

# The Proportional Seat Distribution Voting System: An Alternate Voting System to Replace First-Past-the-Post

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*A Brief for the Special Committee on Electoral Reform*

*Summary: This paper outlines a novel system for distributing parliamentary seats among political parties in a manner which preserves the association between Members of Parliament and ridings, is proportional to the popular vote, and automates the allocation in a principled manner. Particular focus is given to the new voting system's relation to the five principles set out in the motion adopted by the House of Commons on Tuesday, June 7, 2016, outlining the mandate of the Committee.*

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## 1. Recommendations

Replace the First-Past the Post (FPP) voting system, which has no mechanism to ensure any specific degree of proportionality between party representation in parliament and their support among voters, with the Proportional Seat Distribution (PSD) voting system which is specifically designed to optimize such proportionality.

### 1.1 The Proportional Seat Distribution Voting System

The PSD voting system provides a principled way to proportionally allocate the parliamentary seats of ridings to political parties based solely on vote results. After allocating seats to any independent or no affiliation candidates who receive the greatest amount of votes in their riding,<sup>1</sup> the number of remaining seats is divided amongst political parties such that the amount that each party is over-represented or under-represented in parliament with respect to their national popular support is minimized.<sup>2,3</sup> Party results in those remaining ridings are compared and ranked according to how exceptionally successful the results for a given party are in each riding with respect to the party's results in all the ridings.<sup>4</sup> Parties and ridings are paired up in sequence according to these rankings such that each party receives the proper number of seats and the seats are allocated to each party in those ridings where the party has its best results as well as to the party whose results are more exceptionally successful than the other parties'. For all ridings distributed to a party, the party's candidate in the riding receives the seat. In this manner the PSD voting system uses the voting results of every riding to automatically determine which candidates serve as Members of Parliament while also ensuring proportional party representation.

## 2. Relationship to the Five Principles

The following subsections explain the relationship between the implementation of the PSD system and the five principles associated with the mandate of the Special Committee on Electoral Reform.

### 2.1 Effectiveness and legitimacy

In limiting the waste of votes, implementation of the PSD voting system would increase public confidence among Canadians that their votes will be fairly translated. Since all votes that are cast in support of non-winning candidates, as well as any votes cast for winning candidates in excess of the minimum required to surpass the nearest competitor, do not contribute to the election of a winning candidate in the FPP system, such votes are commonly perceived as wasted. It is for this reason that

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<sup>1</sup> As such candidates only run in a single riding, and thus cannot be expected to garner an appreciable portion of the popular vote across the entire country, they are allocated a seat based solely on the results of their local riding.

<sup>2</sup> The determination of each party's seat count is made by means of a quantitative measure called the *over-/undervaluation ranking*. While the technical details of this process and related measure are beyond the scope of this brief, the author welcomes you to contact him for more information.

<sup>3</sup> In the case that provincial and territorial distinctness is widely desired, the PSD system is readily modifiable so that provincial/territorial popular support can be used to determine party seat counts for each province and territory separately. Essentially, the process described in 1.1 is then applied to each province and territory independently.

<sup>4</sup> This *distribution ranking* is determined by calculating each party-riding pair's *success-exceptionality* value. Though the technical details of this process are again beyond the scope of this brief, the author welcomes you to contact him for more information.

voters living in a riding that traditionally elects a party they do not themselves prefer can feel disenfranchised and powerless, and, as result, they may disengage from the democratic process. Paradoxically, voters living in a riding where their preferred party is traditionally elected with ease can feel that their vote is not needed and disengage from the democratic process as well. That is, in ridings where a clear party preference is perceived by voters and the election result is not believed to be much of a contest, systems like the FPP can result in voter apathy and non-participation. In the PSD system, however, one's vote can contribute to the election of an additional candidate for one's preferred party regardless of local results and, in this manner, votes are not wasted. For instance, if party A does not receive enough support in a given riding, the votes of those in that riding who prefer party A can still contribute to electing a candidate for the party elsewhere. Additionally, if party B receives far more support than required to elect their candidate in the riding, all those votes from supporters above what was required can still contribute to electing an additional candidate elsewhere.

By ensuring that election results are as proportional as possible, the PSD system fairly translates votes, reducing distortion, and strengthening the link, between the will of voters and the composition of parliament.

## 2.2 Engagement

The PSD voting system encourages voting and participation in the democratic process by ensuring votes contribute to the election of candidates for one's preferred party, regardless of which party ends up representing one's local riding (refer to section 2.1).

As party representation in parliament accurately reflects popular voter support in the PSD system, small shifts in voter support do not result in massive shifts in government, whereas the FPP system often allows government control to oscillate between two antagonistic parties, neither of which receives support of the majority of voters. That is, so long as public support for parties remains somewhat consistent from one election to the next, their representation in government will be similarly consistent. In this manner the PSD system enhances social cohesion.

