Political discretion in infrastructure spending in Canada

OLIVIER JACQUES*
McGill University

BENJAMIN FERLAND†
University of Ottawa

ABSTRACT

The paper examines the presence of geographically targeted spending in the allocation of infrastructure projects in Canada. We test two main expectations with respect to which particular districts are generally targeted by political elites: swing districts or core/loyal districts. We also investigate whether MPs characteristics such as seniority or holding a cabinet position influence the distribution of infrastructure projects. We analyze the number of projects and funding, respectively, that were allocated by Infrastructure Canada — a federal department — across federal electoral districts between 2006 and 2018. Our results indicate that governments' core districts receive more projects on average. In terms of funding allocation, we find that governmental districts receive on average more money than opposition districts and that this is even more the case in loyal government districts. On the other hand, we found few evidence that cabinet ministers or senior MPs have more the ability to attract projects or funding in their constituency than other representatives.

*Ph.D. Candidate, Department of Political Science, McGill University, 855 Sherbrooke Street West, Montreal, QC, H3A 2T7, Canada (olivier.jacques@mail.mcgill.ca).

†Assistant Professor, School of Political Studies, University of Ottawa, 120 University, Ottawa, ON, K1N 6N5, Canada (bferland@uottawa.ca).

1 Introduction

Political parties value votes, offices and policies (Müller and Strom, 1999). A prerequisite, however, for gaining offices and implementing policies is generally that parties collect enough support to form the government — at least in majoritarian electoral systems where coalition governments seldom form. For this reason, one of parties' main motivations in politics is to maximize votes (Downs, 1957). Parties have different tools to meet this end. They position themselves in the political space (Cox, 1990; Merrill and Adams, 2002), choose which policy issues to emphasize (Klüver and Spoon, 2016; Spoon and Klüver, 2014), and may respond to voters demands (Adams et al., 2004; Ezrow et al., 2010) to name just a few. Once in power, electoral motivations also shape parties' decisions and policies. Governments have strong electoral incentives to manage adequately the economy (Powell and Whitten, 1993; Duch and Stevenson, 2008), fulfill their electoral pledges (APSA, 1950; Mansergh and Thomson, 2007), and adjust policies and spending accordingly with public opinion (Page and Shapiro, 1983; Stimson, MacKuen and Erikson, 1995; Soroka and Wlezien, 2010).

Electoral motivations could also manifest themselves in governments targeting some groups of voters with specific policies. While ethnic, cultural and religious groups are prone to such targeting (Baldwin, 2005; Kitschelt and Wilkinson, 2007), single-member district electoral systems ease geographically targeted spending (Milesi-Ferretti and Rostagno, 2002). This is often referred as pork-barreling or as a form of distributive politics. This involves that a government may favor some electoral districts (over others) in spending more money or implementing more projects in those targeted ridings in order to increase its likelihood of reelection. Importantly, if electoral motivations sometimes reinforce normative expectations about the working of representative democracies and governments' course of actions (e.g. pledge fulfillment and responsiveness), it is difficult to attribute normative objectives to pork-barreling. Quite the opposite, pork-barreling may actually favor inequality in the distribution of public resources. Understanding, therefore, the mechanisms that give rise to such biases in projects allocation may have significant implications in terms of policy prescription.

The objective of the paper is thus to examine the presence of geographically targeted spending in analyzing the allocation of infrastructure projects in Canada between 2006 and 2018. Building on previous studies, we test two main expectations with respect to which particular districts are generally targeted by political elites: swing districts or core/loyal districts. Targeting swing districts (opposition or governmental)

calls for increasing and thus securing government support in ridings that were won by a slight margin or for winning new seats in opposition districts that were lost by a slight margin (Lindbeck and Weibull, 1987). Targeting core/loyal districts calls instead for rewarding supporters and maintaining their support (Cox and McCubbins, 1986; Dixit and Londregan, 1995, 1996). In addition to these electoral motivations, we investigate whether MPs characteristics such as seniority or holding a cabinet position influence the distribution of infrastructure projects in Canada given that these MPs resources may affect their level of influence or competence to attract projects in their own electoral district.

We test these expectations in analyzing the distribution of infrastructure projects and funding, respectively, that were allocated by Infrastructure Canada — a federal department — across federal electoral districts between 2006 and 2018. Our dataset covers 7,728 projects that amount to $9.5 billion granted across 215 ridings. Our results indicate that government core districts receive more projects on average. In terms of funding allocation, we find that governmental districts receive on average more money than opposition districts and that this is even more the case in loyal government districts — as predicted by the core district hypothesis. On the other hand, we found few evidence that cabinet ministers or senior MPs have more the ability to attract projects or funding in their constituency than other representatives.

Our study extends previous examinations of pork-barreling in Canada in different ways (Milligan and Smart, 2005; Joanis, 2011; Chandler, 2011; Mehiriz and Marceau, 2013). First, our results support those of Joanis (2011) and Chandler (2011) which confirm that core governmental districts are generally advantaged in Canada. Second, previous studies are limited in space and time. Our dataset covers all Canadian provinces and territories over 3 elections. Hence, our study represents a thorough audit of the projects allocated by Infrastructure Canada since the creation of the department in 2002. Finally, a major shortcoming in studies of distributive politics — in Canada and abroad — is that scholars tend to select government programs that have a bias against null findings. As argued by Golden and Min (2013) in a exhaustive review of the literature:

"it is hard not to suspect that the cases that are studied are often selected precisely because they display prima facie evidence of political distortions in allocative decisions. It is thus not surprising that political scientists have found evidence of such distortions; indeed, it is perhaps surprising that any politician ever loses elected office given the impressive evidence that has been amassed showing the politicization of the public purse." (Golden and Min, 2013, 86)

In contrast, many factors impede political discretion in infrastructure spending in Canada — the case we study. Canada's infrastructures are funded by three levels of government sharing jurisdictions. This

blends, presumably, the political objectives of each level of government, especially since the party system is not integrated across the provincial and federal levels. In addition, Canada' civil service follows the Whitehall model where bureaucrats are neutral and recruited by a meritocratic process. Given that civil servants in Canada monitor and manage most of the process which relates to the allocation of infrastructure projects this should also weaken the likelihood of pork-barreling. For these reasons, we believe that our case represents a hard test for investigating the different mechanisms of distributional policies identified in the literature.[1]

The next section reviews the literature on pork-barreling in advanced democracies and presents our expectations. The third section describes our main data and the process regulating the allocation of projects by Infrastructure Canada. We also detail furthermore the reasons making our study a difficult case of pork-barreling. The fourth section discusses the coding decisions we made and the main variables. The fifth section presents and discusses the results.

2 Expectations of geographically targeted spending in Canada

Let's assume that political elites (in government) want to target some groups of voters to help their reelection. Who should they target? Rooted in formal modelling, two different answers have been proposed by scholars which represent the main micro-foundation of distributive politics. On the one hand, Lindbeck and Weibull (1987) predicts that within a district, elites should target swing voters. On the other hand, Cox and McCubbins (1986) assumes that elites should target their core voters within their district. We detail in the next sections these contradictory expectations, respectively, and the associated literature.[2]

2.1 The swing voters/districts hypothesis

The swing voter hypothesis predicts that core voters, whose ideological intensity is strong, are less likely to be targeted than swing voters with weak ideological intensity (Lindbeck and Weibull, 1987). Additional public expenditures are less likely to switch the minds of voters with strong ideological attachment than of voters with weak ideological attachment; hence, rational decision-makers should allocate scarce resources to the later. In other words, swing voters could be persuaded while core voters could not.

[1] See also Tavits (2009) for another test of an unlikely cases of distributional politics in the Nordic countries.

[2] We note that Dixit and Londregan (1998) represents a more general model that encompasses the Lindbeck-Weibull and Cox-McCubbins models. In other words, each model is a special case of the Dixit-Londregan model.

While this expectation is based on a model composed of two candidates competing within *one district*, scholars extend the rationale to a multidistrict context. In particular, Milesi-Ferretti and Rostagno (2002) argue that single member districts (SMD) encourage governments to reward geographically-based constituencies with locally visible projects and especially so in swing districts that may be pivotal to a government reelection (Persson and Tabellini, 2004). The seat-vote disproportionality inherent to SMD systems also prompts parties to target swing districts, since a small difference in votes in key electoral districts may create a large difference in seats (McGillivray, 2018). In addition, the capacity to use the distribution of public spending in accordance to the incentives provided by the electoral system depends on the governing party's strength relative to its members. When the governing party is strong, this should favor the target of swing districts since it helps the coordination of spending across districts and it diminishes the influence of powerful legislators — more on that below (McGillivray, 2018). Evidence of targeting of public spending towards swing districts has been found in Westminster parliamentary systems by Ward and John (1999) in England and by Denemark (2000) in Australia.

Canada has a SMD electoral system where politicians compete at the local level. Also, it is characterized by a strong party system imposing the respect of the party line (Soroka, Penner and Blidook, 2009) and a centralization of power towards the prime minister's office (Savoie, 1999). Strong governing parties, controlled by the prime minister's office, can easily choose to distribute public funding towards swing districts, especially in an era characterized by the increasingly sophisticated use of marketing techniques to target key voters (Delacourt, 2016). This discussion leads to the first hypothesis:

Hypothesis 1. *Swing governmental and opposition districts receive more projects/funding than other districts.*

2.2 The core voters/districts hypothesis

The core voters hypothesis assumes that risk-averse governments target expenditures to loyal supporters that are more easily identifiable and more reliable than swing voters (Cox and McCubbins, 1986). In particular, governments have an informational advantage about their core voters. It is thus easier to target them effectively and with projects that correspond to their preferences. This represents a less risky and costly strategy than targeting swing voters possibly imprecisely and with inadequate projects (Dixit and Londregan, 1996).

This prediction, however, relates to politicians' actions within their own constituency.[3] Scholars,

[3]This is an important qualification given that politicians may target actually their core voters in swing districts. Consequently,

thus, extended this rationale to the targeting of core districts by governments. Targeting swing districts still represents a "high risk, high reward" strategy given that it could end up rewarding opposition districts, as the government is uncertain to win the swing district (Joanis, 2011). Moreover, a government looking beyond the next election could be interested in securing core voters and districts' long-term support (Joanis, 2011). Thus, targeting core district is a low-risk, future-looking strategy. Also, in a system where Canadian parties are broad coalitions of divergent regional interests, public spending to core districts can be a tool to cement the electoral coalition of the governing party and reward loyalty. In fact, Leigh (2008) and Joanis (2011) evaluate cases of SMD with strong parties (Australia and Quebec) and find that governments actually tend to reward core districts. This lead to an additional hypothesis:

Hypothesis 2. *Core governmental districts receive more projects/funding than other districts.*

Taking into account hypotheses 1 and 2 leads to the more general expectation that governments should favor their own districts (against opposition districts) when allocating infrastructure projects in Canada. Cox and McCubbins' model (1986) also supports this expectation. If, within each constituency, a government is prone to favor its supporters, we should observe more projects/funding as the number of supporters increase in districts. This is that government districts should receive on average more projects than opposition districts given that more supporters are by definition present in government districts:

Hypothesis 3. *Government districts receive more projects/funding than opposition districts.*

2.3 Seniority and cabinet ministers

We must acknowledge that the channels of political influences remain unclear in the decision-making process we study. The mechanisms discussed above which motivates hypotheses 1-3 mostly relate to a top-down process where the prime minister's office influence civil servants to target specific districts (either directly or via the minister responsible for Infrastructure Canada). An alternative (or complementary) story to consider relates to MPs' abilities to attract projects in their constituencies. This is because voters in SMD have an incentive to carry a personal vote to a specific candidate that they recognize (Carey and Shugart, 1995), thus incumbents try to increase their own visibility by "bringing home the bacon" with public expenditures in their districts (Leigh, 2008).

empirical evidence in favor of the swing district hypothesis does automatically imply that swing voters are targeted in these districts. Core voters could be actually targeted (Cox, 2009).

For example, the United States is a typical case where legislators aim to distribute public expenditures to their own districts and their capacity to do so depends on their seniority and their appointment to relevant committees. In this situation, safe districts, which are increasing legislator's seniority, tend to receive more pork barreling, regardless of whether they are held by the opposition or governing party (Golden and Picci, 2008; McGillivray, 2018).

