

2018 REFERENDUM TABULATION DATA FILE — USER GUIDE

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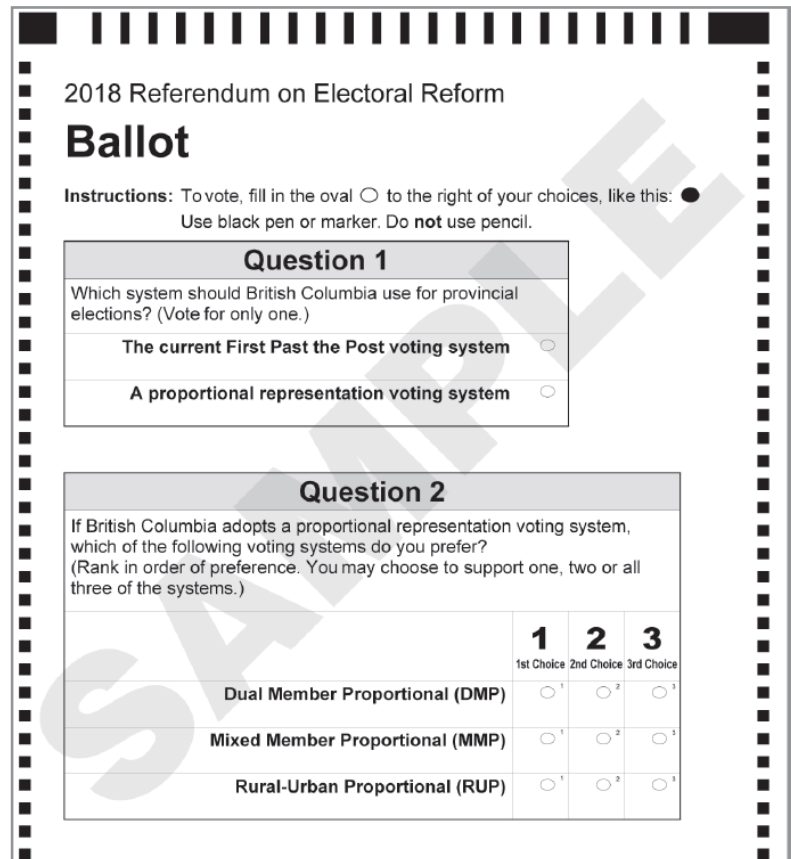
Dataset description

This file contains data from cast vote records (CVRs) used to determine the voting results for the 2018 Referendum on Electoral Reform. It provides a breakdown of total ballots cast by electoral district and ballot marking pattern. It also includes categorical information on how ballot marking patterns translated to tabulated votes.

Counting rules

For the 2018 Referendum on Electoral Reform, voters were asked two questions on the ballot:

- Question 1 was a **binary choice** question, asking voters if British Columbia should keep the current First Past the Post voting system or move to a system of proportional representation for provincial elections.
- Question 2 was a **ranked-choice** question, asking voters to rank three proportional representation voting systems in order of preference: Dual Member Proportional (DMP), Mixed Member Proportional (MMP) and Rural-Urban Proportional (RUP).



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In accordance with the Electoral Reform Referendum 2018 Regulation (the Regulation), referendum ballots are accepted or rejected for vote counting as follows:

- Only ballots with a valid vote on at least one of the questions are accepted for counting.
- To be considered a **valid vote on Question 1**, the ballot must clearly indicate a choice for either First Past the Post (FPTP) or Proportional Representation (PR).
- To be considered a **valid vote on Question 2**, the ballot must clearly indicate one and only one first preference among DMP, MMP, and RUP. Absent a clear first preference, second and third preferences are ignored in the counting of votes toward Question 2.¹
- Any ballot that does not have a valid vote on at least one of the questions is a **rejected ballot**.
- Additionally, ballots must be rejected under specific circumstances prescribed by the Regulation.²

The referendum votes were counted according to the rules established under Section 22 of the Regulation. All of the ballots with a valid vote for Question 1 were tallied for either First Past the Post or the proportional representation option. Question 2 required two rounds of vote counting to reach the final result, as follows:

- At Round 1, all ballots with a valid vote on Question 2 were counted according to first preferences. No voting system won a majority of valid first-preference votes. Per the rules specified in the Regulation, the system with the fewest first preferences – RUP – was eliminated from further consideration.
- At Round 2, the Round 1 votes for RUP that had a unique and valid second preference were transferred to one of the two remaining systems – DMP or MMP – according to second preferences. Round 1 votes for RUP that lacked a valid second preference were not transferrable and were set aside as **exhausted ballots**. Votes for the two remaining systems were re-tallied taking into account transfers from RUP. The voting system with the most Round 2 votes including transfers – MMP – was declared the final winner on Question 2.

Examples of how the referendum counting rules were applied to specific ballot marking scenarios are provided on pages 4-5 of this document.

Working in the data file

Users will need to import the data into a spreadsheet program or data processing software such as Microsoft Excel or R. The tabulation data is available for download in comma-separated-values (CSV) format at the following link:

<https://catalogue.data.gov.bc.ca/dataset/a696ccef-6e52-4950-9b05-b8074f7f31f3/resource/8230e8f4-305f-40cd-b350-62954b9b3368/download/2018-referendum-tabulation-data-file.csv>

Rows in the .csv file represent distinct ballot marking patterns encompassing all of the ballots that were actually cast in the referendum.³ Column variables define the ballot marking pattern for a given row and identify how ballots fitting that pattern were counted as tabulated votes. Details on how to read and interpret the column variables are provided on pages 6-7 of this document.

Statistics on the number of ballots cast under various ballot marking scenarios can be obtained by filtering on the column variables and summing over the **Ballot_Count** column.

¹ The Regulation does not permit gaps in the ordering of preferences. For example, if the highest-ranked choice on a ballot is a second preference, the ballot is not considered to have a valid first preference. If the ballot has a valid first preference for the system eliminated at round 1, and a third preference, but no second preference, it cannot be transferred.

² Section 20(2)(b)-(d) of the Regulation requires that ballots meeting the following conditions be rejected for vote counting: ballots with voter-identifying marks, ballots with written comments that alter the question meaning or obscure voter intent and ballots that physically differ from the referendum ballots provided by Elections BC.

³ The referendum ballot provided two mark locations for Question 1 and nine mark locations for Question 2 which means that 2,048 (= 2¹¹) distinct ballot marking patterns were theoretically possible. Only a subset of these correspond to actual ballots cast in the referendum.

Data analysis examples

Question: How many valid votes on Question 1 were from Abbotsford-Mission?

Path to answer:

1. Filter **ED_Name** (column 3) to '**Abbotsford-Mission**'
2. Filter **Q1_Valid_Vote** (column 4) to '**1**'
3. Sum over **Ballot_Count** (column 1) = **18,072**

Question: In Abbotsford-Mission, how many voters who contributed a valid vote on Question 2 ranked RUP as their first choice and MMP as their second choice?

Path to answer:

1. Filter **ED_Name** (column 3) to '**Abbotsford-Mission**'
2. Filter **Q2_Valid_Vote** (column 5) to '**1**'
3. Filter **Q2_1st_Choice** (column 8) to '**Rural-Urban Proportional**'
4. Filter **Q2_2nd_Choice** (column 9) to '**Mixed Member Proportional**'
5. Sum over **Ballot_Count** (column 1) = **1,431**

Question: How many voters who chose FPTP on Question 1 did not contribute a valid vote on Question 2?

Path to answer:

1. Filter **Q1_Choice** (column 7) to '**The current First Past the Post voting system**'
2. Filter **Q2_Valid_Vote** (column 5) to '**0**'
3. Sum over **Ballot_Count** (column 1) = **527,276**

Examples of ballot marking scenarios and translation to votes counted

Ballot marking scenario

Question 1		Question 2								
FPTP	PR	1 st			2 nd			3 rd		
		DMP	MMP	RUP	DMP	MMP	RUP	DMP	MMP	RUP
✓				✓		✓		✓		
✓				✓	✓	✓		✓		
	✓			✓				✓		
	✓			✓			✓	✓		
✓						✓				✓
✓		✓	✓			✓				✓

