

**THE DOUBLE MAJORITY RULE: ESTIMATING THE IMPACT OF A
SUPERMAJORITARIAN RULE IN PRE-CONFEDERATION CANADA**

by

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Abstract

This thesis uses a counterfactual simulation to estimate the impact that applying the double majority rule would have had on legislative productivity in the Province of Canada, 1840-1867. The double majority rule was supermajoritarian in nature, and if applied would have required two sectional majorities from the administrative regions within the province to pass legislation. The thesis compares a constructed dataset where votes could only pass with a double majority to the observed data, arguing that applying the double majority rule would have reduced legislative productivity. There is weak statistical evidence found supporting gridlock interval size as the causal explanation for the decreased productivity, but this is argued to be due to abnormal status quo points and the potential for voting patterns to collapse from two ideological dimensions to one. Finally, the introduction of responsible government is found to not influence whether votes were passed with a double majority. This is explained through the partisan capacity hypothesis, which argues that supermajoritarian rules are ignored when they would prevent a government from implementing its legislative agenda. These conclusions argue that the historical literature was correct that applying the double majority rule would have reduced productivity, but wrong about the impact of responsible government on passing votes with double majorities.

Lay Summary

This thesis will estimate what would have happened if the double majority rule was applied to the legislature of the Province of Canada. Under the double majority rule, the support of more legislators would be required to pass bills into law, leading to an expected decrease in the number of votes that would have been passed. The reason behind the decrease is explained by size of the ideological differences between members, though only weak statistical evidence is found to confirm this. The move from external governance to home rule in 1848 was expected to increase the number of votes passed with double majorities, but no statistical evidence was found to support this claim.

Preface

This work makes use of data collected by Dr. Christopher Kam and his previous research assistants, to include the collection of important roll-call data and the calculation of common space scores. I was responsible for cleaning up parts of the data, and using the common space scores to calculate gridlock intervals. All analysis within this thesis is my own work, and has not been published elsewhere.

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To Shadow

Chapter 1: Introduction

Supermajoritarian rules can protect minority rights and prevent policy cycling by increasing the amount of support required to pass votes in a legislature (Bradbury and Johnson, 2006). Compared with majoritarian rules, which require only a simple majority to pass a vote, supermajoritarian rules expand that requirement to include parts of the political minority in the decision-making process. Increasing the barrier to passing legislation makes it more difficult to implement new policies and laws, which can reduce legislative productivity – defined as the ability of a governing party or coalition to implement its platform and respond to exogenous shocks that require policy action (Tsebelis, 1995). A larger ideological difference between the majority and the members of the minority whose support is required to pass votes leads to a larger reduction in legislative productivity (Tsebelis, 1999).

The double majority rule in the Province of Canada (1840-1867) is an example of a supermajoritarian rule that was agreed to in principle, but never formally applied at the time. The double majority rule would have required a majority of members from both Canada East and Canada West, two administrative regions in the province, to support legislation in order for it to pass. The rule was designed to protect the rights of the French-speaking population in Canada East, who held only a minority of the seats in the Provincial Parliament despite initially holding a majority of the population. The double majority rule was not applied in principle until 1848, when responsible government was introduced (Morton, 1964). Responsible government is when the Executive Council is appointed based on the ability of the Ministers to hold a majority in the Legislative Assembly, in contrast to colonial government where the Council is selected by the Governor-General.

Careless (1967) and Morton (1964) argue that the principle behind the double majority rule was necessary to prevent sectional conflict, but that applying the rule would have reduced legislative productivity. The authors further argue that after the introduction of responsible government, governments would try to pass legislation with double majorities where possible (Careless, 1967). These historical accounts do not use quantitative methods to confirm their arguments, leading to the question which motivates this thesis – to what extent would applying the double majority rule have quantifiably reduced legislative productivity? In answering this question, the impact of the introduction of responsible government will be examined to determine the accuracy of the historical accounts. Because the double majority rule would include members of the political minority in the decision-making process, the ideological separation between those minority members and the majority can also be examined to explain the cause of reduced productivity.

The research question can be answered using a simulation of what would have happened had the double majority rule been applied. To run this simulation, a counterfactual model can be constructed, comparing the observed vote results in the Provincial Parliament with a recoded set of hypothetical votes conducted under double majority rules. The thesis will argue that requiring a double majority to pass votes would have reduced legislative productivity. This thesis will also test the related question of whether responsible government impacted the number of votes passed with a double majority, arguing that there is no statistical evidence supporting the claim that responsible government increased the number of votes passed with a double majority. Finally, the thesis will investigate the impact of gridlock intervals as a means of measuring ideological differences, and will explain why this methodology does not produce statistically-significant results in this historical context.

Chapter 2: Literature review

2.1 Historical overview

The Province of Canada was created in 1840, combining the previous colonies of Upper Canada and Lower Canada into a single colony with two administrative sections, Canada West and Canada East. There was one combined legislature for the province, and each section had equal representation in the legislature regardless of population. The legislature operated under the principle of majority rule, requiring a simple majority of members present in the legislature to support a vote for the vote to pass. In the legislature, the English Canadians initially held a majority because the members from Canada West worked with the English-speaking minority from Canada East. As Morton (1964) argues, this structure was intended to put the French Canadians into the political minority despite holding a greater share of the overall population, for the purposes of assimilating them into British culture.

The double majority rule was introduced as a way of preventing the English-speaking members from legislating over the objections of the French-speaking population (Careless, 1967). The rule would have required that a majority of members from both sections support a vote in order for the vote to pass (Underhill, 1976; Careless, 1967; Morton, 1964). In requiring a double majority, the English-speaking members would no longer be able to enact policy over the wishes of the French-speaking members, because the French-speaking members held a majority in Canada East. The rule would have then prevented the intended assimilation from occurring within the unified legislature.

The double majority rule had been introduced as a concept in the early days of the province. It was not initially applied because, under colonial rule, the Governor-General would

still direct public policy even if legislation required a double majority to pass (Careless, 1967). In 1848 responsible government was introduced, allowing the Executive Council to implement its own legislative agenda so long as they maintained the confidence of the Assembly. The introduction of responsible government came with the introduction of the double majority as an informal requirement, suggesting that any laws be supported by both sections of the province. Political leaders of the time recognized the dual role of the rule as both a necessary concept to prevent sectional conflict, and as an impractical rule that would have prevented the government from implementing its legislative agenda (Careless, 1967).

The political cleavages in the province were defined by a strong regional divide existing in tandem with the liberal-conservative divide (Careless, 1967). Different parties were formed in the same ideological groupings in each section of the province, such as the Liberal-Conservatives in the West and the Bleus in the East, or the Clear Grits in the West and the Rouges in the East. These sectional groups acted together, often supporting their counterparts in the other section of the province on ideologically-based votes (Careless, 1967). The religious cleavage was also strong and related to the regional cleavage, with Catholics in the East and Protestants in the West often clashing over the issue of religious schools and universities (Morton, 1964). The multiple divides were partially responsible for the difficulty in achieving double majorities when passing legislation in the later years of the province, given the split nature of ideological caucuses and the potential for regionally-based issues to direct voting behaviour.

