



Electoral and Partisan Cycles in Fiscal Policy: An Examination of Canadian Provinces

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Abstract

This paper examines the fiscal policy choices of Canadian provincial governments in the context of partisan and opportunistic cycles. We identify an electoral cycle in which the predilection of provincial governments of all political stripes to increase taxes is temporarily halted in election years. Opportunistic responses in spending are also present. Spending in highly visible areas (schools, roads and hockey rinks) tends to increase in election years. Partisan responses are largely absent from revenues but appear more frequently in program spending choices. Thus, Canadian political parties tend to favour differentiating amongst themselves via their spending, as opposed to their revenue, choices.

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JEL Code: E6, H3, H7

I. Introduction

To say that government fiscal policy is governed by political as much as economic considerations is, apparently, to state the obvious. Everyone just seems to know that governments cut taxes and go on profligate spending sprees just prior to elections in order to curry favour with voters. For example, Hartle (1989) reports that 80% of federal and provincial bureaucrats and politicians he surveyed in Canada felt that incumbent governments enhance service levels and provide new services immediately prior to an election to attract more votes. And this from “insiders” to the political process!

Upon reflection, however, there are several aspects of the political determination of fiscal policy that warrant further investigation. From a theoretical perspective, one of the more intriguing questions is why, if everyone “knows” that governments distort fiscal policy in response to impending elections, do rational voters apparently reward them for doing so? Several empirical questions arise as well: is the *perception* of electoral cycles in fiscal policy consistent with the *reality*? what is the *magnitude* of the electoral effects? do the electoral effects differ across revenue and expenditure categories? do they differ across political parties? The goal of this paper is to undertake an empirical examination of some of these questions within the context of the fiscal policy of Canadian provinces.

Alesina, Roubini and Cohen (1997) distinguish between two types of models of political influences on fiscal policy. *Partisan* models hypothesize that differences in fiscal policy arise, at least in part, from differences in political ideology. *Opportunistic* models, on the other hand, suggest that all governments, regardless of ideology, behave opportunistically in order to win re-election.

There have been numerous studies devoted to laying the theoretical foundations for both partisan and opportunistic behaviour in government fiscal policy, and still more to investigating the empirical validity of these models; see Alesina, Roubini and Cohen (1997) for a survey and discussion of these models. What does this paper offer that differs from previous work?

While the existence of opportunistic and partisan influences at the aggregate level are investigated—in terms of the primary deficit, aggregate spending and aggregate revenues—we undertake a disaggregated analysis that considers various categories within expenditures and revenues. As will be discussed in the next section, there is reason to expect opportunistic cycles to manifest themselves differentially across different revenue and expenditure categories, and we explicitly investigate this issue in the empirical analysis.

While opportunistic and partisan influences are accounted for separately, we also allow for interactions between the two factors. This allows us to test for the possibility that there are *partisan influences in opportunistic behaviour*, as well as independently. Moreover, our investigation of partisan influences is somewhat “finer” than is typical in previous work, as partisan effects, both independently and interacted with opportunistic effects, are considered at the party level rather than using a rough “right-wing” versus “left-wing” dichotomy. This turns out to be quite important.

We also take other factors into account in the empirical analysis that have not been considered in previous studies of opportunistic and partisan behaviour, but which turn out to be important for understanding the fiscal choices made by policy-makers. In particular, we allow for the possibility that the recent accumulation of debt may force governments to adjust revenues and/or program expenditures. This possibility is suggested by the literature on the role of fiscal crises in determining policy choices (Alesina and Drazen (1991)). The recent accumulation of debt might be thought of as measuring the size of the adjustment costs arising from delaying an “inevitable” adjustment in either spending or taxes. We seek to identify which side of the budget, revenue or program expenditures, governments find it optimal to make this adjustment.

Finally, there are few previous studies of opportunistic and partisan cycles that look at sub-national governments. Poterba (1994, 1995) examines the impact of balanced budget restrictions on state fiscal policy in the US. Reid (1998) examines budget cycles in Canadian provincial budgets but his focus is on the issue of the endogenous timing of elections.¹ Besley and Case (1995) compare the fiscal policy choices of US state governors when they face a binding term limit versus when they can run for election again. They find evidence of opportunistic behaviour on the part of Democrat governors but not Republican governors; thus, as we do, they find evidence of partisan effects in opportunistic behaviour.