In Canada, it is also plausible that experienced MPs, often from core districts or sitting at the cabinet table, are better able to help municipalities in their own district to navigate the bureaucratic process and to propose projects that are more likely to respect the program's criteria and to be funded by Infrastructure Canada. Incumbents have generally an electoral advantage in Canada (Krashinsky and Milne, 1985*b*,*a*; Blais-Lacombe and Bodet, 2017) and their parliamentary experience could presumably help them attract more projects and funding in their districts. Milligan and Smart (2005) showed that cabinet ministers are able to bring benefits to their own constituencies more than less influential members of parliament.[4] MPs resources (i.e. seniority or holding a cabinet position) could thus be crucial in terms of their influence for attracting additional projects and money in their own riding. We thus expect the two following hypotheses:

Hypothesis 4. *Districts represented by ministers receive more projects/funding that districts represented by government backbenchers and opposition MPs.*

Hypothesis 5. *Districts represented by senior members of parliament receive more projects/funding that districts represented by junior members of parliament.*

3 The hard case : Canadian infrastructure spending

To test our hypotheses, we need data on government spending sharing three characteristics: visibility, a geographical dimension and some degree of political discretion by the federal government. To this end, we mobilize a new dataset released by Infrastructure Canada listing all the infrastructure projects funded by the federal government from 2002 to 2018 in Canadian municipalities and merge it to Elections Canada data matching municipalities to federal electoral districts.

Projects funded by Infrastructure Canada are structured by bilateral agreements between provinces and the federal government and by the rules governing the allocation of the Gas Tax Fund. Three rounds

[4] A minister's capacity to target its own district, however, may depend on their degree of autonomy relative to the prime-minister's office and to central agencies in the decision-making process (Savoie, 1999; Suiter and O'Malley, 2013). This is an interesting question to address in future studies.

of agreements have been signed, establishing three different programs: the Infrastructure Canada Program (2000), the The (New) Building Canada Plan (2008) [5] and the Investing in Canada Plan (2016 and 2018). Under these application-based programs, municipalities need to apply for infrastructure projects' funding.[6] A joint committee co-presided by a provincial and a federal civil servant reviews the demands, analyzes and prioritizes which projects should be funded based on the program's criteria, within the limit of funding available for the province as established by the agreement. All bilateral agreements are similar (Smith and Cools, 2017), but the federal-provincial bilateral agreements were modified in 2018. Provincial officials are now responsible to identify and prioritize the projects to be submitted to Infrastructure Canada. Then, Infrastructure Canada evaluates whether the projects fulfill the program criteria and might refuse funding. The 2018 modifications to the agreements decrease significantly the possibility of distributive policies in infrastructure spending — at least from the federal government.[7]

Using this particular dataset is a hard case to test theories of distributional politics because infrastructures in Canada are funded by three levels of government. The federal government rarely funds a public investment in infrastructure alone without the input of provinces and municipalities.[8] In theory, there is an asymmetry of information between the subnational governments and the central government: provinces can spend funds allocated by the central government based on the preferences of the local median voter, which might not coincide with the electoral objectives of politicians of the central government (Nicholson-Crotty, 2005). The capacity of the federal government to target specific electoral districts is thus hampered because its objectives might differ from the priorities of provincial governments. Such a decentralized federalism with joint decision-making may help to prevent pork-barreling.

It is conceivable that this coordination problem could be overcome if party systems were integrated between the provincial and federal levels, but this is not the case in Canada as economic and political interests differ significantly between provinces (Chhibber and Kollman, 2009; Stewart and Stewart, 1997). For example, the source of funding, the recruitment patterns, the members and the activists of provincial and federal branches of parties tend to differ in Canada (Stewart and Stewart, 1997).[9] In contrast, in an integrated

[5] 2014 for the New Building Canada Plan

[6] The Gas Tax Fund is an allocation based program, which is a direct transfer to municipalities, in contrast to the bilateral agreements that are application-based programs; Both are part of the Infrastructure Canada dataset.

[7] It remains unclear whether the projects approved in 2018 were regulated by the rules of the 2018 agreements. Robustness checks indicate that the exclusion of the projects approved in 2018 do not change our main conclusions.

[8] The federal government owns only 10% of infrastructures, in comparison to 50% for municipalities. The federal involvement is rarely higher than 50% of total costs (Smith and Cools, 2017)

[9] Dickson (2009) find that provinces represented by the same party at the federal and provincial level do not receive more federal transfers than those represented by different parties.

party system, co-partisan could help each other by agreeing to target spending to specific districts benefiting the other level of government (Tavits, 2009). Indeed, if central parties could discipline co-partisans in provinces, it would be easier for them to implement a unified policy agenda transcending jurisdictional divisions (Rodden and Rodden, 2006; Bednar, 2008).

Finally, the decision-making process of infrastructure projects' prioritization that we analyze is conducted, in theory, by neutral civil servants at the provincial and federal level. The literature on pork-barreling largely overlooks the role of the bureaucracy. Canada is based on the Whitehall model, common in Westminster countries, where bureaucrats' role is to "speak truth to power": civil servants are not political appointees, they are neutral, recruited by a meritocratic process and enjoy security of employment (Wilson and Barker, 2003). Independent bureaucrats are, presumably, shielded from political pressures to use distributional policies for political purposes and policy outcomes should reflect legal-rational considerations like the needs of different regions.

The relationship between civil servants and politicians, however, has become more politicized in recent decades in Whitehall countries in general and Canada in particular (Aucoin, 2012). Indeed, Mehiriz (2014) presents evidence of pork-barreling towards government and swing districts in Quebec made by a semi-autonomous bureaucratic organization, suggesting that political influences can exist even in "independent" bureaucracies. In evaluations of federal infrastructure spending conducted by the House of Commons or the Senate, municipalities regularly complain that the funding criteria, sometimes described as a "lottery", are not transparent enough (Smith and Cools, 2017; Sgro, 2018). Also, the Parliamentary Budget Office reveals that availability of data on project funding remains an issue as there are dozens of different programs responsible for funding and that per capita spending varies considerably by province (Fréchette, 2018).

To summarize, Canadian infrastructure funding is a hard case to test theories of pork-barreling because three main factors reduce the likelihood of political discretion. Decision making about infrastructures is a joint-process between provincial and federal civil servants: not only are they neutral career civil servants, but even if they were responsive to political pressures, the incentives of their respective governments to target a specific district should differ. These coordination problems are reinforced by the non-integration and the decentralization of party systems between the provincial and federal levels.

3.1 Relation to previous Canadian studies

To our knowledge, no other studies have analyzed pork-barreling for Canada as a whole and for more than one election. Still, there are several studies of political discretion in distributional policies in Canada at the federal and provincial levels. Mehiriz and Marceau (2013) study the distribution of the previous generation of Infrastructure programs we are analyzing in this article, albeit only in Quebec (both at the federal and provincial levels). They show that districts represented by a federal minister or by the provincial governing party have a greater percentage of their proposed projects approved, but they don't find a different effect between core and swing districts. Milligan and Smart (2005) analyze the cases of federal economic development agencies for Quebec and for Atlantic Canada and find that swing districts, those represented by the governing party and those represented by a senior member of parliament tend to receive more funding. It is worth noting that in comparison to the infrastructure projects of our dataset, the agencies analyzed by Milligan and Smart are the sole responsibility of the federal government, with no provincial input, which make them more likely to be subject to pork-barreling. In contrast to Milligan and Smart (2005), Chandler (2011) and Joanis (2011) find support for the core districts hypothesis. Chandler analyzes the distribution of Canada's Economic Action plan at one point in time at the federal level, while Joanis focuses on the provincial level in Quebec.

4 Measurements

Infrastructure Canada was created in 2002, but very few projects were funded in the first years, presumably because it took some time to initiate the programs.[10] For example, only 359 projects were funded until 2005 compared to 12,868 between 2006 and 2018. During these first years, most ridings did not receive any projects. We thus restrict the analysis to the post-2005 period which covers the Harper and Trudeau governments. We took the approbation date of the project to classify projects instead of the start date of construction for three reasons: governments should have more influence on the choice of the approbation date than the construction date, we assume that announcements will be made public when the project is approved and this choice helps to increase the number of cases as many recent projects have not started yet.

The main final beneficiary of projects funded by Infrastructure Canada are municipalities. To locate

[10]Most projects relate to public transit (38%), highways and roads (26%), and water management (26%). Other projects also involve the areas of recreation, culture, tourism, marine, sport, etc. https://www.infrastructure.gc.ca/investments-2002-investissements/nat-eng.html

them geographically in federal electoral districts, we merged them to a list of all the municipalities in each federal electoral districts provided by Elections Canada. Several coding decisions were nevertheless necessary in order to assemble the final dataset. First, after a redistricting in 2013, the number of federal districts increased from 308 to 338 at the 2015 election. Consequently, all projects funded from 2016 onward are associated to the 2013 redistricting, while those approved before are associated to the 2003 electoral map. Second, some projects allocated to aboriginal communities and to regional public transit systems were excluded because Elections Canada does not associate these recipients to federal electoral districts. Third, some municipalities encompass many electoral districts: large cities like Montreal cover dozens of districts, but even smaller towns like Sherbrooke cover two districts. Unfortunately, we had to eliminate infrastructure projects that were allocated to a municipality covering more than one riding because we cannot distinguish where the project is located in the municipality. This decision eliminates most of the urban districts in our data. Fourth, some of districts incorporate a large urban municipality, excluded from our dataset, but also house smaller municipalities included in our dataset. This is sometimes the case for suburban ridings or for independent towns within a larger urban area. Since projects allocated to the large municipality are excluded from the dataset, these particular districts receive an artificially low number of projects, because only those allocated to the smaller town are included in our dataset.[11] To address this issue, we measure the proportion of municipalities in a riding that are present in more than one electoral district against the total number of municipalities in a riding. Ridings with a high proportion of municipalities present in multiple ridings are mostly urban and suburban ridings, suffering from this artificial downward bias in project allocation. Consequently, we chose to eliminate all ridings having 25% and more of their municipalities present in more than one ridings, which is roughly half the ridings. These coding decisions lead us to analyze 7728 projects on a total of 13227 projects listed in the Infrastructure dataset, which represents 58.4% of all the projects. Overall, our dataset is restricted to 215 federal electoral districts, mostly non-urban ridings, which has the advantage of making them more comparable. Still, we need to remain cautious about the generalizability of the results.

We examine two main dependent variables in the following analyses: the number of projects funded

[11] For example, the Montreal riding of Notre-Dame-de-Grâces-Westmount includes Westmount, an independent city, and Notre-Dame-de-Grâces, a borough of the city of Montreal. The riding of Notre-Dame-de-Grâces-Westmount was present in our original dataset but includes only projects allocated to the city of Westmount, but excludes those for Notre-Dame-de-Grâces, because they are allocated to the city of Montreal in the dataset of Infrastructure Canada. This involves that the number of projects allocated to riding of Notre-Dame-de-Grâces-Westmount and other similar ridings are artificially lower than for districts where no beneficiary is excluded from the dataset.

and the amount of money spent per federal electoral district, respectively. While there is arguably a correlation between both variables, it is possible that political influence manifests itself only on one of these variables. For example, it is possible that projects would not be rejected, but the amount of funding will be reduced due to political influence. Infrastructure data are provided annually but we transformed the data to a legislature level of analysis. For each riding and legislature, we compute the number of projects funded and the total amount of money allocated to projects. The four legislatures covered by the data are the 39th (2006-2008), 40th (2009-2010), 41st (2011-2015), and 42nd (2016-2018) legislatures. The are several reasons supporting the decision of analyzing legislatures instead of annual data. First, our hypotheses pertain to cross-sectional comparisons of ridings while we do not have specific predictions about the dynamic process that might influence our dependent variables over time.[12] Second, legislature data has the advantage of removing serial correlation in our dependent variables which might have biased the standard errors of the coefficients. Finally, our main independent variables do not vary within legislatures but only at election time which mostly prevents us of examining the impact of short-term changes in these variables on our dependent variables. Consequently, both theoretical expectations and empirical reasons support our decision to analyze data at the legislature level.