The PSD system fosters greater civility and collaboration in politics via its more stringent requirements with regard to the formation of majority governments – i.e. the need for a party to receive an absolute majority of popular support – which will likely result in more frequent minority governments. As minority governments become more common, cooperation between parties for the creation of legislation and policy will become necessary as the ruling party cannot legislate without support. That is, in order for the government to function, Members of Parliament must work together civilly and collaborate regardless of party affiliation: the ruling party must listen to their peers across the aisle and work to create measures that are acceptable to a wider variety of representatives and, by extension, constituents. A party that does not participate cooperatively cannot steer legislation and risks losing voter support. Furthermore, legislation created through cross-party cooperation is more likely to persist even after another party forms government, which has real budgetary implications when one considers the financial burden associated with the implementation of legislation by a majority government and its dismantling by a subsequent, opposing majority government in the FPP system.

The PSD voting system also offers opportunity for the inclusion of underrepresented groups by allowing a greater diversity of representation in parliament. Since the PSD system provides a parliamentary seat to any party for which nationwide support surpasses a specific threshold,<sup>5</sup> it results in a greater diversity of parties in parliament and, as a result, a greater diversity of ideas, opinions and values. The FPP system, on the other hand, favours party mergers and consolidation of power at the expense of diverse representation.

### 2.3 Accessibility and inclusiveness

The PSD voting system avoids undue complexity in various ways. First, voter interaction with the PSD system is identical to the FPP: voters simply make a single mark on a ballot. There is no need to redesign, add or eliminate ridings. Second, unlike the Mixed-Member Proportional system, there is no creation of a different class of Members of Parliament who are not affiliated with a riding. Third, unlike other proportional systems, seat distribution is entirely automatic based on voter results, i.e. there is no party list for assigning parliamentary seats to party candidates. Fourth, the main principles behind the PSD system are simple and relatively uncontroversial: *insofar as proportionality is preserved and no conflicts prevent it, the seats distributed to a party should be for ridings where the party performed better than in those ridings which it will not be representing; and insofar as proportionality is preserved, if multiple parties lay claim to the same riding, the riding is distributed to the party with the more exceptionally successful results for that riding*. Finally, complexity of calculating the distribution of parliamentary seats among parties and their candidates is mitigated by the ease of automation with software, i.e. results can be calculated from raw voter tallies within seconds by means of devoted software.

The PSD system supports access by all eligible voters regardless of physical or social condition just as well as the FPP system does: as there is no inherent difference between voters' interaction with PSD ballots and those of the FPP system, the PSD system is just as amenable to online voting and other accessibility measures applicable to the FPP system.

### 2.4 Integrity

Just as the reliability and verifiability of FPP election results are ensured by secure polling-station and vote-counting protocol in conjunction with publicizing the results of the vote counts, the reliability and verifiability of PSD elections results can be ensured by the same security protocols and by making vote counts and related calculation results (such as the *under-/overvaluation rankings* used to determine the final seat count for each party, the *success-exceptionality* measure of each local party result, and the *distribution ranking* of each local party result) publicly available for those who wish to confirm the final results. The details of the PSD distribution process and relevant explanations and examples should also be made publicly available.

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<sup>5</sup> Generally speaking, for a parliament with  $n$  seats, the threshold is  $1/n$  of the total votes; so for  $n=338$ , the threshold is 0.30% of the total votes.

Public trust is also safeguarded by the automaticity of the necessary calculations. Once votes are counted, a task which can be completed in the same manner as in the FPP system, seat distribution results are calculated automatically without external input, making it an effective and objective process.

The PSD system is just as amenable to the security measures used with the FPP system and in this way ensures the same level of security and voter secrecy.

## **2.5 Local representation**

The PSD system recognizes the value Canadians attach to community. Under the PSD system there is a one-to-one correspondence between ridings and Members of Parliament, ensuring that all constituents have access to a Member of Parliament to assist them and listen to their concerns and that every Member of Parliament is responsible for representing and advocating for their local riding at the national level. Unlike the Mixed-Member Proportional voting system alternative, which creates a separate class of Members of Parliament who are not responsible for any riding, with the PSD system there are no Members of Parliament who are not associated with a riding.

The PSD system also ensures accountability by making the candidate whose results are most exceptionally good with respect to their party's results the Member of Parliament for the riding. So, in the case where a Member of Parliament does not satisfy their constituents, they are likely to lose support and be voted out in the next election, as occurs in the FPP system.

## **3. Conclusion**

The PSD voting system has been explicitly engineered for use in Canada. It is the author's strong belief that, when considering alternative voting systems, there is no need to restrict the options to systems utilized in other contexts and which would require compromise to implement in Canada. As discussed throughout section 2, the PSD system has many advantages with respect to issues of effectiveness and legitimacy, engagement, accessibility and inclusiveness, integrity, and local representation. The author invites and encourages you to contact him for additional information on this alternative voting system.