Opportunistic and partisan influences on fiscal policy may be very different at the sub-national than national level for a number of reasons. One is that sub-national jurisdictions may face constitutional restrictions on their ability to undertake fiscal policy. Examples include tax and expenditure limits, balanced budget legislation, and constitutional restrictions

on operating in various tax and expenditure fields. While Canadian provinces nominally face some constitutional limits on their ability to exercise fiscal policy, in practice those restrictions are not very binding, as the provinces have virtually unlimited taxing and spending powers, and indeed in aggregate account for over half of total government revenues and spending in Canada. Moreover, it may well be that the spending responsibilities of provincial governments may lend themselves more readily to political manipulation as they may be targeted more accurately and be more responsive to local political considerations than those of the federal government. The manipulation of fiscal policy levers may also be more accentuated at the sub-national level by the fact these governments lack access to other instruments of government policy that are available at the national level, in particular monetary policy. Moreover, since sub-national economies are typically small and open, the efficacy of fiscal policy may be very different at the sub-national level than at the national level.

A related point concerns the nature of the data set used in the study. Empirical political business cycle studies at the country level typically take one of two forms. The first are single country studies that use time series data on fiscal variables and elections. The fiscal policy of the federal government in the US has been extensively studied using this approach. The problem with single country studies is that reliable time series on fiscal variables are fairly short, going back forty years or so at the most. This provides only a few observations on variables like elections, which weakens the power of statistical tests. One way to get around this problem is to include more observations by using pooled time-series cross-section data from several countries (see Alesina and Perotti (1995b), Roubini and Sachs (1989), and Alesina, Cohen and Roubini (1992, 1993)). A problem with multi-country studies using panel data is that one should control for differences in monetary policy and institutional regimes across countries. The impact of fiscal policy on the economy is determined in large part by the monetary regime. In particular, the degree of exchange rate flexibility plays a key role in determining fiscal policy outcomes. This suggests that monetary and exchange rate policy may determine the extent to which governments use fiscal policy for political purposes. Similarly, differences in political and social institutions can play a key role in both the determination of fiscal policy and in the macroeconomic consequences of that policy. It is argued, for example, that electoral systems with proportional representation are inherently more unstable than pluralist electoral systems and hence are more likely to yield large deficits and high levels of government debt (see Persson and Svensson (1989)). Von Hagen (1992), and others, have argued that institutional differences in the budget making process can also explain differences in fiscal policy. Tabellini and Alesina (1990) argue that homogeneous voter preferences minimize social conflict and enable governments to act more quickly and decisively.

These factors are difficult to control for in multi-country studies, and any attempt to do so will necessarily be imperfect. An examination of the fiscal policies of Canadian provinces avoids many of these problems. The provinces share common political and constitutional systems, experience common monetary and exchange rate shocks, employ similar budgetary processes, and voter preferences are reasonably homogeneous across provinces. Our panel data set, which covers 320 budget years and 87 provincial elections, thus has built in controls that allow us to focus more specifically on the questions of interest.

The remainder of the paper is organized as follows. The following section provides more theoretical motivation for the empirical approach taken in the paper. Section III introduces

the empirical approach, Section IV presents the results and Section V summarizes and concludes.

II. Theoretical Motivation

In this section we provide some theoretical motivation for the empirical analysis of the subsequent sections. For the most part the theoretical models that we discuss can be thought of as being suggestive, but do not lend themselves to direct empirical investigation. Thus, we do not purport to test any of the theoretical models directly, but rather to simply motivate the specification and inclusion of variables in the empirical analysis, and to provide some context for a discussion of the results.

Beginning with the pioneering studies by Nordhaus (1975) and Lindbeck (1976), the idea that governments may act opportunistically by adapting fiscal policy to the electoral cycle has received a great deal of attention in the macroeconomic literature. Two classes of models have dominated political business cycle research. The early theoretical work in this area presumed the existence of myopic, non-rational voters who could be systematically fooled by budget makers prior to impending elections. These models suggest that policy makers can exploit the inflation-unemployment trade-off embodied in the Phillips curve, and predict the presence of systematic and relatively long lasting opportunistic cycles in both fiscal policy and macroeconomic variables.