2.2 Supermajoritarian institutions and legislative productivity

Supermajoritarian rules increase the size of the coalition required to pass legislation, so that some members of the minority or opposition must support it in addition to the majority

(McGann, 2004). Binder (1996) argues that supermajoritarian rules are introduced by majority parties to protect their rights should they lose in the next election cycle. The increase in procedural power allows the minority party to delay or stop new policies proposed by the majority, allowing the former majority to block efforts at reversing their previously implemented policy.

Supermajoritarian rules are removed when they prevent the majority from implementing the core elements of their legislative agenda, or when they prevent the legislature from being able to respond to exogenous shocks that require policy changes to maintain safety and security (Binder, 1996; Tsebelis, 1999). These reasons for removal form the basis of Binder's partisan capacity hypothesis, which argues that supermajoritarian institutions are an area of procedural rules that majority parties control and use to their advantage. This argument is supported by Ganghof and Bräuninger (2006), who argue that these rules are introduced and removed according to the utility that the rules present to the current governing party, and not for the sake of the minority.

Tsebelis (1995) theorizes that supermajoritarian rules decrease productivity by creating new veto players. Veto players are defined as any group or individual within a legislature whose support is required to enact new policy (Tsebelis, 1995). The newly-included members of the minority are the veto players created when supermajoritarian rules are introduced. For example, when the filibuster was introduced in the United States Senate, the senator who could form a coalition large enough to invoke cloture became another veto player apart from the median voter (Mayhew, 2003). The median voter retained their veto player status in this case, since passing a vote still required their support. But the senator who could gather enough support for cloture also

became a veto player, because without their support, debate on a vote could go on indefinitely and the vote would not pass.

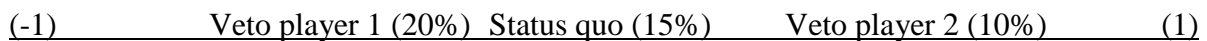
The ideological distance between veto players can be measured using NOMINATE scores, according to the methodology proposed by Poole and Rosenthal (1997). NOMINATE scores are calculated based on roll-call results, aligning members along an ideological spectrum according to how often they vote with and against other legislators. In one dimension, the results can be plotted along an ideological spectrum spanning from -1 to 1, with the voting patterns of members at one end being negatively correlated with those at the other end (Poole and Rosenthal, 1997). When looking at how members voted on a proposed bill, a cut line can be drawn at the location between the coalition of supporting and opposing members (Poole, 2005).

In cases where voting patterns can be better explained using more than one dimension, two-dimensional NOMINATE scores can be used (Poole, 2005; Poole and Rosenthal, 1997). Voting patterns can then be calculated along two patterns, so that members who vote separately along the first dimension and similarly along the second dimension would have different ideological scores along the first and similar scores along the second. Normative understanding can be given to the dimensions after they are made, such as in the case of the United States, where one dimension was judged to reflect the liberal-conservative divide, and one dimension the regional divide (Poole and Rosenthal, 1997).

The ideological distance between veto players forms a gridlock interval. Gridlock intervals are based on the assumption that legislators will only vote for bills that will move the status quo location of a policy closer to their own ideological preference (Krehbiel, 1998). The status quo location can be defined along the same one or two-dimensional space that legislator ideological positions are plotted on, based on its relative location to members that support the

status quo compared to members that support the proposed amendment. If the status quo point of a policy is in the gridlock interval, it will be between the veto players, and a proposed bill moving it in one direction will be opposed by the other veto player (Krehbiel, 1998). If one veto player will always oppose the move of a status quo point from within the gridlock interval, then the legislature will be unable to pass legislation on that issue. As more status quo points are included in the gridlock interval, or as the gridlock interval increases in size to include other status quo points, legislative productivity decreases (Krehbiel, 1998).

The impact of the gridlock interval can be seen through a hypothetical situation in a legislature with two veto players, in which voting patterns can be defined along one dimension. In this example, the issue at hand is the rate of taxation, and the current rate (the status quo) is 15%. The ideal rate of taxation for the first veto player is 20%, and for the second veto player is 10%. The relative positioning of the veto players and the status quo can be visualized along a unidimensional spectrum:



Because the status quo point is between the veto players, it is in the gridlock interval and thus cannot be moved. If veto player 1 proposed a bill increasing the rate from 15% to 16%, veto player 2 would oppose the bill because it would move the rate away from their preferred rate of taxation. If veto player 2 proposed a bill lowering the rate to 10%, it would be opposed by veto player 1 for the same reason. Once a status quo point is within a gridlock interval, it cannot be moved under normal conditions because one veto player will oppose any move, and the consent of both veto players is required to pass legislation by the definition of what constitutes a veto player.

As the gridlock interval increases in size, it encompasses more status quo points. The inclusion of more status quo points assumes that the points are located relatively near to the centre of the ideological spectrum, and this phenomenon is largely caused by government cycling. Government cycling drives status quo points towards the median voter (Binder, 1996; McGann, 2006). If ministers understand that they will likely be relegated to the opposition in the future, then they are incentivized to pursue widely-acceptable legislation that can survive subsequent election cycles. By nature, this will drive amendments to the closest point between the preference point of the minister and that of the median voter (McGann, 2006). Status quo points in the centre of the ideological spectrum are more likely to be included within the gridlock interval, meaning that they are less likely to be changed in the future without a change in the ideological composition of the legislature.

Veto players and their impact on productivity can change under different circumstances. If the status quo point for a policy is located outside of the gridlock interval, then it is possible for all veto players to support it. If most of the status quo points lie outside of the interval, then the size of the interval will have negligible impact on legislative productivity. If there are structural or political elements that force legislators to vote against their ideological preference, then these elements can also cause the number of and ideological distance between veto players to not impact productivity (Tsebelis, 1999). Party discipline is an example of a political element that causes all members of the same party to vote the same way, leading to the party being considered the veto player instead of individuals occupying the key voting positions. In these circumstances, the gridlock interval will not be related to legislative productivity.

Krehbiel (1996) calculates gridlock intervals by year and Congress. This method assumes high legislator attendance. When dealing with a time without high legislator attendance, such as

in the pre-Constitution United States (1777-1789), the calculated yearly gridlock intervals can differ significantly from the gridlock interval of the members present for a given vote, depending on the ideological composition of the voting group after the removal of non-voting members. To accommodate for non-voting members, Dougherty and Moeller (2012) calculate gridlock intervals for each month, only including legislators that participated in half of the votes during a given month. These monthly gridlock intervals with attendance considered are then averaged over the year to correct for outlying data, and to give a yearly gridlock interval that matches the methods used by Krehbiel (1996).