Vote counting treatment

Accepted ballot – Valid votes for both Q1 and Q2

Q1 choice: FPTP

Q2 ranked choices: 1st = RUP, 2nd = MMP

Transferable on 2nd preferences: **YES**

Accepted ballot – Valid votes for both Q1 and Q2

Q1 choice: FPTP

Q2 ranked choices: 1st = RUP, 2nd = *None/Invalid*

Transferable on 2nd preferences: **NO**

Accepted ballot – Valid vote for both Q1 and Q2

Q1 choice: PR

Q2 ranked choices: 1st = RUP, 2nd = *None/Invalid*

Transferable on 2nd preferences: **NO**

Accepted ballot – Valid vote for both Q1 and Q2

Q1 choice: PR

Q2 ranked choices: 1st = RUP, 2nd = *RUP*

Transferable on 2nd preferences: **NO**

Accepted ballot – Valid vote for Q1 only

Q1 choice: FPTP

Q2 ranked choices: 1st = *None/Invalid*, 2nd = MMP

Accepted ballot – Valid vote for Q1 only

Q1 choice: FPTP

Q2 ranked choices: 1st = *None/Invalid*, 2nd = MMP

Ballot marking scenario

Question 1		Question 2								
FPTP	PR	1 st			2 nd			3 rd ¹		
		DMP	MMP	RUP	DMP	MMP	RUP	DMP	MMP	RUP
						✓				✓
FPTP	PR	DMP	MMP	RUP	DMP	MMP	RUP	DMP	MMP	RUP
✓	✓		✓	✓		✓				✓

Vote counting treatment

Rejected ballot – No valid vote for either Q1 or Q2
 Q1 choice: *None/Invalid*
 Q2 ranked choices: 1st = *None/Invalid*, 2nd = MMP

Rejected ballot – No valid vote for either Q1 or Q2
 Q1 choice: *None/Invalid*
 Q2 ranked choices: 1st = *None/Invalid*, 2nd = MMP

1 Third preferences did not contribute to the vote counting for Question 2. For details on how Question 2 was counted, see page 2 of this guide.

Data dictionary

Column #	Column name	Data type	Description
1	Ballot_Count	Numeric	Total number of ballots that meet the given electoral district and ballot marking pattern criteria (Columns 2-3, 10-20).
2	ED_Code	Character	The electoral district code, e.g. 'ABM'. For rejected ballots, 'ZZZ' indicates that the electoral district code is unknown because the portion of the paper ballot identifying the electoral district was obscured or physically removed by the voter.
3	ED_Name	Character	The electoral district name, e.g. 'Abbotsford-Mission'
4	Q1_Valid_Vote	Numeric	'1' indicates a valid vote on Question 1; '0' indicates no valid vote. Derived from Columns 10-11.
5	Q2_Valid_Vote	Numeric	'1' indicates a valid vote on Question 2; '0' indicates no valid vote. Derived from Columns 12-20.
6	Rejected_Ballot	Numeric	'1' indicates rejected ballots that did not count toward any voting result; '0' indicates ballots accepted for counting. Reasons for rejecting a ballot include the absence of a valid vote on both questions and other specific circumstances under Section 20(2) of the Referendum Regulation. Ballot mark details are not available for rejected ballots.
7	Q1_Choice	Character	The choice between FPTP and PR on Question 1 as determined by the ballot marking pattern (Columns 10-11).
8	Q2_1st_Choice	Character	The first choice among DMP, MMP, and RUP on Question 2 as determined by the ballot marking pattern (Columns 12-20).
9	Q2_2nd_Choice	Character	The second choice among DMP, MMP, and RUP on Question 2 as determined by the ballot marking pattern (Columns 12-20).
10	Q1_FPTP	Numeric	'1' indicates a clear mark for 'FPTP' on Question 1; '0' indicates no such mark; 'NA' indicates data not available.
11	Q1_PR	Numeric	'1' indicates a clear mark for 'PR' on Question 1; '0' indicates no such mark; 'NA' indicates data not available.
12	Q2_DMP_1st	Numeric	'1' indicates a clear mark for 'DMP 1st choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
13	Q2_MMP_1st	Numeric	'1' indicates a clear mark for 'MMP 1st choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.