Economists are not, as a rule, comfortable with models based upon consumer irrationality. As such, more recent work has abandoned the presumption that voters can be systematically fooled by policy makers. This places obvious limitations on the ability of governments to manipulate the economy for political ends. However, opportunistic behaviour may emerge for other reasons. One possibility that has been studied extensively is that opportunistic behaviour may arise as an equilibrium to a “competency” signalling game under asymmetric information, where governments know their competency but voters do not.

Rogoff and Sibert (1988), Rogoff (1990), and Persson and Tabellini (1990) are examples of models that examine policy choices as an equilibrium to a competency signalling game. The general structure of these models is as follows. All incumbent governments value being re-elected. Governments differ, however, in their levels of “competency.” For example, they may differ in their ability to finance government expenditures at low cost (as in Rogoff and Sibert (1988) and Rogoff (1990)), or, more generally manage the economy efficiently (as in Persson and Tabellini (1990)). While politicians value being in office due to the existence of “ego rents,” the interests of politicians also overlap with those of voters to some degree in the sense that all benefit from competency on the part of the government. Thus, a competent incumbent values re-election more highly than an less competent incumbent because he knows he can do a better job.

Competency typically contains both a random contemporary component and a realization from previous periods. This is important, as it means that past competency is not a perfect predictor of current competency. Voters cannot observe the competency of the incumbent but rather must infer competency by observing outcomes with some delay. There exists, then, an information asymmetry; the incumbent knows his current level of competence but he must signal this to voters who are aware only of the government’s past competence.

The separating equilibria in these models typically involve the distortion of fiscal policies in election years on the part of all but the least competent incumbent.² Thus, for example, in an election year all but the least competent incumbents may undertake higher expenditures, financed with lower taxes and more seignorage than would otherwise be optimal. An important aspect of the signalling models is that they motivate the presence of electoral budget cycles in broad fiscal aggregates (total spending, total revenue and the budget balance) without reference to an exploitable Phillips curve. This is important for our purposes, as these models predict the presence of electoral cycles even at the sub-national level where the ability of a policy-maker to affect macroeconomic variables is weak.

An important refinement to the competency models was made by Rogoff (1990), who distinguished between different types of government expenditures—what he calls “current” expenditures, the benefits of which can be easily observed and verified by voters prior to an election, and “capital” expenditures, the benefits of which are realized in subsequent periods, and therefore are not verifiable prior to an election. Asymmetric information between the government and the electorate means that although voters observe “current” expenditures and taxes prior to an election, they cannot observe either government competency or “capital” expenditures before casting their vote. In this model, signalling takes the form of shifts in spending away from “capital” spending and towards “current” spending. Thus, incumbent governments signal as efficiently as possible by focussing on “current” expenditures.³

Rogoff’s (1990) version of the signalling/competency model emphasizes the need to focus empirical research not only on broad aggregates of the government budget, but also on the composition of spending (and possibly taxes). Our reading of Rogoff’s paper is that the distinction between “current” and “capital” spending need not be taken to refer to the more traditional, physical, difference between the two types of expenditures—whereby the former give rise to benefits immediately while the latter generates a flow of benefits over time—but rather to a more fundamental distinction between “visible” programs, with benefits or costs that are easily observed and verified by voters prior to an election, and “less visible” programs, which generates benefits that are less easy to verify. The idea here is that in order to signal competence governments will increase expenditures in areas that send the strongest signals, which requires that they be observable and verifiable. One interpretation of Rogoff is thus that it is not so much the timing of the actual benefits that matters, but rather the visibility and verifiability of those benefits prior to an election; signals must be seen in order to be effective. Thus, in our view, Rogoff’s distinction is more about “visible” versus “non-visible” expenditures than about current versus capital expenditures in the traditional sense.

