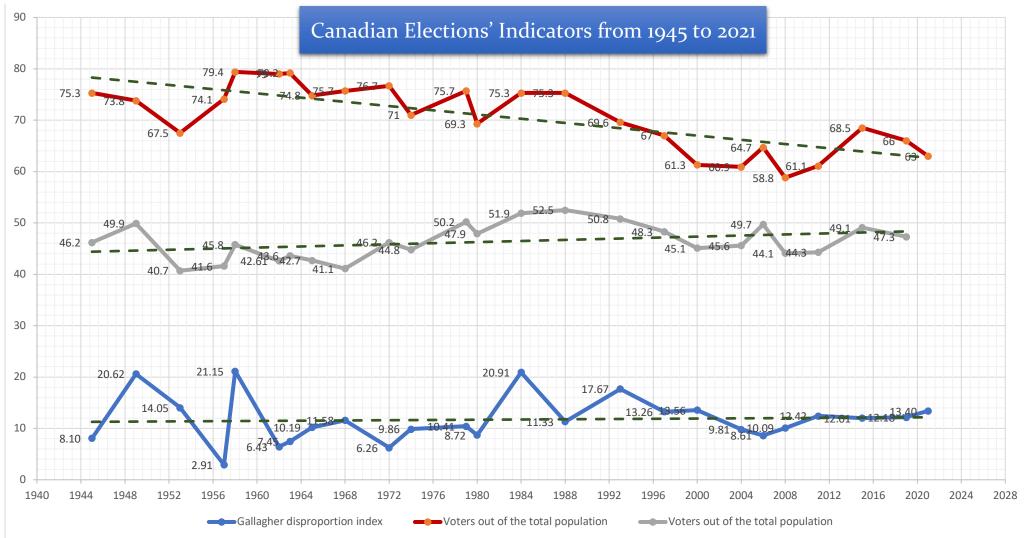
Voter turnout fell dramatically between 1945 and 2021. The Gallagher index of disproportion between vote distribution and seat distribution in Canadian federal elections in that period ranged from 8.1 to 13.40, in line with some of its comparisons—Australia, New Zealand, and the

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United States, but much higher than many others such as Belgium, Germany, Ireland, and the Scandinavian. It is noteworthy that voter turnout rose in 2015 to 68.5%, and to 67% in 2019. While the 1958, 1962, and 1963 elections had the highest turnout, they were 79.4%, 79%, and 79.2%, respectively, of registered voters.

Election	Voter turnout	Voters out	Gallagher
		of the total	disproportion
	<b>2</b> /	population	index
1945	75%	46.2%	8.10
1949	74%	49.9%	20.62
1953	68%	40.7%	14.05
1957	74%	41.6%	2.91
1958	79%	45.8%	21.15
1962	79%	42.61%	6.43
1963	79%	43.6%	7.45
1965	75%	42.7%	10.19
1968	76%	41.1%	11.58
1972	77%	46.2%	6.26
1974	71%	44.8%	9.86
1979	76%	50.2%	10.41
1980	69%	47.9%	8.72
1984	75%	51.9%	20.91
1988	75%	52.5%	11.33
1993	70%	50.8%	17.67
1997	67%	48.3%	13.26
2000	61%	45.1%	13.56
2004	61%	45.6%	9.81
2006	65%	49.7%	8.61
2008	59%	44.1%	10.09
2011	61%	44.3%	12.42
2015	69%	49.1%	12.01
2019	66%	47.3%	12.18
2021	63%		13.40

# A new model in the study of the Canadian Electoral system





#### Electoral system reform

There are those who advocate the implementation of the proportional system without providing any details on how to implement it. And without considering the experiences of other countries that were unable to correct the imbalance between the voting results on the one hand and the distribution of seats in the House of Representatives on the other hand, or what is known as the Gallagher coefficient.

Theoretically, using proportional voting distributes the seats in House of Representatives in a proportional manner based on the number of votes each list receives to reduce the disparity in the electoral majority system, and this is only in one case, when there is only one electoral district, such as Canada being one electoral district, each party nominates its list, and there are no restrictions in the distribution of seats in the House of Representatives.