There are four main independent variables associated with our hypotheses. *Government* is a dummy variable coded 1 when a riding is represented by a member of the governing party and coded 0 otherwise. *Cabinet minister* is a dummy variable coded 1 if the district is represented by a cabinet ministers and coded 0 otherwise. Accordingly with hypotheses 3 and 4, we expect both government and cabinet minister to have a positive impact on the number of projects and the amount of money spent in a federal electoral district. With respect to hypotheses 1 and 2 about the impact of core (swing) governmental (opposition) ridings, we follow common practice (Joanis, 2011; Milligan and Smart, 2005; Tavits, 2009) and use the *margin of victory* at the last federal election in this riding.[13] Margin of victory is computed as the difference in the vote share of the winning candidate and the second frontrunner. Hypotheses 1 and 2 predict that core and swing governmental districts receive more projects and money. Consequently, we expect a curvilinear relationship (U shape) between margin of victory and number of projects (and money spent) for governmental districts. This is that districts won by a small and large margin of victory receive more projects and money than governmental

[12] We acknowledge that infrastructure projects could be subject to an electoral cycle effect. This is an important issue that might be considered in future work.

[13] This seems to us a better empirical strategy than using dummy variables for ridings that have been won by a small or large margin of victory, respectively, and where the cutoff is generally arbitrary. Note that we did not consider by-elections. However, there are very few by election which resulted in a shift from government and opposition or vice versa.

ridings won by a moderate margin of victory (we detail below the specification of the interaction model). Conversely, we expect opposition districts won by a smaller margin of victory to be advantaged in terms of projects and funding compared to opposition districts won by a larger margin of victory. Finally, the fourth independent variable is a count variable measuring the number of times an incumbent MP won her re-election. This is used to test hypothesis 5.[14]

We use the Statistics Canada census of 2006, 2011 and 2016 to measure socio-demographic and economic control variables. These controls reflect population needs for public investment and should influence spending allocation. Our main controls are *education* (measured by the percentage of the population with no degree), *total population* (in thousands), *population density* (in thousands), *population change* since the last census, the *employment rate*[15], and the *median income after tax* (in thousands). The 2016 census provides the control variables for the 42nd legislature (2016-2018), the 2011 census for the 41st legislature (2011-2015) and the 2006 census for the 40th and 39th legislatures (2006-2010).

5 Results

In Table 1, we present the descriptive statistics of the dependent variables across the main independent variables (except for margin of victory and incumbency length given their ratio level of measurement). In particular, we present the average number of projects and funding received in a district over a legislature. Over the course of a legislature, ridings receive on average about 12.8 projects for a total amount of about $15.8M. There is, however, a lot of variation across ridings given the size of the standard deviations. In terms of number of projects allocated to ridings, these preliminary results do not provide strong support for our hypotheses. Opposition districts receive a smaller number of projects (12.3) than governmental districts (whether cabinet ministers or backbenchers) but these differences remain small and not statistically significant as indicated by a series of mean-comparison tests. For example, the greatest difference is between opposition districts (12.3) and government backbenchers (13.4) which amounts to a gap of about one project over the course of a legislature.

The differences are more important in terms of the amount of funding allocated to ridings. Descrip-

[14] We had to make two coding decisions for this variable. Incumbents got to increase their incumbency score when they are reelected in 2015, even if their riding changes (for example Louis Plamondon changes riding after the redistricting in 2015, but is still considered as the dean of the House of Commons). Moreover, MPs who are defeated do not lose their incumbency score when they win back their riding in a following election (there are just Bill Casey, Alexandra Mendes and Anthony Rota in this situation).

[15] Employment rate, participation rate and unemployment rate tend to be multicollinear, with cross correlations varying between .78 and .96.

tive statistics suggest that districts held by cabinet ministers receive more funding (20.6 M) than government backbenchers (16.2 M) and opposition districts (14.2 M). It is this latter group that receives the least amount of funding on average. However, a mean-comparison test between the categories of cabinet ministers and opposition fails to reach conventional levels of statistical significance (p=0.07 with a one-tailed test). The differences between the other categories are not statistically significant either. Overall, the differences across ridings displayed in Table 1 are in the expected direction but not important enough to be statistically different than 0. In the next sections, we test our hypotheses more systematically in controlling for the sociodemographic profile of each riding and introduce as well the effect of margin of victory which is at the center of the core-swing debate in the literature.

TABLE 1: Average number of projects and funding received per district

	# projects	Funding (in millions)
Government	13.2 (12.9)	17.2 (36.3)
Government backbenchers	13.4 (12.6)	16.2 (34.5)
Cabinet ministers	12.5 (14.1)	20.6 (42.2)
Opposition	12.3 (12.9)	14.2 (30.2)
Total	12.8 (12.9)	15.8 (33.6)

Note: The values indicate the average number of projects and funding received respectively in a riding over a legislature. Standard deviations are displayed in parentheses.

5.1 Distributive politics in the number of infrastructure projects?

In this section, we test our hypotheses with respect to the number of projects allocated to federal electoral districts. This dependent variable is a count variable which only takes nonnegative integer values and approximates a Poisson distribution with a high frequency of zero counts and exhibiting positive skewness. OLS regressions are not appropriate with count data given that coefficients and standard errors may be biased (Long and Freese, 2014). Poisson regression models are appropriate with count data when there is no overdispersion in the dependent variables. However, a LR test rejects the null hypothesis of no overdispersion and for this reason we use negative binomial regression models accounting for overdispersion (i.e. when the mean does not equal the variance of the dependent variable). The unit of analysis in our models is the riding. Observations are clustered within ridings — up to a maximum of four observations per riding (i.e. for those ridings that did not change at the 2013 redistricting) — and serial correlation is possible given the time ordering of the data. With respect to serial correlation, Wooldridge test for serial correlation

in panel-data models revealed no serial correlation. To account for clustering at the riding level, we test two different model specifications: clustered robust standard errors and random effect model. Note that it is not possible to combine both adjustments with a negative binomial regression model as it is with linear regressions. Fortunately, the substantive results are similar under each specification.[16]

In addition to the control variables mentioned above, the next models control for provinces and legislatures with a series of dummy variables. This is equivalent to introducing fixed effects at the provinces and legislatures levels of analysis which control for unobserved time-invariant characteristics at these levels of analysis.[17] The models thus assess the average within-effect of the independent variables across provinces and legislatures. Controlling for provinces is necessary because the amount of money allocated across provinces differs and depends on the federal-provincial bilateral agreements. Also, political dynamics and the degree of federal discretion should vary between provinces. Small provinces with weaker bureaucracies might be more likely to be influenced by federal decision makers, while provinces with a more autonomous conception of federal-provincial relations, like Quebec, could be less willing to concede influence to the federal government (Fafard, Rocher and Côté, 2010). Controlling for legislature is also important given that governments varied in partisanship and in majority status over the period of study. The two first Harper government were minority governments whereas the third Harper government and the Trudeau government were majority governments.

Table 2 displays the results of the negative binomial regression models with clustered robust standard errors (CRSE).[18] In column (1), we examine first the effect of being represented by a government member on the number of projects allocated to districts. The coefficient of government (0.12) is in the expected direction but the effect is only statistically significant at the 0.1 level. In substantive terms, governmental

[16] An alternative approach would be to use fixed-effects at the riding level which would have the advantage of controlling for time-invariant omitted variables at the riding level. The shortcoming, however, is that fixed-effects would purge the cross-sectional effect of the independent variables while this is the main focus of our hypotheses. Moreover, random effects models perform well in panels where the number of cross-sectional units is larger than the number of years (Bell and Jones, 2015; Beck and Katz, 2007). We thus prefer random effect models and control for several variables to address the possibility of an omitted variable. Pork-barreling studies relying on short panels like ours also tend to use random effects or pooled models with clustered standard errors (Denemark, 2000; Suiter and O'Malley, 2013).

[17] For example, these fixed effects control for whether the provincial government share the same partisanship than the federal government. Having the same governing parties at the provincial and federal level may ease pork-barreling, in the case of some provinces where parties are more integrated with their federal counterpart.

[18] See Table A2 in Appendix for the results of the negative binomial regression models with random effects. We prefer to display the results of the CRSE specification given that its results are slightly more conservative than the RE specification. This is that the coefficients of the CRSE and RE models are similar but the standard errors are generally larger in the former models. Note that the coefficients of negative binomial regression models could not be directly interpreted as their effect on the number of projects funded as it would be the case based on an OLS regression. For this reason, we discuss more in detail the substantive impact of our variables of interest and display the predicted values of the models.

districts receive on average 1.6 more projects than opposition districts (i.e. 13.6 versus 12.0). This result provides modest support for hypothesis 3. In column (2), we add the dummy variable cabinet minister to the model to examine whether districts represented by cabinet ministers receive on average more projects — i.e. hypothesis 4. Similarly to the results displayed in Table 1, there is no difference between cabinet ministers and non-cabinet ministers in terms of projects allocation. This is indicated by the coefficient of cabinet minister (-0.07) which is not statistically significant.

The results in columns (1) and (2) do not provide strong support for hypotheses 3 and 4. The results still indicate that government districts might receive slightly more projects than opposition districts. As predicted in hypotheses 1 and 2, there is possibly some heterogeneity in the effect of government on project allocation. In particular, we expect government districts won by a small (swing) and large (core) margin of victory to receive more projects while opposition districts won by a small margin of victory should be advantaged as well (swing). To capture this curvilinear relationship (U shape) among government districts, we interact the dummy variable *government* with *margin of victory* and its squared and include all the constitutive terms (Brambor, Clark and Golder, 2006). Including the squared of margin of victory is actually not necessary for testing hypothesis 1 with respect to effect of margin of victory under opposition districts. However, not including all the constitutive terms of the interaction would result in a specification error that might bias the coefficients (Brambor, Clark and Golder, 2006).

The results of this specification are displayed in column (3). It indicates that all of the coefficients of the interaction are statistically significant (except government X margin).[19] The substantive effects of the triple interaction are, however, difficult to interpret directly from the regression results. We thus present in Figure 1 the predicted number of projects in a district, based on the results of column (3), across values of margin of victory for government and opposition status. The solid black line indicates the predicted number of projects for governmental districts while the dash line indicates the predicted number of projects for opposition districts. Three main results stem from this figure. Among government districts, core districts (large margin of victory) are clearly advantaged over swing districts (small margin of victory). Actually, the average marginal effect of margin of victory under government districts (the slope of the solid line) is positive and statistically significant for values of margin of victory greater than 0.15 (see Figure A1 in

[19]Note that Akaikes information criterion and a Bayesian information criterion indicate that this triple interaction better fits the data than a normal interaction effect between government and margin of victory. The statistically significant effects of margin X margin and govt. X margin X margin also support this interpretation.

TABLE 2: Predicting the number of projects allocated to ridings

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	0.12 (0.07)*	0.14 (0.07)*	0.07 (0.14)
Cabinet minister		-0.07 (0.10)	-0.06 (0.10)
Margin			1.96 (0.82)**
Margin X Margin			-2.77 (1.45)*
Govt. X Margin			-1.54 (1.07)
Govt. X Margin X Margin			4.36 (1.67)***
Incumbency length	0.03 (0.02)*	0.03 (0.02)**	0.01 (0.02)
Employment rate	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)**
Population	-0.01 (0.00)*	-0.01 (0.00)*	-0.00 (0.00)*
Δ population	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)
Median income	-0.05 (0.02)***	-0.05 (0.02)***	-0.03 (0.02)*
% no degree	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Pop. density	-0.14 (0.05)***	-0.14 (0.04)***	-0.16 (0.05)***
Observations	606	606	606
# of ridings	215.00	215.00	215.00
Alpha	0.30	0.30	0.28
Log likelihood	-1906.53	-1906.21	-1888.74

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

Province and legislatures fixed-effects are not displayed.