The distinction between “visible” and “less visible” programs is obviously somewhat vague and arbitrary in practice. This, and the fact that we cannot construct a measure of government competency, makes a direct test of Rogoff’s version of the signaling model difficult. Our data on each expenditure category, for example, combines capital spending (defined in the traditional sense) on new construction with current spending on wages and salaries. Some fraction of every spending category will therefore be more “visible” than the rest. Indeed, we would argue that many “brick and mortar” type capital expenditures are more “visible,” and therefore send a stronger signal, than many types of current expenditures. The problem of identifying what should be classified as “visible” or “less visible” is made more difficult in a Canadian context by the fact that in most spending and revenue categories the provinces and the federal government share responsibility. The extensive use

of intergovernmental grants in Canada also adds to this difficulty. This makes it difficult for provincial governments to effectively use some types of spending and revenue changes as a way of signaling competence to voters, as voters may wrongly credit or blame an increase in spending or cut in taxes on the wrong level of government. This adds a second dimension to “visibility” in the characterization of spending and revenue categories, namely the “identifiability” of an expenditure or revenue category with a provincial government. As will become evident, we exploit both of these dimensions of public finance in Canada when interpreting our results.

With these difficulties and qualifications in mind, it is interesting to note that under our interpretation of Rogoff’s signaling model some theoretical support is provided for the popularly held caricature of the road building politician. The benefits of this type of expenditure are observable, verifiable, and altogether quite “visible.” Other types of expenditures, such as business subsidies, do not share this feature. Moreover, roads are clearly identifiable in Canada as being the sole responsibility of provincial governments. Expenditures on roads, therefore, may be viewed as scoring high on both of the two relevant dimensions for signalling—they are highly visible and clearly identifiable with provincial governments.

Although the signalling models described above do not explicitly include partisan effects, it is relatively straightforward to extend and reinterpret them in that light. For example, a rather obvious implication of these models is that governments that place more weight on consumer utility arising from government expenditures relative to private consumption will spend (and tax) more than governments that have the opposite predilection. We test this prediction by determining whether there are systematic differences in the fiscal policy choices of Canadian governments according to their political ideology. We use a both a rough “left-wing” versus “right-wing” dichotomy and a somewhat finer classification by political party.

III. Empirical Methodology

Our data set consists of a pooled cross-section time-series, or panel, of various fiscal variables (explained below) at the provincial level.⁴ The time series run from 1966–1997; the cross-section for each fiscal variable is over the 10 Canadian provinces.⁵ The generic model that we estimate at various levels of disaggregation for the change in the fiscal variables (ΔFV) is the following:

$$\Delta FV_{i,j,t} = \beta_{i,j} \Delta FV_{i,j,t-1} + \theta'_{i,j} X_{j,t} + \gamma'_i D_{j,t} + \varepsilon_{i,t} \quad (1)$$

The subscript i indexes the type of fiscal variable (FV) under consideration, j indexes the jurisdiction (province), and t the year. The type of fiscal variable under consideration depends upon the level of aggregation. For example, at the most aggregate level, equation (1) is a single equation estimated for the primary deficit alone. We then estimate various disaggregated versions of the model. For example, the next level of disaggregation is to estimate equation (1) for total program expenditures and total revenues. The final level of disaggregation is to estimate equation (1) for various revenue and expenditure categories. All fiscal variables are measured as a fraction of provincial GDP. Thus, $\Delta FV_{i,j,t}$ is the observed change in fiscal variable i in province j at time t as a fraction of GDP.

Lagged values of the change in the fiscal variables are included to account for the possibility that changes in fiscal policy may be persistent. We allow for the possibility that the coefficients on the lagged dependent variables ($\beta_{i,j}$) vary across fiscal variables (i) and across jurisdictions (j). The matrix $X_{j,t}$ contains variables representing changes in prevailing economic conditions. Matrix $X_{j,t}$ contains four variables: the change in the provincial unemployment rate, the change in the Canada-US nominal exchange rate, the change in the short-term real interest rate, and the change in the ratio of provincial debt to provincial GDP over the previous two fiscal years. The first three of these capture cyclical influences on the fiscal variables due to changes in economic conditions, and are intended to control for changes in revenues and expenditures due to automatic stabilizer effects. The fourth variable, the recent accumulation of debt, is included to reflect constraints on budgetary choices that may arise due to recent events that have placed unusual stress on the provincial budget. The coefficients on the variables in $X_{j,t}$, represented by the vector $\theta'_{i,j}$, are also allowed to vary by fiscal variable and by jurisdiction, but not over time.⁶