Accordingly, each party gets a number of seats in the House of Representatives equal to the votes it received. Therefore, proportional voting cannot be used in the Canadian Parliamentary elections, as it goes against the nature of Canadian federalism. The results of the 2021 elections cannot be used and distributed proportionally to the seats in the House of Commons, as this would compromise the distribution of seats according to the regions and territories of Canada.

So, for those who advocate the use of proportional voting should design an entirely new electoral system:

Determines the number of electoral districts and introduces allocation method for the House of Common seats,

# A new model in the study of the **Canadian**

### Electoral system

regardless of the regions and the territories,

Re-definiens the electoral district magnitude.

Determines the ballot types of lists.

Defines the electoral competition threshold.

- Defines a method to redistribute the wasted votes of parties that did not exceed the competition threshold.
- Determining how to hold MPs accountable, it is a very complex issue.
- explains other details, mainly related to Canadian federalism.

Other countries' experiences with proportional voting:

#### Turkey

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In the recent elections in Turkey, the Justice and Development Party (AKP) received 46.6% of the votes, while the Republican People's Party received 20.83% of the votes and the National Movement Party received 14.29%, but when calculating the number of deputies in the House of Representatives and given Due to the large number of lost votes for small parties, the House of Representatives was divided into the three major parties only as follows: 341 seats for the Justice and Development Party, 112 seats for the Republican People's Party, 71 seats for the National Movement Party. Thus, the AKP won 62% of the seats, the People's Party got 20.36%, and the National Movement Party got 12.9% of the seats. That is, the wasted votes were thus transferred to the party that got the highest percentage of votes.

Election – Turkey	Gallagher disproportion index
2007	11.76
2011	7.4

June 2015	4.9
Nov 2015	6.69
2018 – Presidential Sys	3.15

#### Italy

Italy's proportional representation system has led to a kind of political catastrophe that has led to no Italian government lasting more than two years at its most, while some governments are only months old. In 2005, the electoral system in Italy was modified to turn into a mixture of proportional representation and a single vote system, where 75% of the seats in the House of Representatives are elected through direct voting within the one-vote system in narrow constituencies, one constituency for each parliamentary seat, in addition to 25% of the seats to be decided using proportional voting system.

Election - Italy	Gallagher disproportion index
2006	3.61
2008	5.73
2013	17.34
2018	5.7

Several countries with a long democratic heritage began, during the last two decades, shifted towards a mixed electoral system that adopts a type of one-vote system - the majority system - at the district level and the proportional voting system at the national level. Among the most important countries that have switched to this mixed system are France, Germany, Italy, Venezuela, and New Zealand.

The development of a new electoral system that brings the Gallagher disproportionate index to zero cannot come before identifying the causes of the defect in the current electoral system, why the number of seats for each party does not

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reflect the electoral percentages it obtained. Is the defect in the way the distribution of seats in the House of Common based on regions and territories? Is it the electoral district magnitude, as some sees?! Is the defect in the electoral majority system, or in the way it is practiced?!

If we could diagnose the fault properly, the current electoral system can be fixed, updated, or upgraded, to reach the goal, which is anyhow, not reachable using proportional voting system, which is called by many negatively to tickle the feelings of those frustrated with the increasing gap between the election results and the number of seats that each party gets.

Diagnosing the error in the current electoral system and/or designing a completely new electoral system requires a geo-social and geopolitical study that adopts field mathematical and statistical methods that last for a full electoral period, which is four years. Elections involve a lot of random events, from individuals who decide whether to vote or not, to people who decide whom to vote to, to electoral authorities who decide what to count, to candidates who may influence the conduct of an election, whether by alliances or withdrawals, or to leave the electoral race due to some mistakes or irregularities.

The study must answer dozens of questions raised by the graph on page 16, where the two graphs of voter turnout and voters out of the total population agree, while they are linearly opposite. The peaks and troughs that appear in the Gallagher disproportion index plot must also be justified, which will be important for diagnosing the weaknesses of the current electoral system.

### Montréal Monday, December 27, 2021

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