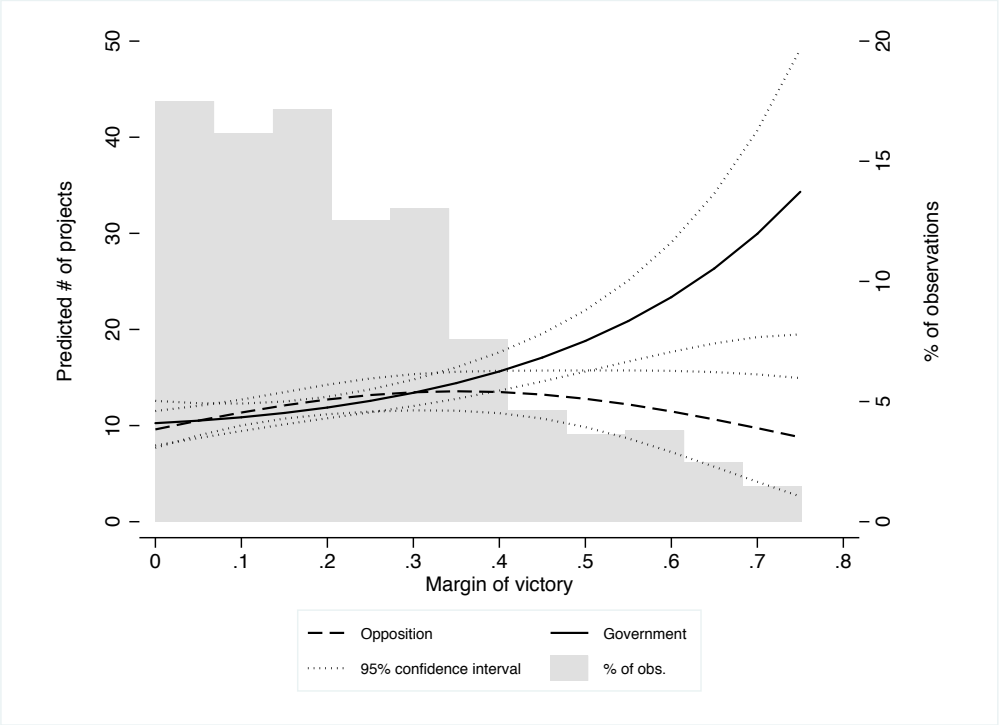
See Table A1 in Appendix for full results.

Appendix). This result clearly supports hypothesis 2. Among opposition districts, core and swing districts are actually those that receive less projects, as districts in between receive more projects, but the difference remains small. Finally, while there is no difference in the predicted number of projects received among swing government and swing opposition districts (the solid and dash lines and the confidence intervals overlap for small values of margin of victory), the difference is important for core districts. For values of margin of victory greater than and equal to 0.44, the average marginal effect of government is positive and statistically significant at the 0.05 level (i.e. the difference between the solid and dash line is statistically different than 0). Few districts, however, have been won by such a margin of victory (about 15% of the observations). This last result sheds light on the slight positive effect of government in columns (1) and (2) of Table 2. While opposition and government districts receive on average the same number of projects, this is not the case for a small number of districts that we characterize as core governmental ridings. Overall, the results in Figure 1 support hypothesis 2 but cannot reject the null of hypothesis 1.

Finally, the results do not provide clear support for hypothesis 5. Incumbents receive more projects in the models presented in column (1) and (2), but the effect of incumbency disappears once we control for the margin of victory, in column (3). This is quite possibly because long-time incumbent tend to enjoy larger margins of victory. [20]

[20] Indeed, regression models not shown in the article reveal that incumbency and margin are significant predictor of each other.

FIGURE 1: The predicted # of projects across margin of victory and government/opposition districts



5.2 Distributive politics in the funding allocated to infrastructure projects?

The results of the last section suggest some degree of political discretion in the distribution of spending in government districts and in core government districts in particular. While there are few differences in terms of the number of projects allocated, it is still possible that the amount of money spent across districts is subject to a different degree of political influence. For this reason, we test in this section our hypotheses using the amount of funding received for infrastructure projects in federal ridings as the dependent variable. The distribution of the amount of money allocated in each riding per legislature is right-skewed. We thus apply a logarithmic transformation to the dependent variable to approximate a normal distribution.[21] Residuals diagnostic tests confirm that such transformation is warranted. Note that we prefer analyzing the *total amount* of funding received by districts rather than the amount of funding *per capita* because the former measure helps compare the substantive difference of *total* funding received across districts (the results are

[21]The main disadvantage of the logarithmic transformation, however, is that 15 observations that did not receive any projects and money during a legislature are excluded from the next analyses. An alternative approach is to use a square root transformation of the dependent variable. This transformation prevents excluding these 15 observations and also approximates a normal distribution but has the disadvantage of predicting less accurately those ridings that receive the most funding (i.e. the errors are larger for these ridings under the square root transformation than under the logarithmic transformation). All things considered, the results are substantively the same with a square root transformation (see Table A5 in Appendix).

almost the same when using funding per capita as the dependent variable — see Table A4). We thus use GLS regressions with random-effects and clustered robust standard errors at the riding level.[22] The same control variables than those mentioned above are included in the models.

The results are displayed in Table 3 stepwise like in Table 2. The results in column (1) support our prediction that government ridings receive on average more funding than opposition ridings (hypothesis 3). This is indicated by the coefficient of government (0.56) which is statistically significant at the 0.01 level. Note that this coefficient reflects the impact of government on the logarithmic transformation of the dependent variable. The substantive difference between government and opposition districts while accounting for this transformation is actually of about $7,153,252 over the course of a legislature per federal electoral district.[23] On the other hand, the results displayed in column (2) do not support hypothesis 4 with respect to the effect of cabinet minister on the amount of funding received in a riding. The coefficient of cabinet minister (-0.38) is not statistically different than zero.

In column (3) of Table 3, we now present the results testing hypotheses 1 and 2 with respect to the impact of margin of victory under governmental and opposition districts. We follow the same procedure than the one discussed in the last section with respect to the interaction effect of government, margin of victory, and its squared. Once again, incumbency loses its statistical significance once we control for the margin of victory. Accordingly with our hypotheses, we expect government districts won by a small (swing) and large (core) margin of victory to receive more funding and opposition districts won by a small margin of victory to be advantaged as well (swing). The results in column (3) do not support our expectations. None of the coefficients of the interaction terms are statistically significant. Moreover, the inspection of the predicted values (see Figure A2 in Appendix) suggests that a simple interaction between government and margin of victory better captures their joint impact on funding received in districts.[24] Consequently, we present the result of this interaction in column (4) of Table 3 and display the corresponding predicted values in Figure 2. Note that we transform the predicted values in Figure 2 to reflect the amount spent in district in real dollars i.e. without the logarithmic transformation.[25]

[22]The Breusch-Pagan test reveal that panel random effects models are preferable to a simple OLS.

[23]In order to transform back the predicted amount of funding to its original scale (i.e. without the logarithmic transformation), we follow Wooldridge (2015, 212) procedure: this "requires exponentiating the predicted value from the log model and multiplying the result by the expected value of exp(u)", where u are the model residuals.

[24]This is also the conclusion draw from a comparison of the Akaike's information criterion and a Bayesian information criterion across models.

[25]We follow Wooldridge (2015, 212) procedure again.

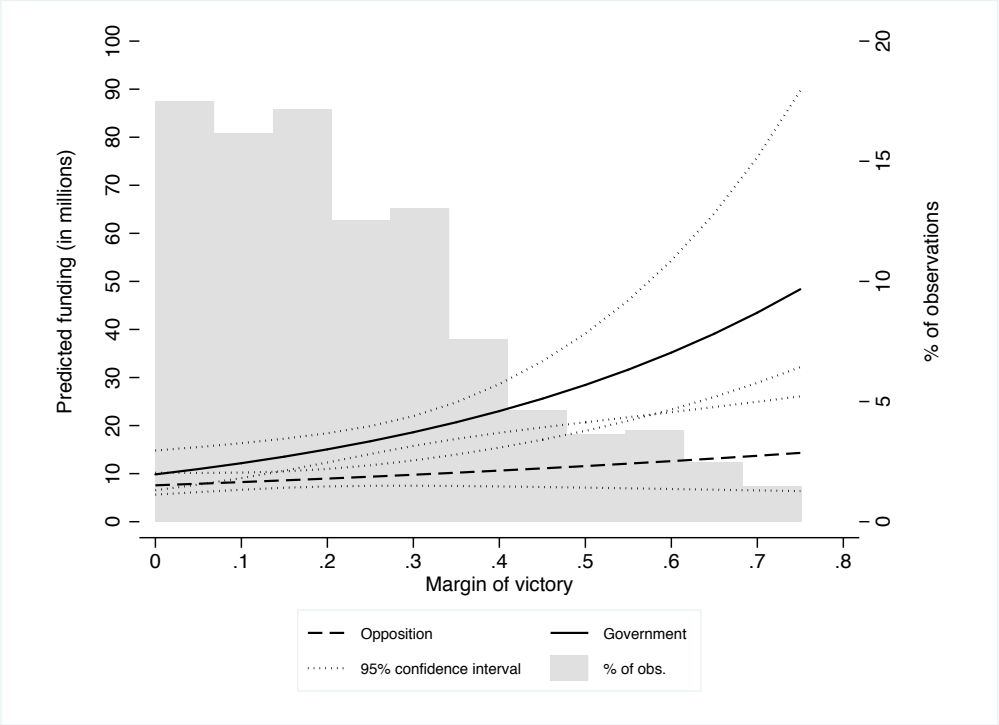
TABLE 3: Predicting the amount of funding allocated to ridings

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing	(4) Core/Swing
Government	0.56 (0.13)***	0.66 (0.13)***	0.40 (0.30)	0.26 (0.22)
Cabinet minister		-0.38 (0.24)	-0.35 (0.24)	-0.36 (0.24)
Margin			2.41 (2.00)	0.85 (0.69)
Margin X Margin			-3.02 (3.62)	
Govt. X Margin			-0.46 (2.45)	1.27 (0.79)
Govt. X Margin X Margin			3.17 (4.11)	
Incumbency length	0.06 (0.04)	0.07 (0.04)*	0.03 (0.04)	0.03 (0.04)
Employment rate	-0.04 (0.02)*	-0.04 (0.02)*	-0.05 (0.02)**	-0.05 (0.02)**
Population	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)
Δ population	-0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.01 (0.02)
Median income	0.02 (0.04)	0.03 (0.04)	0.04 (0.04)	0.04 (0.04)
% no degree	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
Pop. density	-0.25 (0.17)	-0.26 (0.17)	-0.29 (0.17)*	-0.30 (0.16)*
Constant	17.47 (1.57)***	17.44 (1.58)***	17.09 (1.57)***	17.10 (1.57)***
Observations	591	591	591	591
# of ridings	215.00	215.00	215.00	215.00
R-squared within	0.39	0.40	0.41	0.40
R-squared overall	0.34	0.34	0.36	0.36
R-squared between	0.23	0.23	0.26	0.26
Sigma u	0.61	0.60	0.60	0.59
Sigma e	1.35	1.35	1.34	1.34
rho	0.17	0.17	0.16	0.16

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01. Province and legislatures fixed-effects are not displayed. See Table A5 in Appendix for full results.

The results displayed in Figure 2 do not support hypothesis 1. First, government and opposition districts won by a small margin of victory (swing) do not receive more funding. In fact, these are the districts receiving on average the lowest amount of money (against hypothesis 1). The results do indicate, however, that government districts won by a large margin of victory (core) receive more funding than government districts won by a small margin of victory (swing). Actually, the difference in the amount of funding between governmental and opposition districts is statistically significant at the 0.05 level for values of margin of victory greater than 7 points of percentage. The average marginal effects of margin of victory under government districts (the solid black line) is also statistically significant at the 0.01 level — this is also indicated by the sum of the coefficients of margin (0.85) and government X margin (1.27) in column (4) which equals 2.12. The average marginal effects of margin of victory under opposition districts (0.85) is, however, not statistically significant while the difference of the impact of margin of victory under government and opposition districts (1.27) is actually almost statistically significant at the 0.1 level (p-value equals 0.106). Indeed, the results in Figure 2 suggest that core and swing opposition districts receive about the same level of funding (i.e. the dash line is almost horizontal). However, it is clear from the results in Figure 2 that margin of victory has a positive effect under government districts while less so under opposition districts and that core government districts receive more funding than core opposition districts.

FIGURE 2: The predicted amount of funding across margin of victory and government/opposition districts



5.3 Robustness checks

In addition to the different model specifications that we examined and discussed above, we performed several different robustness checks to validate our results. First, we verify whether outliers drive our main results. As we mentioned, both our dependent variables are right-skewed as a small number of observations received a significant amount of projects or funding. While the negative binomial regression model and the logarithmic transformation mostly account for these extreme values, it is still possible that outliers influence significantly our estimates. With respect to the negative binomial regression models predicting the number of projects allocated to ridings, we follow Long and Freese (2014) recommendation to compare the observed and predicted values from the models and found no outliers and a good overall model fit.[26] With respect to the amount of funding received in ridings, inspection of the DFBETA measures for our variables of interest does not indicate that some observations have too much influence on the coefficient estimates. On the other hand, DFITS measures (the difference between the predicted values with and without each observation) indicate that some observations may be problematic. Replications of all models indicate that our substantive conclusions remain the same when excluding this groups of 57 observations.

[26]This is done with the Stata command countfit.