The matrix $D_{j,t}$ contains the dummy variables required to test for opportunistic and partisan effects, both independently and interactively. Having controlled for changes in the fiscal variables due to changing economic conditions, the coefficients on these dummy variables (the vector γ'_i) reflect “discretionary” changes in the fiscal variables for opportunistic and/or partisan reasons. Opportunistic effects are captured by a dummy variable (ELECT) equal to one in years in which a provincial election was held and zero in non-election years.⁷ Partisan influences are captured by dummy variables defined at two levels of aggregation. At the level of political parties, we define variables LIB, NDP, PC, and SCP equal to one in years in which the Liberal Party, the New Democratic Party, the Progressive Conservative Party, and the Social Credit Party held power, respectively, and zero otherwise. At a higher level of aggregation, we define LEFT (defined as LIB + NDP) and RIGHT (PC + SCP) as dummy variables equal to one when a left-wing and a right-wing government, respectively, was in power. Interactive dummies are also included to determine whether or not opportunistic behaviour varies by party or by political ideology. Due to a limited number of observations, partisan and opportunistic responses are restricted to be equal across provinces. Thus, γ'_i is allowed to vary by fiscal variable but not by jurisdiction or over time.⁸

Equation set (1) is estimated by the method of Seemingly Unrelated Regressions (SUR) at each level of aggregation. SUR allows for the possibility that the error terms are contemporaneously correlated across fiscal variables. Thus, in the most disaggregated case, where the fiscal variables consist of various expenditure and revenue categories, the error terms are allowed to be contemporaneously correlated across all categories. We employ an approach suggested by Breusch and Pagan (1989) to test whether or not the variance-covariance matrix of the residuals from the pooled cross-section, time series regression is diagonal. This test clearly indicates the presence of contemporaneously correlated errors, thus validating the use of the SUR approach.

We also test for the null hypothesis of a common response to the lagged dependent variable, and for common response to our three measures of changes in economic conditions and recent changes in debt across jurisdictions. For the most part, we reject the null, which suggests that these coefficients vary across jurisdictions, as allowed by equation (1).

IV. Results

Tables 1–6 present the results of our analysis. For ease of interpretation we exclude from the tables the $\beta_{i,j}$ and the $\theta'_{i,j}$ coefficients and present only those coefficients measuring partisan and opportunistic effects. Moving vertically in Tables 1, 3 and 5, the political parties are ordered from the left of the political spectrum (NDP) to the right (SCP). Moving horizontally in Tables 3–6, expenditure and revenue categories appear in order of size; from the expenditure (revenue) category making up, on average over time and across provinces, the largest share of total expenditures (revenues) to the smallest.

(a) Aggregate Spending, Revenue and Primary Deficit Changes

Table 1 examines changes in the budget aggregates: total own-source revenues, total program expenditures, and the difference between these two measures, the own-source primary deficit. All of these variables are measured as a fraction of provincial GDP. The table presents three regressions for each of these aggregates. Regression (1) presents results using the traditional approach of identifying partisan effects using a simple left- and right-wing dichotomy, and including an election year dummy to identify opportunistic responses. No interaction between partisan and opportunistic effects is allowed for. Regression (2) allows for the possibility that opportunistic responses may contain a partisan response; that is, parties on the left and on the right may exhibit different opportunistic responses. Finally, regression (3) relaxes the assumption that all parties on the left (right) of the political spectrum make the same fiscal choices, by allowing for party level partisan and opportunistic effects.

The results support the use of the most general specification, reported as regression (3) for each aggregate, and highlight the importance of allowing for party differences and interactive effects. For example, in the deficit regressions, if we use the LEFT versus RIGHT dichotomy, there appears to be no statistically significant change in the deficit (relative to GDP) in non-election years for either left-wing or right-wing governments. However, moving to regression (3), we see this masks significant responses by LIB (to increase the size of deficits) and SCP (to decrease the size of deficits) governments. Regression (3) also reveals that the statistically significant partisan difference between LEFT and RIGHT identified in regressions (1) and (2) is due mainly to the behaviour of LIB and SCP governments. Similarly, in the spending regressions, the statistically significant RIGHT dummy is shown, in regression (3), to be solely due to the choices of PC governments.