Chapter 3: Data and methods

3.1 Data analysis

Roll-call data for votes in the Legislative Assembly is found in the Journals of the Legislative Assembly of the Province of Canada, 1841 to 1867. The dataset created from the journals is not a complete listing of all roll-calls taken, instead including between 30 and 75 votes per parliament that were important to the governance of the province. Importance is a subjective measure, and the important votes included in the dataset include votes for speaker, any confidence motion, votes on government-sponsored bills, and votes on private member bills which address a major issue as defined in the historical literature. Importance has not been systematically determined, instead being used as a guide to select a sample of votes for each parliament.

For each roll-call, the vote of each legislator is recorded using the coding scheme established by Poole and Rosenthal (1997). For the purposes of this study, all absent members and those not currently serving are not included in the analysis, and are recorded as missing values. Abstentions can be an important and explicit behaviour choice by legislators, allowing them to oppose their party without voting against the party line on whipped votes. However, they can also simply represent a member missing a vote. Making a normative judgement on the context and intention behind abstentions is outside of the scope of this thesis, and as such abstentions have been dropped from the data.

3.2 Basic model design

A counterfactual model will be used to estimate the impact of applying the double majority rule on legislative productivity, comparing a constructed treatment group with a control

group. To do this, observed roll-call results are divided into three groups - votes that did not pass, votes that passed with a simple majority but not a double majority, and those that passed with a double majority. The control group will consist of the observed roll-call results under simple majority rules, such that the second and third group of votes pass as they did under real conditions. The treatment group will be constructed by duplicating the dataset, and applying the double majority rule so that only those votes included in the third group of data pass in the duplicated data.

The double majority rule was not implemented in principle until the introduction of responsible government in 1848 (Careless, 1967; Morton, 1964), so the data will also be divided by time into pre-treatment and post-treatment periods. The pre-treatment period is before the double majority would have been applied from 1841 to 1847. During this time, the Executive Council was appointed by the Governor-General and only a simple majority was required to pass legislation. The post-treatment period will be from 1848 to 1867, after the double majority rule had been introduced as a concept and largely agreed to in principle.

The creation of treatment and control groups, as well as pre-treatment and post-treatment periods, allows for a difference-in-differences design to be used within the counterfactual model. In this design, the control and treatment groups of data are considered as two separate legislatures, with the only difference between them being the application of the double majority rule to roll-call results in the treatment group. The difference-in-differences design will compare these two groups of data between the pre-treatment and post-treatment periods to estimate the impact of applying the double majority rule on legislative productivity.

Gridlock intervals between the veto players that would have been introduced under the double majority rule form the causal mechanism to understand the expected decrease in

legislative productivity. These gridlock intervals describe the magnitude of the reduction in productivity over time, with larger intervals corresponding to larger expected decreases in productivity under double majority rules. Gridlock intervals will be tested using the interaction between the counterfactual data and the size of the interval, as they would not have applied under simple majority conditions.

The above basic model will be tested using ordinary least squares (OLS) regression, with specific equations generated to test hypotheses as described in section 3.3. Because difference-in-differences design will be used to test the impact of responsible government and the gridlock intervals, standard errors will be clustered around the dependent variable to correct for inconsistent standard errors as described by Bertrand et al. (2003). The first part of the model, estimating the impact of applying the double majority rule to the counterfactual data, can be done without robust standard errors because it will produce consistent standard errors without the need for clustering. Section 3.3 will define the specific equations that will be tested, as well as the variables that are constructed according to the basic model specified in this section.

3.3 Hypotheses and predicted outcomes

3.3.1 Applying the double majority rule would reduce productivity

The first hypothesis is that applying the double majority rule would result in a decrease in legislative productivity. The double majority rule would be a stricter requirement to pass legislation than what existed under real conditions. This means that applying the rule would necessarily cause either less legislation to pass, if any votes were passed without a double majority, or a null effect if all votes were passed with a double majority. Hypothesis 1 can be represented mathematically by the following equation:

$$\text{PASS}_{it} = \delta + \alpha \text{DM-APPLIED}_i + \beta \text{POST-RG}_t + \varepsilon_{it} \quad (1)$$

The dependent variable measuring legislative productivity is PASS. Legislative productivity is measured by the proportion of important votes that pass per year. By measuring the proportion, rather than the absolute count, a shared form of measurement is established for cross-time comparison. The PASS variable is constructed as a binary variable for each vote, recording if it passed (1) or failed (0). The regression results will thus report a decimal value between 0 and 1, representing the proportion of votes overall that passed. The results can also be interpreted as the probability that an individual vote passed. The dataset was duplicated to construct the treatment group, and in the duplicated data PASS records whether a vote passed with a double majority (1) or either failed or passed with a simple majority (0). The result is a duplicated dataset, divided into a control and treatment group, with PASS reporting the simple majority results in the control group and the double majority results in the treatment group.

The independent variable identifying the treatment and control groups of data is DM-APPLIED. The DM-APPLIED variable is a binary variable that codes the control group of observed data as 0, and the treatment group that identifies which votes passed with a double majority as 1. This variable allows for a comparison between the control group and the treatment group, with the coefficient α describing the difference between the two groups as shown in Figure 1.

The independent variable identifying the time-specific change in the proportion of votes passed is POST-RG. The POST-RG variable is a binary variable that codes all votes taken in the colonial government period (1844-1847) as 0 and all votes taken in the responsible government period (1848-1867) as 1. This is done for both the treatment and control groups. This variable

serves as a general measure of productivity over time, and as a basis for comparison between the pre-treatment and post-treatment periods. The coefficient β in Figure 1 shows the expected impact of the POST-RG variable, visualizing the decrease in the proportion of votes passed before and after the introduction of responsible government, if introducing responsible government had a negative impact on productivity.

The constant (δ) records the estimated point at which the observed data line intersects the y axis. In this equation, the constant represents the proportion of votes passed with a simple majority during the first year of data (1841). The constant serves as the baseline for analysis, with the coefficients of the other variables defining how those other variables impact legislative productivity in relation to the constant. ε represents the residual, or the variation of the dependent variable not caused by the model.

Figure 1 visualizes the argument presented in Equation 1. The slope of the observed data line is measured in the colonial and responsible government periods through β . α does not influence the slope of the observed data line, but rather defines the magnitude of the distance between the observed data line and the counterfactual data line. Because the DM-APPLIED variable codes the duplicate and observed data, the estimator for α shows the average treatment effect of applying the double majority rule to the observed data, and the magnitude of α shows the average expected reduction in productivity if the double majority rule had been applied. If $\alpha < 0$, then there is a decrease in the proportion of votes passed under counterfactual conditions, confirming the hypothesis. If $\alpha = 0$, then there is no statistical evidence for a decrease in legislative productivity had the double majority rule been applied. A value of α greater than zero represents a methodological error, because the double majority rule could not have caused more votes to pass than had passed under a simple majority.