The other important robustness check that we performed consisted in replicating the results separately for the Harper and Trudeau governments, respectively. This robustness check yields significant differences between the Harper and Trudeau governments in terms of allocation of projects and funding. In particular, no forms of distributive politics seem to occur under the Trudeau government. The impact of government, cabinet ministers, and margin of victory (and its related interactions) are all not statistically significant whether it pertains to the number of projects or amount of funding received by districts (see Tables A8 and A9 in Appendix). On the other hand, the conclusions that we draw above are driven by the Harper governments (see Tables A6 and A7 in Appendix). Actually, the impact of government on the number of projects allocated is statistically significant at the 0.05 level when excluding the Trudeau government (the coefficient is statistically significant at the 0.1 level in Table 2). We should note, however, that this test is somewhat problematic for the Trudeau government given the small number of years covered by the latter (2016-2018), which involves that only one observation per riding is available.

6 Conclusion

In January 2019, Marc Parent, the mayor of Rimouski, a town in eastern Québec, asked Guy Caron, his Member of Parliament and a leading figure of the opposition New Democratic Party, to join the governing Liberal Party so his riding could receive more federal funding (Dufresne, 2019). Outraged, Caron refused and responded that "it isn't like this anymore" despite the public's perception, based on "anecdotes" according to Caron, that being represented by a government MP helps to attract funding for local projects. Our results suggest that Rimouski's mayor was probably right: infrastructure projects in Canada seem to be subject to political discretion, at least in our dataset covering rural districts. Contrary to what Guy Caron thought, government districts, especially core government districts won by significant vote margins, tend to receive a larger number of projects and a higher amount of money than opposition districts. This is an important finding since many factors like federalism, a neutral bureaucracy and a decentralized party system, should limit the extent of pork-barreling in the country. Still, the silver lining is that pork-barreling in infrastructure projects, at least from the federal point of view, seems to be limited to the Harper government era. It is not possible to know if this reveals genuine differences between the Harper and Trudeau governments or if it is driven by the small number of cases of the latter. Thus, time will tell if Caron is right to say that "it isn't like this anymore." However, it is possible that the 2018 reform leads to a significant reinforcement of

political discretion at the provincial level, as provinces are now leading the decision-making process, with weaker federal influence. In fact, future studies of distributional politics should migrate to the provincial level, since, to our knowledge, only the Quebec case has been studied.

Interestingly, swing districts are not targeted for political purposes, despite Canada's SMD electoral system with strong parties. In contrast, our finding provide support for Joanis (2011) model of risk-averse governments rewarding core supporters to build a long term relationship with them in order to guarantee their support in future elections. This finding could also be partly driven by MPs experience, if core districts tend to be represented by senior MPs who won multiple elections: more experienced MPs could be more successful at helping municipalities in their district to navigate the bureaucratic process to secure project funding, but more research is needed to test this joint mechanism. Also, our models reveal that cabinet ministers are not able to secure additional funding for their own district, even if descriptive statistics suggested they do. This contrasts with the findings of other studies in Canada (Mehiriz and Marceau, 2013; Milligan and Smart, 2005) or in similar countries (Denemark, 2000; Suiter and O'Malley, 2013) showing that ministers have a strong influence on the allocation of distributional policies. This finding supports the idea that cabinet ministers' role is gradually fading, presumably because of the centralization of power towards the prime minister witnessed in Canada in the recent decades.[27]

The debate on the political allocation of government spending is still open. Researchers should study other types of expenditures than infrastructures, since the targeted constituencies should co-vary with the type of policy analyzed. Alternatively, researchers should study policy outcomes to measure if distributional politics produce some positive effects for the targeted groups, by increasing economic growth for example (Kramon and Posner, 2013). As Joanis (2011) mentions, it is possible that such an enduring public good like roads is used to reward core constituencies and build long term relationships, while a more "fungible" policy like tax credits could be used to target swing voters in the short-term. It is also possible that political discretion only occurs for visible infrastructures (like roads or bridges), but not for less visible ones (like maintenance or sewages). More research is needed on this front.

[27] Unfortunately, we could not test if central agency ministers or if ministers having a direct discretionary power on infrastructure spending had the capacity to allocate additional spending to their own riding because we only had 10 ridings represented by central ministers in our whole dataset.

References

Adams, James, Michael Clark, Lawrence Ezrow and Garrett Glascow. 2004. "Understanding Change and Stability in Party Ideologies: Do Parties Respond to Public Opinion or to Past Election Results?" *British Journal of Political Science* 34:589–610.

APSA, (American Political Science Association). 1950. "Toward a More Responsible Two Party System: A Report of the Committee on Political Parties." *American Political Science Review* 44.

Aucoin, Peter. 2012. "New political governance in Westminster systems: Impartial public administration and management performance at risk." *Governance* 25(2):177–199.

Baldwin, Kate. 2005. "Who Gets the Jobs? Dynamics of Opposition and Redistribution in Mali." *Unpublished paper, Dep. Polit. Sci., Columbia Univ* .

Beck, Nathaniel and Jonathan N Katz. 2007. "Random coefficient models for time-seriescross-section data: Monte Carlo experiments." *Political Analysis* 15(2):182–195.

Bednar, Jenna. 2008. *Robust federation: principles of design (political economy of institutions and decisions)*. Cambridge University Press New York.

Bell, Andrew and Kelvyn Jones. 2015. "Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data." *Political Science Research and Methods* 3(1):133–153.

Blais-Lacombe, Ariane and Marc André Bodet. 2017. "Les députés et les partis politiques sortants profitent-ils d'un avantage électoral? Une analyse des résultats électoraux au Québec." *Canadian Journal of Political Science/Revue canadienne de science politique* 50(3):723–746.

Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. "Understanding interaction models: Improving empirical analyses." *Political Analysis* 14(1):63–82.

Carey, John M and Matthew Soberg Shugart. 1995. "Incentives to cultivate a personal vote: A rank ordering of electoral formulas." *Electoral studies* 14(4):417–439.

Chandler, Vincent. 2011. "The Canada economic action plan as electoral tool.".

Chhibber, Pradeep and Ken Kollman. 2009. *The formation of national party systems: Federalism and party competition in Canada, Great Britain, India, and the United States*. Princeton University Press.

Cox, Gary. 1990. "Centripetal and centrifugal incentives in electoral systems." *American Journal of Political Science* 34:903–935.

Cox, Gary W. 2009. "13 Swing voters, core voters, and distributive politics." *Political representation* 342.

Cox, Gary W and Mathew D McCubbins. 1986. "Electoral politics as a redistributive game." *The Journal of Politics* 48(2):370–389.

Delacourt, Susan. 2016. *Shopping for votes: How politicians choose us and we choose them*. D M Publishers.

Denemark, David. 2000. "Partisan Pork Barrel in Parliamentary Systems: Australian ConstituencyLevel Grants." *Journal of Politics* 62(3):896–915.

Dickson, Vaughan. 2009. "Seat-vote curves, loyalty effects and the provincial distribution of Canadian government spending." *Public Choice* 139(3-4):317–333.

Dixit, Avinash and John Londregan. 1995. "Redistributive politics and economic efficiency." *American political science Review* 89(4):856–866.

Dixit, Avinash and John Londregan. 1996. "The determinants of success of special interests in redistributive politics." *the Journal of Politics* 58(4):1132–1155.

Dixit, Avinash and John Londregan. 1998. "Ideology, tactics, and efficiency in redistributive politics." *The Quarterly Journal of Economics* 113(2):497–529.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper and Row.

Duch, Raymond M. and Randolph T. Stevenson. 2008. *The Economic Vote: How Political and Economic Institutions Condition Election Results*. New York: Cambridge University Press.

Dufresne, Laurie. 2019. "Marc Parent invite Guy Caron à se présenter pour les libéraux fédéraux." *Radio-Canada* .

Ezrow, Lawrence, Catherine De Vries, Marco Steenbergen and Erica Edwards. 2010. "Mean voter representation and partisan constituency representation: Do parties respond to the mean voter position or to their supporters?" *Party Politics* 17(3):275–301.

Fafard, Patrick, François Rocher and Catherine Côté. 2010. "The presence (or lack thereof) of a federal culture in Canada: The views of Canadians." *Regional Federal Studies* 20(1):19–43.

Fréchette, Jean-Denis. 2018. *Status Report on Phase 1 of the New Infrastructure Plan*. Canada: Office of the Parliamentary Budget Officer.

Golden, Miriam A and Lucio Picci. 2008. "Porkbarrel politics in postwar Italy, 195394." *American Journal of Political Science* 52(2):268–289.

Golden, Miriam and Brian Min. 2013. "Distributive politics around the world." *Annual Review of Political Science* 16:73–99.

Joanis, Marcelin. 2011. "The road to power: partisan loyalty and the centralized provision of local infrastructure." *Public Choice* 146(1-2):117–143.

Kitschelt, Herbert and Steven I Wilkinson. 2007. "Citizen-politician linkages: an introduction." *Patrons, clients, and policies: Patterns of democratic accountability and political competition* pp. 1–49.

Klüver, Heike and Jae-Jae Spoon. 2016. "Challenges to multiparty governments: How governing in coalitions affects coalition parties' responsiveness to voters." *Party Politics* Forthcoming.

Kramon, Eric and Daniel N Posner. 2013. "Who benefits from distributive politics? How the outcome one studies affects the answer one gets." *Perspectives on Politics* 11(2):461–474.

Krashinsky, Michael and William J Milne. 1985*a*. "Additional evidence on the effect of incumbency in Canadian elections." *Canadian Journal of Political Science/Revue canadienne de science politique* 18(1):155–165.

Krashinsky, Michael and William J Milne. 1985*b*. "Increasing Incumbency?" *Canadian Public Policy/Analyse de Politiques* 11(1):107–110.

Leigh, Andrew. 2008. "Bringing home the bacon: an empirical analysis of the extent and effects of pork-barreling in Australian politics." *Public Choice* 137(1-2):279–299.

Lindbeck, Assar and Jörgen W Weibull. 1987. "Balanced-budget redistribution as the outcome of political competition." *Public choice* 52(3):273–297.

Long, JS and J Freese. 2014. *Regression models for categorical dependent variables using Stata.* College Station, TX: Stata Press.

Mansergh, Lucy and Robert Thomson. 2007. "Election Pledges, Party Competition, and Policymaking." *Comparative Politics* 39(3):311–329.

McGillivray, Fiona. 2018. *Privileging industry: The comparative politics of trade and industrial policy*. Princeton University Press.

Mehiriz, Kaddour. 2014. "The Influence of Redistributive Politics on the Decision Making of Quasi-autonomous Organizations. The Case of Infrastructures-Transport (QuebecCanada)." *Journal of Public Administration Research and Theory* 25(4):1081–1098.

Mehiriz, Kaddour and Richard Marceau. 2013. "The Politics of Intergovernmental Grants in Canada: The Case of the Canada-Quebec Infrastructure Works 2000 Program." *State and Local Government Review* 45(2):73–85.

Merrill, III, Samuel and James Adams. 2002. "Centrifugal incentives in multi-candidate elections." *Journal of Theoretical Politics* 14(3):275–300.

Milesi-Ferretti, Gian Maria, Roberto Perotti and Massimo Rostagno. 2002. "Electoral Systems and Public Spending." *The Quarterly Journal of Economics* 117(2):609–657.

Milligan, Kevin S and Michael Smart. 2005. "Regional grants as pork barrel politics.".

Müller, Wolfgang C. and Kaare Strom. 1999. *Policy, Office, or Votes? How Political Parties in Western Europe Make Hard Decisions*. Cambridge: Cambridge University Press.

Nicholson-Crotty, Sean. 2005. "Bureaucratic competition in the policy process." *Policy Studies Journal* 33(3):341–361.

Page, Benjamin I. and Robert Y. Shapiro. 1983. "Effects of public opinion on policy." *American Political Science Review* 77(1):175–190.

Persson, Torsten and Guido Tabellini. 2004. "Constitutions and economic policy." *Journal of Economic Perspectives* 18(1):75–98.

Powell, G. Bingham and Guy D. Whitten. 1993. "A cross-national analysis of economic voting: Taking account of the political context." *American Journal of Political Science* 37(2):391–414.

Rodden, Jonathan A and Jonathan Rodden. 2006. *Hamilton's paradox: the promise and peril of fiscal federalism*. Cambridge University Press.

Savoie, Donald J. 1999. *Governing from the centre : the concentration of power in Canadian politics*. Toronto; Buffalo: University of Toronto Press.