It also proves important to use the finer party breakdown to identify opportunistic responses. Thus, the statistically significant opportunistic response of right-wing governments in the deficit regressions is due only to the behaviour of SCP governments, while the opportunistic response of left-wing governments in the spending regressions is due only to the behaviour of NDP governments. In the revenue regressions, the finer party breakdown reveals that governments representing all four parties behave opportunistically with respect to revenue choices.

Finally, the results in Table 1 highlight the importance of allowing for the possibility of partisan effects in opportunistic behaviour. Looking only at the spending equations

Table 1. Political influences on the change in provincial expenditures, revenues and deficit.

| | Δ Deficit (1) | Δ Deficit (2) | Δ Deficit (3) | Δ Spending (1) | Δ Spending (2) | Δ Spending (3) | Δ Revenue (1) | Δ Revenue (2) | Δ Revenue (3) |
|--------------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|------------------------|
| ELECT | 0.356 (0.11)* | | | 0.169 (0.09)** | | | -0.122 (0.06)* | | |
| ELECT*LEFT | | 0.214 (0.15) | | | 0.072 (0.14) | | | 0.004 (0.08) | |
| ELECT*RIGHT | | 0.510 (0.16)* | | | 0.254 (0.13)** | | | -0.231 (0.09)* | |
| ELECT*NDP | | | 0.168 (0.28) | | | -0.264 (0.25) | | | -0.262 (0.18) |
| ELECT*LIB | | | 0.345 (0.23) | | | 0.313 (0.20) | | | 0.032 (0.10) |
| ELECT*PC | | | 0.476 (0.21)* | | | 0.221 (0.17) | | | -0.152 (0.11) |
| ELECT*SCP | | | 0.592 (0.27)* | | | 0.400 (0.27) | | | -0.293 (0.19) |
| LEFT | 0.168 (0.15) | 0.196 (0.15) | | 0.807 (0.13)* | 0.836 (0.14)* | | 0.496 (0.07)* | 0.435 (0.07)* | |
| RIGHT | -0.032 (0.13) | -0.074 (0.14) | | 0.357 (0.11)* | 0.334 (0.12)* | | 0.294 (0.08)* | 0.352 (0.08)* | |
| NDP | | | 0.217 (0.18) | | | 0.979 (0.16)* | | | 0.483 (0.09)* |
| LIB | | | 0.346 (0.19)** | | | 0.784 (0.17)* | | | 0.435 (0.09)* |
| PC | | | 0.155 (0.91) | | | 0.542 (0.14)* | | | 0.248 (0.11)* |
| SCP | | | -0.435 (0.17)* | | | 0.012 (0.17) | | | 0.425 (0.12)* |
| R ² | 0.33 | 0.33 | 0.35 | 0.35 | 0.35 | 0.35 | 0.14 | 0.14 | 0.15 |
| Left = Right? | Reject‡ | Reject‡ | | Reject‡ | Reject‡ | | Reject‡ | Cannot Reject | |
| Opportunistic Behaviour? | RIGHT† | RIGHT† | SCPT | LEFT† | LEFT† | NDP† | RIGHT† | RIGHT†, LEFT† | NDP†, LIB†, PC†, SCPT† |

Notes: N = 290. Standard errors are in parentheses. Asterisks denote coefficients that are significantly different from zero at the 5% (*) and the 10% (**) levels. Left = Right? is a Wald coefficient test of the null hypothesis that the non-election year responses of left- and right-wing governments are equal. Opportunistic Behaviour? is a test of the null hypothesis that, for a given party or group of parties, the election year response is equal to the non-election year response. For this test, only parties or groups of parties for which we reject the null hypothesis are reported. Daggers denotes rejection of the null hypothesis at the 5% (†) and the 10% (‡) levels.