3.3.2 Introducing responsible government caused more votes to pass with a double majority

The second hypothesis is that the introduction of responsible government resulted in an increased proportion of votes passing with a double majority. The historical literature tells us that at the creation of the province, the Executive Council only sought to pass legislation with a simple majority – this means that they would gain support through any regional or ideological coalition required to achieve the minimum number of votes (Careless, 1967). Once responsible government was introduced in 1848, the concept of a double majority was agreed to in principle, meaning that legislative actors would be more likely to put forward bills that would be supported with majorities from both sections. Hypothesis 2 can be represented mathematically by the following equation:

$$PASS_{it} = \delta + \alpha DM-APPLIED_i + \beta POST-RG_t + \gamma DM-APPLIED * POST-RG_{it} + \varepsilon_{it} \quad (2)$$

The new term introduced in Equation 2 is the interaction between DM-APPLIED and POST-RG, which estimates the impact of introducing responsible government on the proportion of votes passed with a double majority.

Figure 2 visualizes the interaction between DM-APPLIED and POST-RG. The expected votes passed with a double majority line shows the null effect of responsible government, with the same proportion of votes passing with a double majority before and after responsible government is introduced. The counterfactual data recodes votes to only pass with a double majority, so it can be used in Equation 1 as a measure of counterfactual productivity, and in Equation 2 as a measure of how many votes were passed with a double majority under observed

conditions. The null effect is contrasted with the treatment effect, represented by the dashed line in Figure 2, and showing the expected change in slope of the votes passed with a double majority line after responsible government is introduced. The change in the slope of the double majority line is recorded as γ . If $\gamma > 0$, then the slope of the counterfactual line becomes less negative, and the expected effect has occurred. If $\gamma = 0$, then there will be no difference between the expected counterfactual data and the calculated counterfactual data. If $\gamma < 0$, then introducing responsible government had decreased the proportion of votes passed with a double majority. If more votes were passed with a double majority after the introduction in responsible government then there would be a relative increase in legislative productivity under the counterfactual rules after 1848.

3.3.3 Increasing the size of the gridlock interval decreases productivity

The third hypothesis is that increasing the size of the gridlock interval would have decreased legislative productivity under the double majority rule. We know from Tsebelis (1999) that increasing the ideological distance between veto players is the cause for reduced productivity under supermajoritarian rules. This hypothesis tests whether modifying the size of the gridlock intervals impacts productivity, while hypothesis 1 effectively tests if introducing the gridlock intervals will reduce productivity.

The relative ideological position of each legislator is calculated using NOMINATE scores in two dimensions (Poole and Rosenthal, 1997; Tsebelis, 1995). The NOMINATE scores are calculated from across all eight parliaments (1841-1867), providing a common space in which legislator ideological preferences can be compared. Two dimensions are used to account for the bivariate explanation of voting patterns, with one dimension being expected to represent the ideological divide, and the other dimension the regional and religious divide. Gridlock

intervals are calculated using a slightly-modified version of the methodology that Dougherty and Moeller (2012) used in their study of the pre-Constitution United States. The calculation is done by plotting the ideological location of all regularly-attending members and the four median voters among them on a two-dimensional plane, and recording the percent of the total ideological space that the gridlock polygon occupies. The intervals are calculated at multiple points during each parliament and the average is taken to record the overall per-parliament gridlock interval. This methodology accounts for large and patterned rates of non-voting, and the mid-session addition and removal of members.

The interaction between the size of the gridlock interval and the application of the double majority rule to the counterfactual data is the important variable of analysis. The standalone gridlock interval is not useful because that gridlock interval would only exist under the double majority rule. Hypothesis 3 can be mathematically represented in the following equation:

$$PASS_{it} = \delta + \alpha DM-APPLIED_i + \eta O-GRID_{it} + \lambda DM-APPLIED * O-GRID_{it} + \epsilon_{it} \quad (3)$$

The dependent variable, the constant, the variable identifying the counterfactual data, and the residual all remain the same from Equation 1. The O-GRID variable is the overall gridlock interval, reported as the percent of the total ideological space occupied by regularly-voting legislators as defined above. The interaction between DM-APPLIED and O-GRID shows the impact of changing the size of the gridlock interval on the magnitude of the expected reduction in productivity had the double majority rule been applied.

In addition to measuring the impact of the overall gridlock interval, each of the two dimension-specific gridlock intervals can be regressed to determine the dimension-specific

impact on productivity under the double majority rule. This is done to identify which dimensions might have a stronger influence on productivity, as analysed through their statistical significance and the magnitude of their effect on legislative productivity. The resulting equations can be described mathematically as follows:

$$PASS_{it} = \delta + \alpha DM-APPLIED_i + \Theta 1 GRIDDIM1_{it} + \mu DM-APPLIED * GRIDDIM1_{it} + \varepsilon_{it} \quad (4)$$

$$PASS_{it} = \delta + \alpha DM-APPLIED_i + \Theta 2 GRIDDIM2_{it} + \pi DM-APPLIED * GRIDDIM2_{it} + \varepsilon_{it} \quad (5)$$

In Equations 4 and 5, GRIDDIM1 and GRIDDIM2 measure the gridlock intervals along the first and second dimensions respectively. The variables report the interval as the percent of the total ideological space along the relevant dimension that the interval occupies. As the gridlock interval on each dimension occupies more of the total ideological space, there is an expected decrease in productivity as for the overall gridlock intervals.

Chapter 4: Results

4.1 Descriptive data

The descriptive statistics presented in Table 1 can be used to draw predictions about the regression results. The percent of votes passed with a double majority is important for determining the impact of applying the double majority rule on legislative productivity. Votes passed with a simple majority represent supply bills, policy decisions in response to exogenous shocks, and implementation of key government policies. When a low percent of votes passed with a double majority, then those votes would fail to pass under counterfactual conditions, leading to a decrease in productivity. Given the important nature of the votes examined, this could cause significant governance problems for the province – if these votes failed under counterfactual conditions, it could prevent the implementation of policies necessary for the operation of provincial institutions.

The statistics also bring doubt to some conclusions in the historical literature. Careless (1967) and Morton (1964) argue that during the Third Parliament (1848-1851), oversized reform coalitions were large enough to secure double majorities on most votes. The descriptive statistics tell another story, with only 52.4% of votes passing with a double majority. This means that even during the time with supposedly the highest degree of ideological similarity between the two median voters, the double majority rule would have caused a significant decrease in productivity if applied. The parliaments with the highest percent of votes passed with a double majority – Fourth, Fifth, and Eighth – are largely in keeping with the literature. During the Fourth and Fifth Parliaments, the reformers maintained a strong coalition government with support from both sections of the province. During the Eighth Parliament, there were considerable tensions and

difficulty in forming a government, but members from both sections were largely united around the idea of confederation and the votes surrounding it (Careless, 1967). Even during these years, at least 20% of votes that passed did so without a double majority. This suggests that the double majority would have been impractical to introduce at any time, not just during the years with strong ideological differences between the median voters of each section.