Sgro, Judy A. 2018. *Report of the Standing Committee on Transport, Infrastructure and Communities*. Canada: House of Commons.

Smith, Larry W. and Anne C. Cools. 2017. *Smarter Planning, Smarter Spending - Achieving infrastructure success*. Canada: Report of the Standing Senate Committee on National Finance.

Soroka, Stuart, Erin Penner and Kelly Blidook. 2009. "Constituency Influence in Parliament." *Canadian Journal of Political Science* 42(3):563–591.

Soroka, Stuart N. and Christopher Wlezien. 2010. *Degrees of Democracy - Politics, Public Opinion, and Policy*. New York: Cambridge University Press.

Spoon, Jae-Jae and Heike Klüver. 2014. "Do Parties Respond? How Electoral Context Influences Party Responsiveness." *Electoral Studies* 35:48–60.

Stewart, David K and Ian Stewart. 1997. "Fission and federalism: The disaggregation of Canadian party activists." *Publius: The Journal of Federalism* 27(3):97–112.

Stimson, James A., Michael B. MacKuen and Robert S. Erikson. 1995. "Dynamic Representation." *American Political Science Review* 89(3):543–565.

Suiter, Jane and Eoin O'Malley. 2013. "Yes, minister: the impact of decision-making rules on geographically targeted particularistic spending." *Parliamentary Affairs* 67(4):935–954.

Tavits, Margit. 2009. "Geographically targeted spending: exploring the electoral strategies of incumbent governments." *European Political Science Review* 1(1):103–123.

Ward, Hugh and Peter John. 1999. "Targeting benefits for electoral gain: Constituency marginality and the distribution of grants to English local authorities." *Political Studies* 47(1):32–52.

Wilson, Graham K and Anthony Barker. 2003. "Bureaucrats and politicians in Britain." *Governance* 16(3):349–372.

Wooldridge, Jeffrey M. 2015. *Introductory econometrics: A modern approach*. Nelson Education.

7 Appendix

7.1 Distributive politics in the number of infrastructure projects?

FIGURE A1: The average marginal effects of margin of victory on the number of projects across margin of victory and government/opposition districts

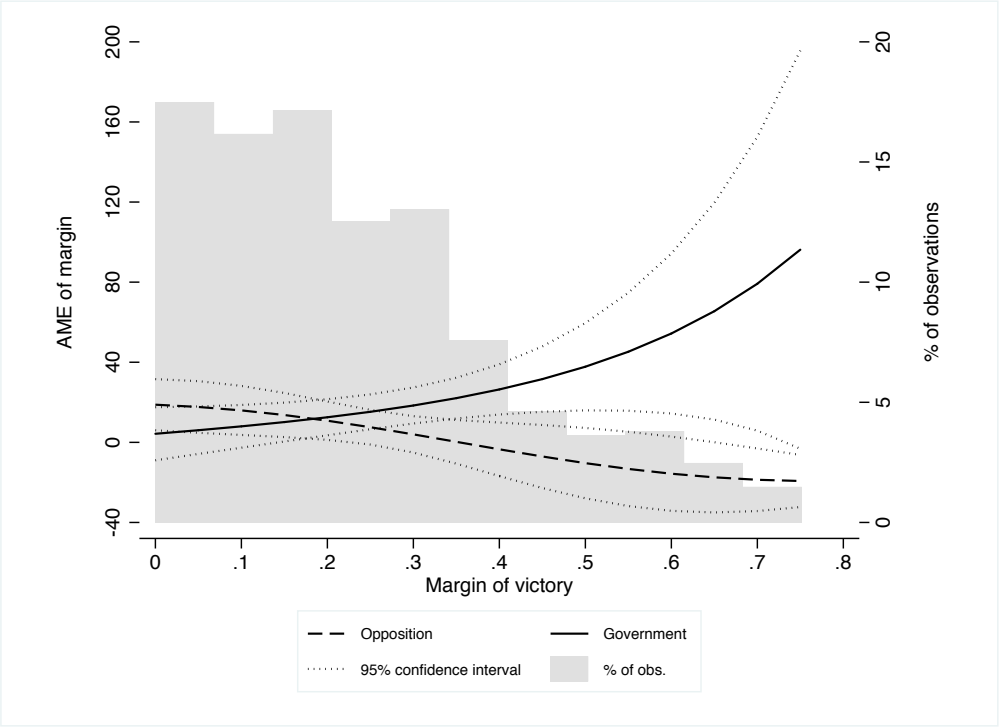


TABLE A1: Predicting the number of projects allocated to ridings (full results of Table 2)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	0.12 (0.07)*	0.14 (0.07)*	0.07 (0.14)
Cabinet minister		-0.07 (0.10)	-0.06 (0.10)
Margin			1.96 (0.82)**
Margin X Margin			-2.77 (1.45)*
Govt. X Margin			-1.54 (1.07)
Govt. X Margin X Margin			4.36 (1.67)***
Incumbency length	0.03 (0.02)*	0.03 (0.02)**	0.01 (0.02)
Employment rate	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)**
Population	-0.01 (0.00)*	-0.01 (0.00)*	-0.00 (0.00)*
Δ population	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)
Median income	-0.05 (0.02)***	-0.05 (0.02)***	-0.03 (0.02)*
% no degree	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Pop. density	-0.14 (0.05)***	-0.14 (0.04)***	-0.16 (0.05)***
BC	-0.20 (0.18)	-0.19 (0.18)	0.26 (0.20)
Manitoba	-0.23 (0.21)	-0.22 (0.22)	0.10 (0.23)
New Brunswick	-0.75 (0.20)***	-0.74 (0.20)***	-0.26 (0.22)
Nova Scotia	-0.47 (0.21)**	-0.47 (0.21)**	0.04 (0.27)
Nunavut	-0.91 (0.29)***	-0.88 (0.30)***	-0.39 (0.33)
Ontario	0.21 (0.13)	0.21 (0.13)	0.70 (0.18)***
Quebec	-0.52 (0.15)***	-0.51 (0.15)***	-0.09 (0.19)
Saskatchewan	-0.20 (0.19)	-0.20 (0.19)	0.29 (0.20)
NL	0.01 (0.26)	0.01 (0.26)	0.13 (0.24)
NT	1.30 (0.36)***	1.30 (0.36)***	1.76 (0.36)***
Yukon	0.68 (0.23)***	0.67 (0.23)***	1.09 (0.25)***
PE	-0.35 (0.29)	-0.35 (0.29)	0.15 (0.30)
2008	1.04 (0.06)***	1.04 (0.06)***	1.01 (0.06)***
2011	-0.53 (0.12)***	-0.53 (0.12)***	-0.65 (0.13)***
2015	0.93 (0.19)***	0.93 (0.19)***	0.78 (0.20)***
Constant	4.27 (0.82)***	4.29 (0.82)***	4.07 (0.77)***
Observations	606	606	606
# of ridings	215.00	215.00	215.00
Alpha	0.30	0.30	0.28
Log likelihood	-1906.53	-1906.21	-1888.74

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

TABLE A2: Predicting the number of projects allocated to ridings (random-effects)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	0.13 (0.06)**	0.15 (0.06)**	0.10 (0.12)
Cabinet minister		-0.11 (0.09)	-0.11 (0.08)
Margin			1.88 (0.79)**
Margin X Margin			-3.43 (1.44)**
Govt. X Margin			-1.68 (1.00)*
Govt. X Margin X Margin			4.86 (1.65)***
Incumbency length	0.05 (0.02)***	0.05 (0.02)***	0.03 (0.02)*
Employment rate	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)***
Population	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Δ population	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Median income	-0.03 (0.02)	-0.03 (0.02)	-0.01 (0.02)
% no degree	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Pop. density	-0.15 (0.05)***	-0.15 (0.05)***	-0.17 (0.05)***
BC	-0.17 (0.17)	-0.16 (0.17)	0.08 (0.20)
Manitoba	-0.36 (0.22)	-0.35 (0.22)	-0.16 (0.23)
New Brunswick	-0.61 (0.23)***	-0.58 (0.23)**	-0.29 (0.25)
Nova Scotia	-0.32 (0.24)	-0.31 (0.24)	-0.08 (0.25)
Nunavut	-1.45 (0.58)**	-1.35 (0.58)**	-0.82 (0.57)
Ontario	0.27 (0.14)*	0.27 (0.14)*	0.54 (0.18)***
Quebec	-0.38 (0.15)**	-0.36 (0.15)**	-0.12 (0.18)
Saskatchewan	-0.12 (0.20)	-0.12 (0.20)	0.21 (0.22)
NL	0.13 (0.25)	0.14 (0.25)	0.28 (0.24)
NT	1.40 (0.40)***	1.41 (0.40)***	1.68 (0.40)***
Yukon	0.17 (0.48)	0.19 (0.48)	0.61 (0.48)
PE	-0.21 (0.32)	-0.19 (0.32)	0.14 (0.34)
2008	0.92 (0.06)***	0.92 (0.06)***	0.92 (0.06)***
2011	-0.66 (0.12)***	-0.66 (0.12)***	-0.75 (0.12)***
2015	0.72 (0.17)***	0.71 (0.17)***	0.60 (0.17)***
Constant	3.01 (0.71)***	3.01 (0.71)***	2.79 (0.69)***
Observations	606	606	606
# of ridings	215.00	215.00	215.00
Log likelihood	-1896.71	-1895.93	-1880.64

Standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

7.2 Distributive politics in the funding allocated to infrastructure projects?

FIGURE A2: The predicted amount of funding across margin of victory and government/opposition districts (from column 3 of Table 3)

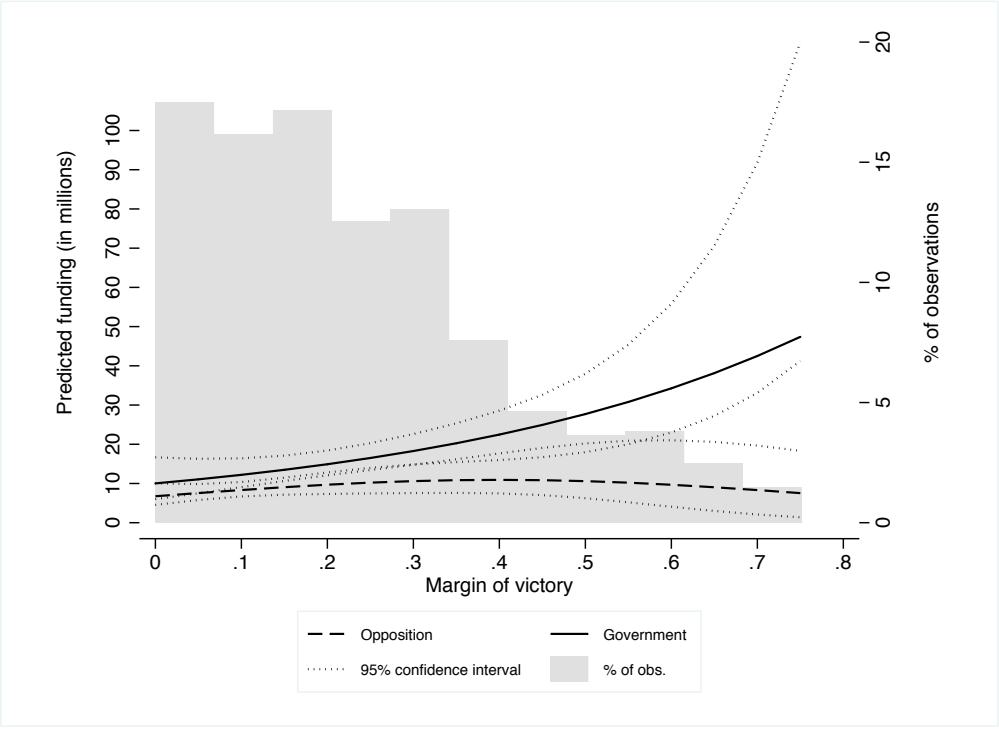


FIGURE A3: The average marginal effects of government on funding across margin of victory (from column 4 of Table 3)