Table 2. Tests on political influences on discretionary changes to provincial budget aggregates.

| | | Δ Deficit | Δ Total Program Expenditures | Δ Total Own Source Revenues |
|--------|----------------------------|------------------|-------------------------------------|------------------------------------|
| Test 1 | (a) NDP = LIB? | | | |
| | (b) PC = SCP? | Reject† | Reject† | |
| | (c) NDP = SCP? | Reject† | Reject† | |
| Test 2 | (a) NDP*ELECT = LIB*ELECT? | | Reject‡ | |
| | (b) PC*ELECT = SCP*ELECT? | | | |
| | (c) NDP*ELECT = SCP*ELECT? | | Reject‡ | |
| Test 3 | Party = Elect*Party? | SCP† | NDP† | NDP†, LIB†, PC†, SCP† |

Notes: These tests are based on the regression results reported in column (3) of Table 1. Test 1 is a test for partisan effects during non-election years. Test 2 is a test for partisan effects during election years. Test 3 is a test for opportunistic effects. Daggers denotes rejection at the 5% (†) and the 10% (‡) levels. For test 3, only parties for which we reject the null hypothesis are reported.

to illustrate, regression (2) reveals that the statistically significant coefficient on ELECT in regression (1) is due only to the behaviour of right-wing governments. Moving to regression (3), we find no significant response by any type of government in election years.

Table 2 presents the results of Wald coefficient tests on the regression coefficients reported for regression (3) of Table 1. Tests 1 and 2 are tests for partisan effects outside of election years (Test 1) and in election years (Test 2). For each test, sub-tests (a) and (b) investigate the null hypothesis that parties on the left and right of the political spectrum make the same discretionary policy choice. A rejection of the null hypothesis is a rejection of the assumption that parties on the left (right) have made the same discretionary policy choice. Sub-test (c) investigates the null hypothesis that parties at the extreme ends of the political spectrum can be considered to have made the same discretionary policy choices.

Partisan effects measured by sub-tests (a) and (b) are absent with respect to discretionary changes to total own source revenues.⁹ Indeed, we cannot even reject the null that the parties at the extreme of the political spectrum make the same discretionary revenue choices. Thus, we find little evidence of partisan differences in aggregate revenues. Partisan effects are much more prevalent with respect to total program expenditures. Interestingly, we can reject the null hypothesis that the two parties on the right make similar discretionary spending choices during non-election years but not during election years. The opposite is the case for the two parties on the left; they behave similarly during non-election years but differently in election years. In general, partisan effects are less prevalent in election years than in non-election years.

Test 3 is a test for opportunistic behaviour. Here we find that all four parties exhibit opportunistic behaviour with respect to discretionary revenue choices. Moreover, all four parties exhibit the same behaviour; all make discretionary choices to increase revenues during non-election years, but suspend these efforts in response to elections. With respect to program expenditures, only NDP governments behave opportunistically. Whereas NDP governments on average increase program spending by just less than one percentage point of provincial GDP in non-election years, in response to an election they choose to introduce changes not significantly different from zero. Finally, with respect to deficits, only SCP

governments exhibit opportunistic effects. Whereas in non-election years SCP governments introduced statistically and economically significant deficit increases, in election years they introduced statistically and economically significant deficit reductions.

Not shown in the table are province-specific coefficients measuring the response to the cyclical and debt variables. In each case the cyclical variables are statistically significant. We tested for, and rejected, the restriction that all provincial budgets are equally sensitive to changes in the business cycle. Differences in industrial structure, average income, and tax and expenditure rates all suggest that budgets may differ in their sensitivity to changes in short-term interest rates, the exchange rate and the unemployment rate. We strongly reject the null hypothesis of a common response for all three budget aggregates.¹⁰ Moreover, debt accumulation is associated with a statistically significant reduction in the deficit in all provinces. This reduction is also economically significant. Adding one percentage point to the debt/GDP ratio over the previous two years caused the ratio of deficit to GDP to fall by an average of 0.15 percentage points. The reduction to the deficit is due to statistically and economically significant discretionary program spending cuts in all provinces; cuts averaging 0.20 percentage points of GDP. Recent debt accumulation prompts a statistically significant increase in revenue collection in only one province (Manitoba).