4.2 Regression results

Table 2 shows the results of the regressions for the first three equations. The impact of applying the counterfactual rules on productivity is found to be negative in Equations 1 and 2, and not statistically significant in Equation 3. Moving from the pre-treatment (1841-1847) to the post-treatment period (1848-1867) reduces productivity as seen by the estimator in Equations 1 and 2. The interaction between the treatment and treatment period did not produce statistically-significant results, nor did the inclusion of the gridlock interval and its interaction with the DM-APPLIED variable in Equation 3. The lack of statistically-significant estimators means that we cannot disconfirm the null hypothesis for many of these variables – that they do not have an impact on productivity – and as such limits the conclusions that can be drawn from these results.

Applying the double majority rule would have resulted in reduced legislative productivity. The results for Equation 1 show that there would be a statistically-significant decrease in productivity should the double majority rule be applied to the counterfactual data. The estimated coefficient for α is -0.220. The result that $\alpha < 0$ confirms that some votes were passed without a double majority, leading to an overall negative effect as predicted by analysing the descriptive data. The negative impact is visualized in Figure 3, with the magnitude of α defining the average reduction in legislative productivity had the double majority rule been

applied. The estimated coefficient for α is significant at the 99% confidence interval in Equation 1, and at the 95% confidence interval in Equation 2. These results support the first hypothesis, which argued that applying the rule to all data would reduce legislative productivity.

The post-responsible government parliaments were less productive. The POST-RG variable shows a statistically-significant reduction in productivity moving from the pre-treatment to post-treatment period. The estimated value of β is -0.212 in the results of Equation 1, suggesting that a smaller proportion of votes passed in the parliaments after 1848 than before. This result is significant at the 99% confidence interval. The estimated value for β in Equation 2 is -0.275, but it is significant only at the 90% confidence interval, meaning the rigour of the results can be debated. Looking at the margins shows that the coefficient is still negative in the 95% confidence interval, so regardless of the specific value, we can discuss this as a statistically significant decrease in productivity.

There was no statistically-significant change in the proportion of votes passed with a double majority after the introduction of responsible government. The estimator for the interaction term shows a positive slope change in Figure 4, but that change is not statistically significant at even the 90% confidence interval. As such, hypothesis two cannot be confirmed, as there is no statistical evidence for an increase in double majorities once responsible government is introduced. Within the 95% margins, the potential values for γ range from positive to negative, indicating that the effect could be positive, negative, or zero. We cannot reject the null hypothesis, that the introduction of responsible government did not lead to an increase in votes passed with a double majority relative to the era of colonial government.

Increasing the overall gridlock interval does not have a statistically-significant impact on legislative productivity. The estimated impact of increasing the size of the overall gridlock

interval under the double majority rule is a reduction in legislative productivity, with λ estimated to have a -0.014 impact on productivity for every additional percent of the ideological space occupied by the gridlock interval. However, this result is not significant at even the 90% confidence interval, meaning that there is no statistical evidence to suggest that the null hypothesis for the third hypothesis can be rejected. Instead, we must accept the null hypothesis for hypothesis 3, that increasing the size of the interval did not impact productivity.

Increasing the size of the dimension-specific gridlock intervals reduced legislative productivity. The results from Table 3 show that the first-dimension gridlock interval, when interacted with the treatment group, did result in a negative estimator that is significant at the 90% confidence interval. The second-dimension interval has the negative magnitude expected, but is not significant at the $p < 0.10$ level, with a p value of 0.110. Both the first and second dimension intervals have weak statistical evidence supporting them, though they are both close to the 90% confidence interval, and the 95% margins around their estimated values are negative. This suggests that there is a negative impact on productivity when the dimension-specific intervals are increased in size.

Chapter 5: Discussion

Increasing the size of the gridlock interval was the basis for understanding why supermajoritarian institutions lead to reduced productivity. The desire to minimize sectional conflict once responsible government was introduced formed the basis for understanding why the double majority concept would have been followed and discussed at the time. Neither of the corresponding variables produced statistically-significant estimators, and this section will explore the implications and possible explanations for these results.

We cannot confirm the hypothesis that more votes were passed with double majorities after the introduction of responsible government. The regression results suggest that applying the double majority rule would have led to a relatively uniform decrease in legislative productivity, rather than a stronger effect under colonial government and then a reduced effect after responsible government was implemented. The lack of statistical evidence contradicts the conclusions in the historical literature, with both Morton (1964) and Careless (1967) arguing that the double majority rule was considered a guiding principle after responsible government was introduced in 1848. If the double majority rule had been a strong guiding principle, then leaders at the time would have instead only introduced bills that they expected would be supported by a majority of both sectional caucuses.

A potential explanation for the null effect of responsible government comes from the partisan capacity hypothesis, which argues that governments ignore supermajoritarian rules when the rules would prevent them from implementing their legislative agenda (Binder, 1996). This hypothesis fits within the broader argument that procedural rules are tools that governments or majority parties control to help them implement or maintain their agenda (Binder, 1996). If

applying the double majority rule would have prevented the government from implementing key policies, then according to the partisan capacity hypothesis the government would be incentivized to ignore the rule.

An example of political leaders ignoring the double majority rule to pass legislation can be seen in the supplementary bill to the Common Schools Act, 1853. The supplementary bill was supported by an overall majority, a majority of Canada East members, but only a minority of Canada West members. The government introduced the bill for its third reading knowing that the bill might not gain a double majority, and allowed it to be passed into law without a double majority. The supplementary bill was important in resolving the common schools issue, providing funding to non-religious institutions in Canada West. If applying the double majority rule would have prevented key legislation like the supplementary bill from being passed into law, then the partisan capacity hypothesis provides an explanation as to why it was not widely applied as a guideline after the introduction of responsible government.

Looking at the size of the gridlock intervals, extreme status quo points provide one possible explanation for the null results. It is possible that many policy status quo points in the province were located outside of the gridlock interval after the initial period of colonial rule. Between 1841 and 1847, policy was determined by the Governor-General on behalf of the Imperial Government in London, and implemented through whatever simple majority the Governor-General could achieve in the legislature (Careless, 1967). This means that some policy status quo points could be pushed away from the median voter, given the focus on implementing Imperial policy rather than achieving results that would survive future government cycling. If a large enough number of status quo points were located outside of the gridlock intervals, then changing the size of the intervals would not impact legislative productivity.

An example of an extreme status quo point can be seen with the Secret Societies bill presented in 1843. The bill was widely supported by both sections of the province, and the members of the Executive Council in the Assembly. However, the Governor-General reserved the bill to be approved in London, where it was subsequently rejected and did not pass into law. Even though the bill was widely supported in the legislature, the status quo point remained outside of the majority opinion as the bill was not enacted. This meant that when future bills dealing with the secret societies were raised in responsible government years, it would have been possible to achieve a double majority on the issue regardless of the size of the gridlock interval, since the status quo on the secret societies issue was so far removed from the preferences of all veto players.