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Column #	Column name	Data type	Description
14	Q2_RUP_1st	Numeric	'1' indicates a clear mark for 'RUP 1st choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
15	Q2_DMP_2nd	Numeric	'1' indicates a clear mark for 'DMP 2nd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
16	Q2_MMP_2nd	Numeric	'1' indicates a clear mark for 'MMP 2nd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
17	Q2_RUP_2nd	Numeric	'1' indicates a clear mark for 'RUP 2nd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
18	Q2_DMP_3rd	Numeric	'1' indicates a clear mark for 'DMP 3rd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
19	Q2_MMP_3rd	Numeric	'1' indicates a clear mark for 'MMP 3rd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.
20	Q2_RUP_3rd	Numeric	'1' indicates a clear mark for 'RUP 3rd choice' on Question 2; '0' indicates no such mark; 'NA' indicates data not available.

Glossary

Term	Description
Cast vote record (CVR)	An electronic record indicating how the marks on a ballot were interpreted as voter choices.
Continuing ballot	A valid vote on Question 2 that counts as a vote for a proportional representation voting system that is not eliminated. Includes ballots that transfer to a non-eliminated system in the second round of counting.
Eliminated system	The proportional representation voting system with the fewest first-preference votes after the first round of counting on Question 2.
Exhausted ballot	A valid vote on Question 2 that could not be counted as a continuing ballot (i.e., no valid second preference). See also continuing ballot .
First Past the Post (FPTP)	British Columbia's current voting system for provincial elections in which the candidate with the most votes in a district wins and represents that district in the Legislative Assembly. One of the two voter choices allowed for Question 1.
Invalid vote	A vote on a referendum question that does not satisfy the counting rules for that question. See also valid vote .
Majority of votes	Refers to the minimum number of votes required for a voting system to be declared a winner in the first round of counting on Question 2. The majority threshold is calculated as 50 percent plus one of total valid votes, if that total is an even number, or 50 percent rounded up to the nearest whole number if the total is an odd number. If a majority is not achieved in the first round, the count continues to a second round with the systems that have not been eliminated. See also round .
Proportional Representation (PR)	Refers to a class of voting systems that are designed to produce a voting result such that the share of seats a political party wins is nearly the same as the party's share of the popular vote. One of the two voter choices allowed for Question 1.
Referendum	Refers to British Columbia's 2018 Referendum on Electoral Reform deciding what voting system to use for provincial elections. Voting in the referendum took place between October 22 and December 7, 2018.
Regulation	Refers to the Electoral Reform Referendum 2018 Regulation which governed all referendum counting activities conducted by Elections BC. https://www.canlii.org/en/bc/laws/regu/bc-reg-125-2018/137558/bc-reg-125-2018.html
Rejected ballot	A ballot that did not contribute a valid vote to either of the referendum questions. See also valid vote .
Round	A stage in the counting process for Question 2 during which votes are tabulated to determine if a voting system has received a majority of votes or, failing that, which system must be eliminated from further consideration. For the 2018 Referendum, there were two counting rounds for Question 2, with one voting system eliminated in the first round and the winner declared in the second round.

Term	Description
Tabulation	The process by which voter choices are recorded, interpreted, and aggregated into voting results. The tabulation system may be electronic or based on a hand count.
Tabulator	Refers to the ballot scanning and vote choice recording devices used for electronic tabulation.
Valid vote	<p>A vote on a referendum question that satisfies the counting rules for that question.</p> <ul style="list-style-type: none"><li data-bbox="542 510 1490 604">• To be considered a valid vote on Question 1, the ballot must clearly indicate a choice for either First Past the Post (FPTP) or Proportional Representation (PR).<li data-bbox="542 621 1511 743">• To be considered a valid vote on Question 2, the ballot must clearly indicate one and only one first preference among DMP, MMP, and RUP. Absent a clear first preference, second and third preferences are ignored in the counting of votes toward Question 2.