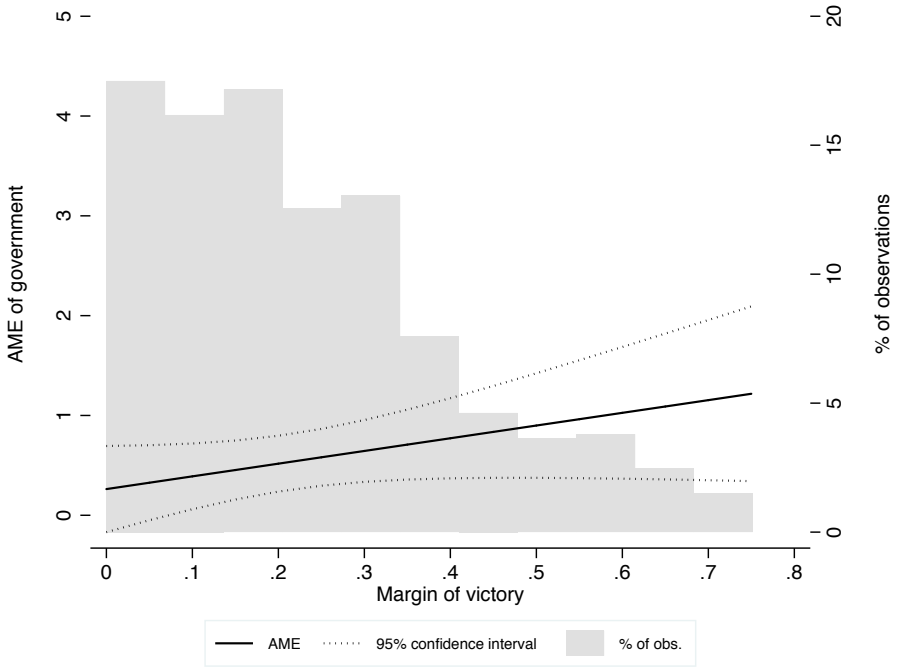


FIGURE A4: The predicted amount of funding across margin of victory and government/opposition districts (square root)

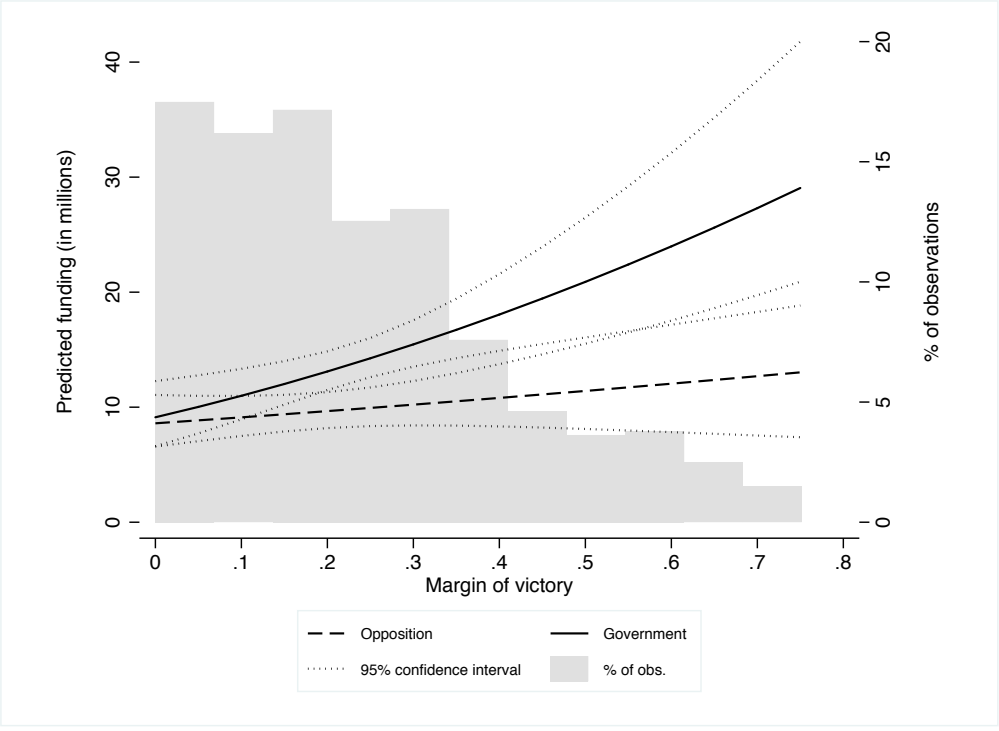


TABLE A3: Predicting the amount of funding allocated to ridings (full results of Table 3)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing	(4) Core/Swing
Government	0.56 (0.13)***	0.66 (0.13)***	0.40 (0.30)	0.26 (0.22)
Cabinet minister		-0.38 (0.24)	-0.35 (0.24)	-0.36 (0.24)
Margin			2.41 (2.00)	0.85 (0.69)
Margin X Margin			-3.02 (3.62)	
Govt. X Margin			-0.46 (2.45)	1.27 (0.79)
Govt. X Margin X Margin			3.17 (4.11)	
Incumbency length	0.06 (0.04)	0.07 (0.04)*	0.03 (0.04)	0.03 (0.04)
Employment rate	-0.04 (0.02)*	-0.04 (0.02)*	-0.05 (0.02)**	-0.05 (0.02)**
Population	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)
Δ population	-0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.01 (0.02)
Median income	0.02 (0.04)	0.03 (0.04)	0.04 (0.04)	0.04 (0.04)
% no degree	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
Pop. density	-0.25 (0.17)	-0.26 (0.17)	-0.29 (0.17)*	-0.30 (0.16)*
BC	-0.17 (0.32)	-0.14 (0.32)	0.39 (0.40)	0.48 (0.37)
Manitoba	-0.59 (0.47)	-0.56 (0.47)	-0.21 (0.49)	-0.13 (0.48)
New Brunswick	-1.52 (0.53)***	-1.46 (0.51)***	-0.87 (0.52)*	-0.79 (0.52)
Nova Scotia	-0.67 (0.46)	-0.66 (0.46)	-0.10 (0.59)	-0.02 (0.56)
Nunavut	0.93 (0.72)	1.16 (0.72)	1.80 (0.77)**	1.86 (0.76)**
Ontario	-0.94 (0.27)***	-0.91 (0.27)***	-0.33 (0.36)	-0.25 (0.33)
Quebec	-0.90 (0.28)***	-0.85 (0.27)***	-0.33 (0.36)	-0.22 (0.33)
Saskatchewan	-1.10 (0.37)***	-1.08 (0.37)***	-0.46 (0.43)	-0.40 (0.41)
NL	-1.21 (0.50)**	-1.17 (0.50)**	-0.94 (0.50)*	-0.86 (0.51)*
NT	0.07 (1.06)	0.10 (1.03)	0.77 (1.02)	0.83 (1.02)
Yukon	-0.11 (0.58)	-0.10 (0.58)	0.59 (0.63)	0.69 (0.64)
PE	-0.41 (0.70)	-0.36 (0.69)	0.30 (0.72)	0.39 (0.72)
2008	1.66 (0.13)***	1.66 (0.13)***	1.62 (0.13)***	1.62 (0.13)***
2011	-0.74 (0.30)**	-0.76 (0.30)**	-0.86 (0.31)***	-0.87 (0.31)***
2015	0.93 (0.39)**	0.91 (0.38)**	0.83 (0.40)**	0.80 (0.38)**
Constant	17.47 (1.57)***	17.44 (1.58)***	17.09 (1.57)***	17.10 (1.57)***
Observations	591	591	591	591
# of ridings	215.00	215.00	215.00	215.00
R-squared within	0.39	0.40	0.41	0.40
R-squared overall	0.34	0.34	0.36	0.36
R-squared between	0.23	0.23	0.26	0.26
Sigma u	0.61	0.60	0.60	0.59
Sigma e	1.35	1.35	1.34	1.34
rho	0.17	0.17	0.16	0.16

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

TABLE A4: Predicting the amount of funding allocated to ridings (per capita)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing	(4) Core/Swing
Government	0.56 (0.12)***	0.66 (0.13)***	0.39 (0.30)	0.26 (0.22)
Cabinet minister		-0.39 (0.24)	-0.36 (0.24)	-0.37 (0.24)
Margin			2.38 (2.00)	0.86 (0.68)
Margin X Margin			-2.94 (3.62)	
Govt. X Margin			-0.39 (2.45)	1.28 (0.79)
Govt. X Margin X Margin			3.06 (4.10)	
Incumbency length	0.06 (0.04)	0.06 (0.04)	0.03 (0.04)	0.03 (0.04)
Employment rate	-0.04 (0.02)*	-0.04 (0.02)*	-0.05 (0.02)**	-0.05 (0.02)**
Population	-0.02 (0.01)**	-0.02 (0.01)**	-0.02 (0.01)**	-0.02 (0.01)**
Δ population	0.00 (0.02)	0.00 (0.02)	0.01 (0.02)	0.01 (0.02)
Median income	0.03 (0.04)	0.03 (0.04)	0.04 (0.04)	0.04 (0.04)
% no degree	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
Pop. density	-0.25 (0.17)	-0.26 (0.17)	-0.29 (0.17)*	-0.30 (0.17)*
BC	-0.16 (0.32)	-0.12 (0.32)	0.41 (0.40)	0.50 (0.37)
Manitoba	-0.62 (0.46)	-0.60 (0.47)	-0.25 (0.49)	-0.16 (0.48)
New Brunswick	-1.53 (0.53)***	-1.47 (0.51)***	-0.87 (0.53)*	-0.79 (0.53)
Nova Scotia	-0.68 (0.46)	-0.67 (0.46)	-0.10 (0.58)	-0.03 (0.55)
Nunavut	1.22 (0.72)*	1.45 (0.72)**	2.10 (0.77)***	2.16 (0.76)***
Ontario	-0.93 (0.27)***	-0.91 (0.27)***	-0.33 (0.36)	-0.24 (0.33)
Quebec	-0.92 (0.28)***	-0.87 (0.27)***	-0.35 (0.36)	-0.24 (0.33)
Saskatchewan	-1.13 (0.37)***	-1.11 (0.37)***	-0.49 (0.43)	-0.42 (0.41)
NL	-1.16 (0.52)**	-1.12 (0.53)**	-0.88 (0.53)*	-0.81 (0.53)
NT	0.16 (1.07)	0.19 (1.05)	0.86 (1.04)	0.92 (1.03)
Yukon	0.16 (0.59)	0.16 (0.58)	0.86 (0.63)	0.96 (0.64)
PE	-0.17 (0.68)	-0.11 (0.67)	0.55 (0.71)	0.64 (0.70)
2008	1.66 (0.13)***	1.66 (0.13)***	1.63 (0.13)***	1.62 (0.13)***
2011	-0.74 (0.30)**	-0.76 (0.30)**	-0.86 (0.31)***	-0.87 (0.31)***
2015	0.93 (0.39)**	0.91 (0.39)**	0.83 (0.40)**	0.80 (0.39)**
Constant	14.01 (1.57)***	13.98 (1.57)***	13.63 (1.57)***	13.64 (1.57)***
Observations	591	591	591	591
# of ridings	215.00	215.00	215.00	215.00
R-squared within	0.41	0.41	0.42	0.42
R-squared overall	0.38	0.38	0.40	0.40
R-squared between	0.30	0.31	0.33	0.33
Sigma u	0.61	0.61	0.60	0.60
Sigma e	1.35	1.35	1.34	1.34
rho	0.17	0.17	0.17	0.17