While the overall policy space in the Province can be defined along two dimensions, it is possible for specific votes to collapse onto one dimension. If a dimension-specific interval was proportionally smaller than the overall interval on a given vote, then it would be possible for a vote to pass with a double majority even as the size of the overall gridlock interval is relatively large, so long as the dimension on which the vote collapsed was relatively smaller. For example, if the overall gridlock interval occupied 20% of the overall ideological space, but the dimension 1 interval only occupied 5% of the space along that dimension, then a bill with voting patterns collapsed onto dimension 1 would have a relatively high chance of passing with a double majority.

Figure 5 shows the potential impact that dimension-specific gridlock intervals can have when voting patterns collapse onto one dimension. In Figure 5, the median voter for the East and West along the first dimension are very close, and the interval between them occupies less than 5% of the ideological space. The overall gridlock interval in this case occupies 10% of the

overall ideological space; if voting patterns collapse, it would be possible for a status quo point that is inside the overall gridlock interval to be outside the dimension 1 interval. The collapse of voting onto one dimension, if it occurred often enough, could cause enough variation to increase the standard errors of the overall gridlock interval variable and make the estimator statistically insignificant.

If voting collapses onto one dimension for specific issues, then the dimension-specific gridlock intervals should have an impact on legislative productivity in the counterfactual data with the double majority rule applied. The statistical evidence for this impact is weak, but present, particularly in the case of the first-dimension interval. The weak statistical evidence suggests that the dimension-specific intervals may sometimes direct voting patterns, but not always or else there would be stronger statistical evidence supporting their role. The dimension-specific interval results help explain why the traditional gridlock intervals, even when measured to account for non-voting, fail to yield statistically-significant results.

Chapter 6: Conclusion

This thesis has used a counterfactual model, applying a separate set of institutional rules to roll-call data to test the main research question – do supermajoritarian institutions decrease legislative productivity. The model uses a difference-in-difference design, comparing the pre-treatment period of colonial government with the post-treatment period of responsible government, and the duplicated dataset with the double majority rule applied with the observed data. Further equations test whether more votes were passed with a double majority after responsible government was introduced, and whether increasing the size of gridlock intervals explains variation in reduced productivity when applying the double majority rule.

The regression results confirm that applying the double majority rule resulted in a statistically-significant decrease in productivity, as measured by the proportion of bills that passed each year in the observed data compared with the proportion that would have passed under counterfactual conditions. Applying the double majority rule creates new veto players and a gridlock interval between them, and this provides the theoretical mechanism through which the rule decreases legislative productivity. These results also confirm the conclusions presented in the historical literature – that the double majority rule was impractical in practice (Careless, 1967).

While the overall conclusions in the historical literature were confirmed by the regression results, other elements were not. The descriptive statistics showed that the province would have suffered a reduction in productivity had the rule been implemented at any time. Even during the Third Parliament (1848-1851), which the historical literature defines as a time of high ideological unity between the median voters of both sections, only slightly more than half of the

votes that passed did so with a double majority. In contrast, the Eighth Parliament had been described as very divisive in the historical literature, but had a relatively high proportion of votes pass with a double majority. The regression results for the second hypothesis confirm these trends, with no statistical evidence for an increased number of votes passed with a double majority after the introduction of responsible government. The results presented here are based off a sampling of the total votes from each parliament, so there is some room for error in vote selection. There is still a convincing argument to be made that the double majority rule would be impractical to have introduced at any time in the province, not just when the ideological separation of the median voters was at its highest points.

Variation in the size of gridlock intervals was found to have an unexpected null effect on productivity. While increasing the gridlock interval was expected to decrease productivity, there was no statistical evidence that this occurred. Introducing the gridlock interval reduced productivity, but varying the size of the interval had no effect on the proportion of bills passed per year. Two explanations for the lack of significant results were the presence of status quo points on the extremes of the policy spectrum and the potential for voting behaviour to collapse onto one of the two dimensions during certain votes. These need not have applied to every vote, but if they influenced a sufficient number then it would be enough to increase the standard errors of the overall gridlock interval, leading to statistically insignificant estimators.

Future work on this topic could use different methodologies to calculate gridlock intervals, looking at the impact of parties and gatekeeping decisions by legislative leaders. The historical literature suggests that parties were weak during the life of the province, but this claim could be tested as well, comparing the observed roll-call results with counterfactual results that recode all members to vote according to the majority opinion of their party. If parties were

strong, then this would be another potential explanation for why fluctuations in the gridlock intervals did not change the potential impact of the double majority rule on productivity. This thesis could provide the theoretical and quantitative background for these other areas of study.

Tables

Table 1. Descriptive data listing the number of votes passed, passed with a simple majority, and passed with a double majority from the important votes dataset, 1841-1867.

Parliament	Failed	Passed with simple majority	Passed with double majority	Percent passed with double majority (%)
1 (1841-1844)	17	55	32	58.1
2 (1844-1848)	23	25	11	44.0
3 (1848-1851)	7	63	33	52.4
4 (1851-1854)	36	14	10	71.4
5 (1854-1858)	53	9	7	77.8
6 (1858-1861)	49	11	4	36.3
7 (1861-1863)	35	15	3	20.0
8 (1863-1867)	14	16	11	68.7

Table 2. OLS regression results for Equations 1-3. Standard errors are clustered around the dependent variable for Equations 2 and 3, and reported in brackets below each estimator for all equations.

	(1)	(2)	(3)
DM-APPLIED_i	-0.220*** (0.031)	-0.311** (0.021)	0.026 (0.203)
POST-RG_t	-0.212*** (0.035)	-0.275* (0.038)	
O-GRID_{it}			-0.027 (0.005)
DM-APPLIED*POST-RG_{it}		0.125 (0.167)	
DM-APPLIED*O-GRID_{it}			-0.014 (0.008)
Constant	0.627*** (0.034)	0.672 (0.441)	0.004 (0.347)
R ²	0.0909	0.0942	0.1412
Fixed effects	No	No	No
N	882	882	882

Note: Numbers with *** meet the 99%, ** meet the 95%, and * meet the 90% confidence intervals.

Table 3. OLS regression results for Equations 4-5. Standard errors are clustered around the dependent variable for Equations 4 and 5, and reported in brackets below each estimator for all equations.

	(4)	(5)
DM-APPLIED_i	-0.152 (0.113)	0.330 (0.163)
GRIDDIM1_{it}	0.003* (0.0004)	
GRIDDIM2_{it}		0.0257 (0.010)
DM-APPLIED*GRIDDIM1_{it}	-0.003* (0.0003)	
DM-APPLIED*GRIDDIM2_{it}		-0.014 (0.003)
Constant	0.402 (0.489)	-0.531 (0.033)
R²	0.0542	0.1467
Fixed effects	No	No
N	882	882

Note: Numbers with *** meet the 99%, ** meet the 95%, and * meet the 90% confidence intervals.

Figures

Figure 1. Example proportion of votes passed in the provincial legislature over time, comparing the control group of observed data with the treatment group of counterfactual data with the double majority rule applied.

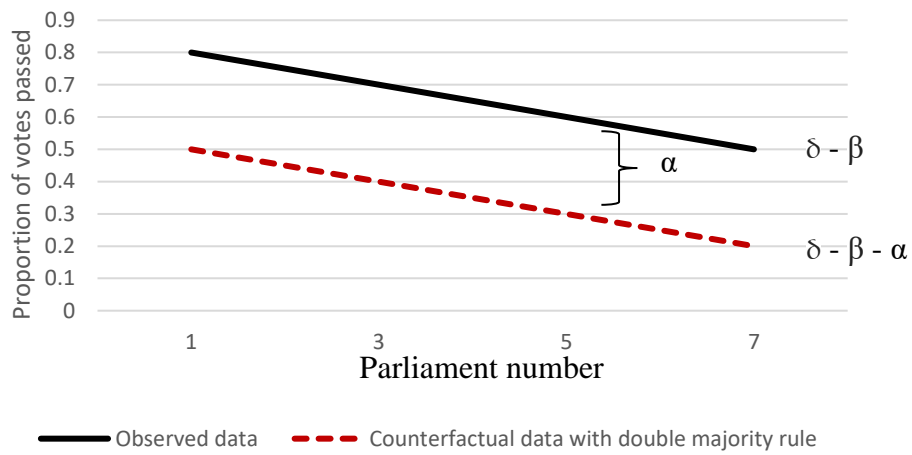


Figure 2. Example proportion of votes passed in the provincial legislature over time, comparing the control group with the treatment group and after the introduction of responsible government in 1848 at the beginning of the Third Parliament.

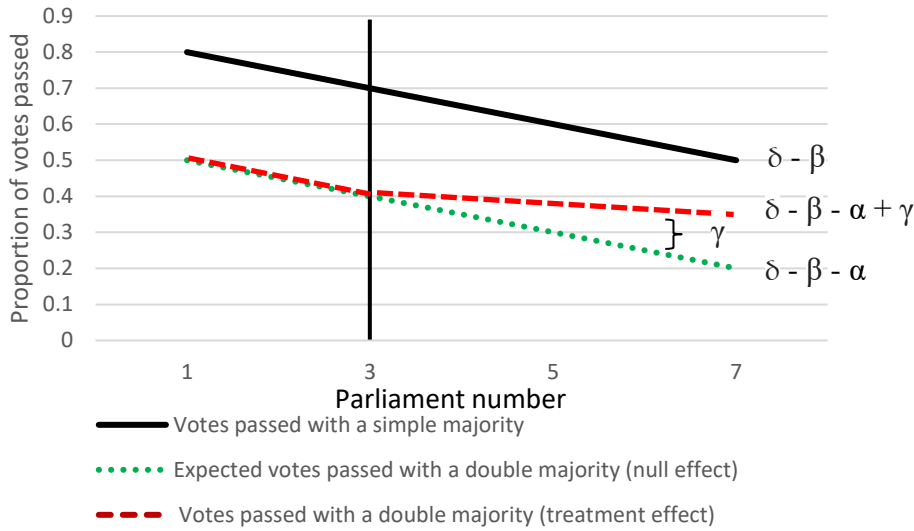


Figure 3. Visualized regression results for Equation 1, showing the fitted values of the proportion of vote passed by parliament for the observed and counterfactual data.

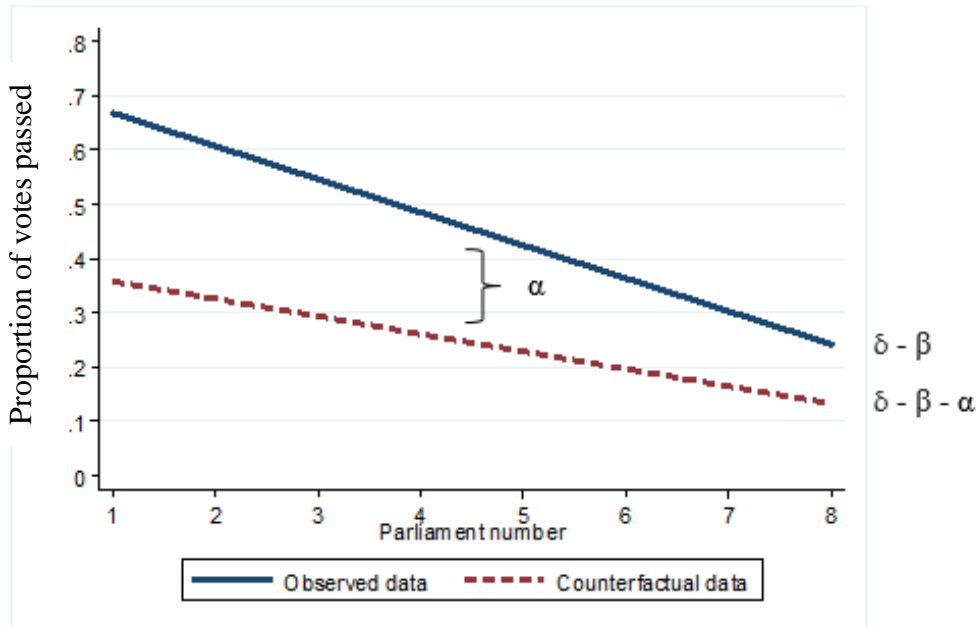


Figure 4. Visualized regression results for Equation 2, showing the fitted values of the proportion of vote passed by parliament for the observed data, counterfactual data, and the expected counterfactual data in the post-responsible government period.