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

TABLE A5: Predicting the amount of funding allocated to ridings (square root)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing	(4) Core/Swing
Government	825.49 (190.76)***	815.90 (204.18)***	25.18 (447.09)	106.30 (292.28)
Cabinet minister		38.09 (258.23)	106.64 (269.28)	89.49 (266.06)
Margin			1767.15 (2578.05)	1054.86 (934.70)
Margin X Margin			-1701.46 (4877.91)	
Govt. X Margin			3091.57 (3935.26)	2427.97 (1316.00)*
Govt. X Margin X Margin			-805.19 (6077.15)	
Incumbency length	-28.92 (58.41)	-29.40 (58.46)	-76.28 (62.29)	-78.82 (65.00)
Employment rate	-73.60 (31.80)**	-73.57 (31.92)**	-93.84 (32.88)***	-95.16 (33.21)***
Population	-1.64 (8.01)	-1.68 (8.04)	0.27 (8.05)	0.20 (8.05)
Δ population	-10.74 (24.15)	-10.85 (24.15)	-1.43 (21.43)	-1.76 (21.68)
Median income	94.83 (82.80)	94.88 (83.03)	117.25 (87.74)	119.64 (87.48)
% no degree	-28.51 (51.40)	-28.72 (51.62)	-23.43 (51.72)	-24.66 (51.59)
Pop. density	-230.52 (224.87)	-229.73 (225.37)	-284.42 (221.68)	-283.77 (221.06)
BC	7.25 (712.77)	3.47 (715.94)	719.43 (812.01)	942.00 (757.10)
Manitoba	609.69 (1219.07)	609.25 (1220.39)	1081.53 (1185.48)	1300.69 (1259.11)
New Brunswick	-1252.86 (697.22)*	-1258.60 (702.20)*	-400.57 (785.95)	-182.99 (797.46)
Nova Scotia	-218.74 (750.04)	-219.55 (751.97)	569.59 (929.30)	778.50 (921.40)
Nunavut	6080.39 (1056.13)***	6059.08 (1036.38)***	6818.36 (1089.02)***	7088.28 (1130.74)**
Ontario	-1074.04 (471.84)**	-1076.23 (473.89)**	-288.68 (620.86)	-62.27 (566.83)
Quebec	-652.78 (509.61)	-657.41 (517.26)	100.99 (660.08)	322.13 (637.38)
Saskatchewan	-726.77 (585.05)	-728.05 (587.56)	156.27 (684.11)	367.53 (711.54)
NL	-631.75 (621.72)	-635.19 (623.88)	-371.50 (704.14)	-251.76 (690.79)
NT	3921.64 (3330.58)	3920.11 (3336.21)	4816.90 (3325.43)	5033.63 (3317.06)
Yukon	4677.06 (777.93)***	4674.74 (780.01)***	5745.61 (919.76)***	5946.21 (915.79)**
PE	311.92 (1031.23)	305.04 (1041.89)	1279.14 (1132.51)	1505.65 (1163.61)
2008	2211.88 (177.64)***	2212.14 (177.84)***	2139.98 (174.41)***	2143.36 (173.37)**
2011	-848.19 (421.08)**	-846.91 (423.90)**	-1045.04 (464.12)**	-1050.57 (461.19)**
2015	460.03 (608.18)	459.04 (609.49)	339.70 (579.29)	291.50 (589.44)
Constant	5528.83 (3343.97)*	5539.03 (3353.01)*	5057.22 (3273.74)	4956.17 (3289.98)
Observations	606	606	606	606
# of ridings	215.00	215.00	215.00	215.00
R-squared within	0.39	0.39	0.41	0.41
R-squared overall	0.32	0.32	0.34	0.34
R-squared between	0.24	0.24	0.25	0.25
Sigma u	1444.94	1449.45	1453.68	1454.38
Sigma e	1698.82	1701.06	1681.22	1677.02
rho	0.42	0.42	0.43	0.43

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

7.3 Harper governments

TABLE A6: Predicting the number of projects allocated to ridings (Harper governments)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	0.21 (0.10)**	0.22 (0.11)**	0.13 (0.19)
Cabinet minister		-0.06 (0.12)	-0.05 (0.11)
Margin			1.25 (1.18)
Margin X Margin			-1.60 (2.29)
Govt. X Margin			-0.71 (1.46)
Govt. X Margin X Margin			3.34 (2.56)
Incumbency length	0.00 (0.02)	0.01 (0.02)	-0.02 (0.02)
Employment rate	-0.01 (0.01)	-0.01 (0.01)	-0.03 (0.01)**
Population	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Δ population	-0.00 (0.01)	-0.00 (0.01)	0.00 (0.01)
Median income	-0.05 (0.03)*	-0.05 (0.03)*	-0.03 (0.03)
% no degree	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Pop. density	-0.10 (0.04)***	-0.10 (0.04)***	-0.13 (0.04)***
BC	-0.26 (0.19)	-0.25 (0.20)	0.43 (0.24)*
Manitoba	-0.65 (0.27)**	-0.64 (0.28)**	-0.20 (0.28)
New Brunswick	-0.97 (0.23)***	-0.96 (0.23)***	-0.27 (0.27)
Nova Scotia	-0.53 (0.21)**	-0.53 (0.21)**	0.27 (0.29)
Nunavut	-1.57 (0.41)***	-1.57 (0.41)***	-0.87 (0.42)**
Ontario	-0.03 (0.15)	-0.02 (0.15)	0.68 (0.23)***
Quebec	-0.53 (0.17)***	-0.52 (0.17)***	0.17 (0.24)
Saskatchewan	-0.38 (0.20)*	-0.38 (0.21)*	0.33 (0.23)
NL	-0.62 (0.32)**	-0.62 (0.32)*	0.00 (0.33)
NT	0.74 (0.34)**	0.75 (0.34)**	1.48 (0.36)***
Yukon	0.00 (0.30)	-0.00 (0.30)	0.75 (0.31)**
PE	-0.27 (0.33)	-0.27 (0.33)	0.52 (0.35)
2008	1.03 (0.06)***	1.03 (0.06)***	1.00 (0.06)***
2011	-0.54 (0.15)***	-0.54 (0.15)***	-0.69 (0.15)***
Constant	4.40 (0.85)***	4.41 (0.85)***	4.04 (0.80)***
Observations	457	457	457
# of ridings	153.00	153.00	153.00
Alpha	0.26	0.26	0.24
Log likelihood	-1385.11	-1384.93	-1373.57

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

TABLE A7: Predicting the amount of funding allocated to ridings (Harper governments)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	0.65 (0.23)***	0.84 (0.24)***	0.68 (0.31)**
Cabinet minister		-0.52 (0.27)*	-0.48 (0.27)*
Margin			1.68 (0.96)*
Margin X Margin			
Govt. X Margin			0.33 (1.21)
Govt. X Margin X Margin			
Incumbency length	0.09 (0.06)	0.10 (0.05)*	0.06 (0.06)
Employment rate	-0.05 (0.03)*	-0.05 (0.03)**	-0.07 (0.03)**
Population	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Δ population	0.00 (0.02)	0.01 (0.02)	0.01 (0.02)
Median income	0.03 (0.07)	0.03 (0.07)	0.05 (0.07)
% no degree	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
Pop. density	-0.19 (0.13)	-0.20 (0.13)	-0.23 (0.12)*
BC	-0.66 (0.32)**	-0.57 (0.32)*	0.10 (0.41)
Manitoba	-1.23 (0.46)***	-1.18 (0.48)**	-0.76 (0.47)
New Brunswick	-2.04 (0.62)***	-1.88 (0.58)***	-1.22 (0.61)**
Nova Scotia	-1.15 (0.50)**	-1.08 (0.50)**	-0.30 (0.62)
Nunavut	0.02 (0.89)	0.31 (0.87)	1.11 (0.89)
Ontario	-1.15 (0.31)***	-1.07 (0.29)***	-0.39 (0.38)
Quebec	-1.29 (0.35)***	-1.13 (0.34)***	-0.49 (0.44)
Saskatchewan	-1.75 (0.42)***	-1.72 (0.43)***	-0.97 (0.51)*
NL	-2.02 (0.63)***	-1.88 (0.63)***	-1.36 (0.66)**
NT	-1.33 (0.89)	-1.17 (0.86)	-0.23 (0.90)
Yukon	-1.53 (0.73)**	-1.46 (0.72)**	-0.56 (0.80)
PE	-0.92 (0.85)	-0.78 (0.84)	0.09 (0.90)
2008	1.63 (0.14)***	1.62 (0.14)***	1.56 (0.14)***
2011	-0.85 (0.41)**	-0.87 (0.40)**	-0.98 (0.40)**
2015	0.00 (.)	0.00 (.)	0.00 (.)
Constant	18.93 (1.91)***	18.82 (1.91)***	18.56 (1.92)***
Observations	442	442	442
# of ridings	153.00	153.00	153.00
R-squared within	0.42	0.42	0.43
R-squared overall	0.36	0.37	0.38
R-squared between	0.26	0.27	0.29
Sigma u	0.53	0.52	0.51
Sigma e	1.38	1.38	1.38
rho	0.13	0.13	0.12

Clustered standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

7.4 Trudeau governments

TABLE A8: Predicting the number of projects allocated to ridings (Trudeau government)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	-0.21 (0.15)	-0.14 (0.15)	-0.21 (0.24)
Cabinet minister		-0.34 (0.11)***	-0.32 (0.16)**
Margin			1.83 (1.47)
Margin X Margin			-0.74 (1.97)
Govt. X Margin			0.13 (1.93)
Govt. X Margin X Margin			-1.63 (2.87)
Incumbency length	0.03 (0.02)	0.04 (0.02)	0.03 (0.03)
Employment rate	-0.00 (0.02)	-0.00 (0.02)	-0.01 (0.02)
Population	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Δ population	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Median income	-0.05 (0.02)**	-0.05 (0.02)**	-0.05 (0.02)*
% no degree	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Pop. density	-0.58 (0.17)***	-0.61 (0.17)***	-0.61 (0.16)***
BC	0.05 (0.27)	0.05 (0.26)	0.62 (0.43)
Manitoba	0.62 (0.33)*	0.61 (0.33)*	1.10 (0.47)**
New Brunswick	0.26 (0.32)	0.23 (0.32)	0.83 (0.47)*
Nova Scotia	0.01 (0.37)	-0.04 (0.36)	0.44 (0.52)
Nunavut	0.77 (0.48)	1.06 (0.46)**	1.39 (0.53)***
Ontario	0.98 (0.22)***	0.96 (0.21)***	1.59 (0.41)***
Quebec	-0.22 (0.25)	-0.23 (0.25)	0.37 (0.43)
Saskatchewan	0.34 (0.31)	0.33 (0.30)	0.61 (0.33)*
NL	1.60 (0.32)***	1.59 (0.32)***	2.00 (0.49)***
NT	2.65 (0.35)***	2.60 (0.35)***	3.19 (0.46)***
Yukon	2.36 (0.39)***	2.32 (0.39)***	2.84 (0.52)***
PE	0.23 (0.48)	0.23 (0.47)	0.76 (0.60)
2015	0.00 (.)	0.00 (.)	0.00 (.)
Constant	4.57 (1.15)***	4.53 (1.13)***	4.22 (1.07)***
Observations	149	149	149
Alpha	0.20	0.19	0.18
Log likelihood	-478.10	-476.72	-473.27

Robust standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.

TABLE A9: Predicting the amount of funding allocated to ridings (Trudeau governments)

	(1) Government	(2) Cabinet Ministers	(3) Core/Swing
Government	-0.06 (0.31)	-0.08 (0.31)	-0.29 (0.36)
Cabinet minister		0.08 (0.52)	-0.06 (0.57)
Margin			0.18 (1.71)
Margin X Margin			
Govt. X Margin			1.57 (2.17)
Govt. X Margin X Margin			
Incumbency length	-0.01 (0.06)	-0.01 (0.06)	-0.03 (0.06)
Employment rate	0.02 (0.04)	0.02 (0.04)	0.03 (0.04)
Population	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Δ population	-0.02 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Median income	0.02 (0.06)	0.02 (0.06)	0.01 (0.06)
% no degree	0.11 (0.06)*	0.11 (0.06)*	0.11 (0.05)**
Pop. density	-0.65 (0.44)	-0.64 (0.45)	-0.75 (0.45)*
BC	1.14 (0.77)	1.14 (0.77)	1.22 (1.10)
Manitoba	0.73 (1.09)	0.73 (1.09)	0.77 (1.30)
New Brunswick	0.18 (0.83)	0.19 (0.82)	0.18 (1.20)
Nova Scotia	1.07 (0.97)	1.08 (0.97)	0.70 (1.35)
Nunavut	2.91 (0.91)***	2.84 (0.98)***	2.82 (1.28)**
Ontario	-0.28 (0.62)	-0.28 (0.62)	-0.17 (1.01)
Quebec	0.15 (0.67)	0.15 (0.67)	0.21 (1.09)
Saskatchewan	0.59 (0.71)	0.59 (0.71)	0.61 (0.86)
NL	1.25 (0.70)*	1.25 (0.71)*	0.58 (1.13)
NT	2.77 (0.79)***	2.78 (0.80)***	2.74 (1.12)**
Yukon	4.27 (0.88)***	4.28 (0.88)***	4.02 (1.26)***
PE	1.92 (1.26)	1.91 (1.26)	1.63 (1.62)
2015	0.00 (.)	0.00 (.)	0.00 (.)
Constant	12.40 (2.59)***	12.41 (2.60)***	12.32 (2.58)***
Observations	149	149	149
Adjusted R^2	0.268	0.262	0.257

Robust standard errors in parantheses. *p<0.10, **p<0.05, ***p<0.01.