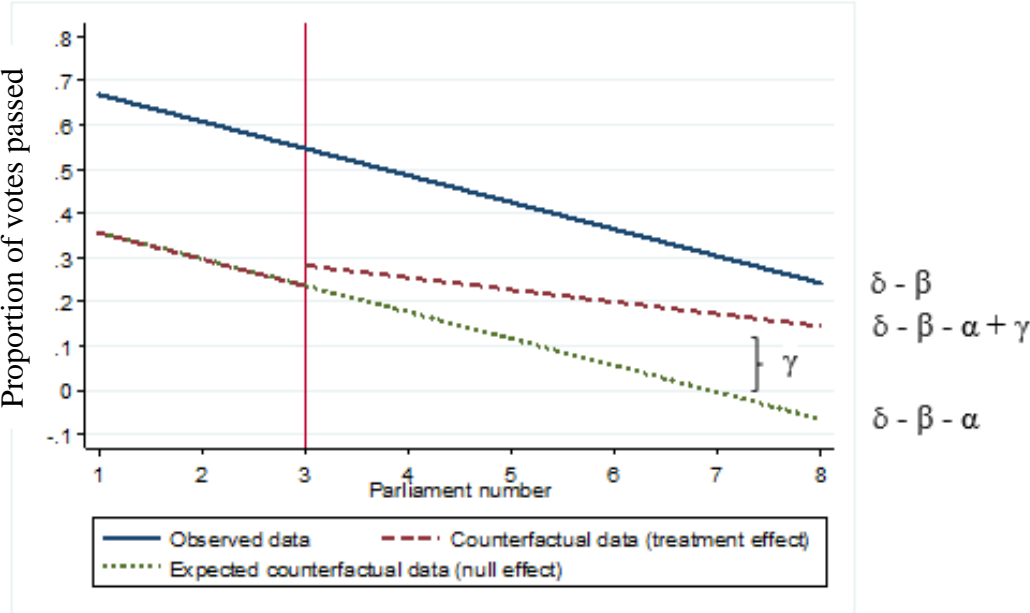
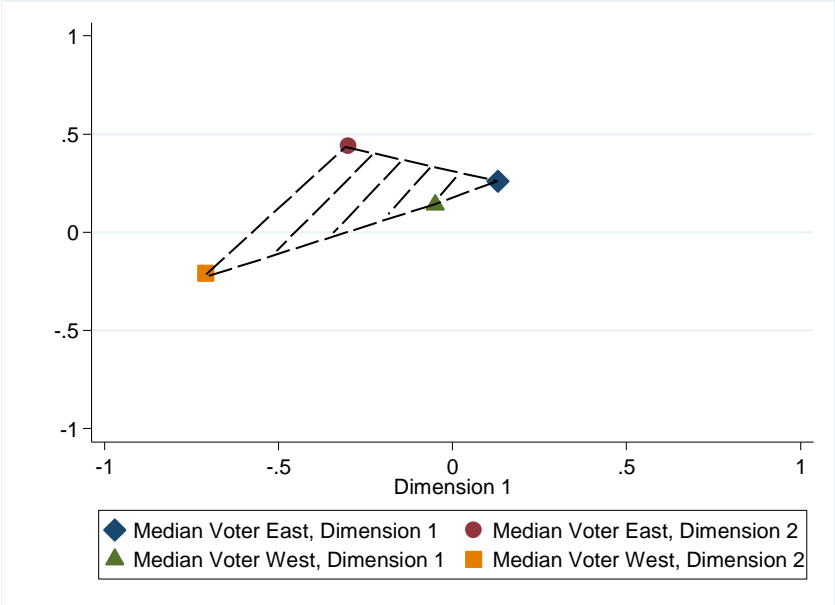


Figure 5. The relative ideological location of median voters in both sections of the province and along both dimensions in the Fourth Parliament. The overall gridlock interval is represented by the shaded area enclosed in dashed lines.



Bibliography

- Bertrand, M., Duflo, E., and Mullainathan, S. (2004). How Much Should We Trust Differences-In-Differences Estimates? *The Quarterly Journal of Economics*, 119(1), 249-275.
- Binder, S.A. (1996). The Partisan Basis of Procedural Choice: Allocating Parliamentary Rights in the House, 1789-1990. *The American Political Science Review*, 90(1), 8-20.
- Bradbury, C.J., and Johnson, J.M. (2006). Do Supermajority Rules Limit or Enhance Majority Tyranny? Evidence from the US States, 1960-1997. *Public Choice*, 127(3), 437-449.
- Careless, J.M.S. (1959). *Brown of the Globe*. Toronto: The Macmillan Company of Canada Limited.
- Careless, J.M.S. (1967). *The Union of the Canadas: The Growth of Canadian Institutions 1841-1857*. Toronto: McClelland and Stewart.
- Conley, R.S., and Bekafigo, M.A. (2010). “No Irish Need Apply”? Veto Players and Legislative Productivity in the Republic of Ireland, 1949-2000. *Comparative Political Studies*, 43(1), 91-118.
- Cornell, P.G. (1962). *The Alignment of Political Groups in Canada, 1841-1867*. Toronto: University of Toronto Press.
- Dougherty, K., and Moeller, J. (2012). Constitutional Change and American Pivotal Politics. *American Politics Research*, 40(6), 1092-1120.
- Ganghof, S., and Bräuninger, T. (2006). Government Status and Legislative Behaviour: Partisan Veto Players in Australia, Denmark, Finland and Germany. *Party Politics*, 12(4), 521-539.

- Gordon, B., and Hartmann, W. (2016). Advertising competition in presidential elections. *Quantitative Market Economics*, 14(1), 1-40.
- Jacobi, T., and VanDam, J. (2013). The Filibuster and Reconciliation: The Future of Majoritarian Lawmaking in the U.S. Senate. *U.C. Davis Law Review*, 43(1), 261-341.
- Krehbiel, K. (1996). Institutional and Partisan Sources of Gridlock: A Theory of Divided and Unified Government. *Journal of Theoretical Politics*, 8(1), 7-40.
- Krehbiel, K. (1998). *Pivotal Politics: A Theory of U.S. Lawmaking*. Chicago: University of Chicago Press.
- Mayhew, D. (2003). Supermajority Rule in the U.S. Senate. *Political Science and Politics*, 36(1), 31-36.
- McGann, A.J. (2004). The Tyranny of the Supermajority: How Majority Rule Protects Minorities. *Journal of Theoretical Politics*, 16(1), 53-77.
- McGann, A.J. (2006). Social choice and comparing legislatures: Constitutional versus institutional constraints. *The Journal of Legislative Studies*, 12(3), 443-461.
- McGinnis, J., and Rappaport, M. (1995). The Constitutionality of Legislative Supermajority Requirements: A Defense. *The Yale Law Journal*, 105(2), 483-511.
- Morton, W.L. (1964). *The Critical Years: The Union of British North America 1857-1873*. Toronto: McClelland and Stewart.
- Pastine, I., Pastine, I., and Redmond, P. (2015). Incumbent-Quality Advantage and Counterfactual Electoral Stagnation in the US Senate. *Politics*, 35(1), 32-45.
- Peress, M. (2009). Optimal Supermajority Requirements in a Two-Party System. *The Journal of Politics*, 71(4), 1379-1393.

- Poole, K.T. (2005). *Spatial Models of Parliamentary Voting*. Cambridge: Cambridge University Press.
- Poole, K.T., and Rosenthal, H. (1997). *Congress: A Political-Economic History of Roll-Call Voting*. Oxford: Oxford University Press.
- Robinson, G. (2015). Competing Agendas in Theories of Congress: Assessing Agenda Control Using Counterfactual Data. *The Journal of Politics*, 77(3), 749-761.
- Tsebelis, G. (1995). Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism. *British Journal of Political Science*, 25(3), 289-325.
- Tsebelis, G. (1999). Veto Players and Law Production in Parliamentary Democracies: An Empirical Analysis. *The American Political Science Review*, 93(3), 591-608.
- Tsebelis, G. (2000). Veto Players and Institutional Analysis. *Governance: An International Journal of Policy and Administration*, 13(4), 441-474.