Our general conclusion from Tables 1 and 2 is that we find support for the specification that allows for partisan effects in opportunistic behaviour, and for using party dummies rather than left/right dummies. This is an important finding since, for example, while the results reported in column (1) generally confirm predictions coming out of the electoral cycle models—that in response to elections governments cut tax revenues and increase the size of the deficit—we see that these conclusions do not generally hold across governments of all political stripes.¹¹ We find strong evidence of opportunistic effects in provincial government fiscal policy with respect to revenue where all four parties exhibit opportunistic behaviour. Putting a temporary halt to the increase in taxes that typically occurred in non-election years seems to have been the favourite way for Canadian provincial governments to participate in opportunistic behaviour. NDP governments supplement this behaviour with a halt to spending increases as well. Only the combined revenue and expenditure responses of SCP governments resulted in deficit reductions during election years relative to non-election years.

The problem with looking at budget aggregates, of course, is that they may hide offsetting responses in the sub-categories. As discussed above, Rogoff (1990) suggests that governments may change the *mix* of spending in election years, increasing some types of expenditures while cutting others. To examine this possibility it is important to go behind budget aggregates and look for opportunistic and partisan effects by expenditure sub-category. Although Rogoff does not allow for the possibility that there may be an electoral cycle in the revenue mix, for completeness we also examine revenue sub-categories.

(b) Discretionary Changes to Program Spending by Category

Tables 3 and 4 present the regression results and hypothesis tests on program spending by eight categories, including the residual category of Other Program Expenditures. The merits of distinguishing between political parties, as opposed to using a simple left-wing versus right-wing dichotomy, and allowing for the possibility of partisan influences on

Table 3. Political influences on the change in provincial expenditures.

| | Δ Total Expenditure | Δ Health | Δ Education | Δ Social Services | Δ Other Program Expenditures | Δ Transportation & Communication | Δ Industrial Development | Δ Protection | Δ Recreation & Culture |
|----------------------------|-------------------------------|------------------|--------------------|-----------------------------|--|--|------------------------------------|---------------------|----------------------------------|
| New Democratic | 0.979 (0.16)* | 0.165 (0.04)* | 0.017 (0.05) | 0.165 (0.03)* | 0.156 (0.05)* | -0.094 (0.02)* | 0.074 (0.03)* | 0.019 (0.01)* | -0.001 (0.01) |
| Liberal | 0.784 (0.17)* | 0.143 (0.05)* | 0.050 (0.05) | 0.110 (0.03)* | 0.126 (0.05)* | -0.068 (0.03)* | 0.092 (0.03)* | 0.015 (0.01) | 0.006 (0.01) |
| Conservative | 0.542 (0.14)* | 0.205 (0.04)* | 0.100 (0.05)* | 0.057 (0.03)* | 0.101 (0.04)* | -0.050 (0.02)* | 0.027 (0.03) | 0.018 (0.01)* | 0.014 (0.004)* |
| Social Credit | 0.012 (0.17) | 0.118 (0.04)* | -0.010 (0.08) | 0.021 (0.04) | -0.013 (0.06) | -0.061 (0.05) | 0.017 (0.03) | -0.008 (0.01) | -0.007 (0.01) |
| ELECT*New Democrat | -0.264 (0.25) | -0.019 (0.06) | -0.061 (0.09) | 0.051 (0.05) | 0.072 (0.10) | 0.135 (0.04)* | -0.087 (0.06) | -0.014 (0.01) | 0.043 (0.01)* |
| ELECT*Liberal | 0.334 (0.20) | 0.014 (0.05) | 0.215 (0.07)* | -0.054 (0.04) | 0.100 (0.08) | 0.103 (0.04)* | 0.082 (0.05)** | 0.022 (0.01) | 0.030 (0.01)* |
| ELECT*Conservative | 0.221 (0.17) | -0.049 (0.04) | -0.045 (0.06) | 0.030 (0.03) | -0.058 (0.07) | 0.053 (0.03)* | 0.123 (0.05)* | -0.019 (0.01)* | -0.005 (0.01) |
| ELECT*Social Credit | 0.400 (0.27) | 0.061 (0.07) | 0.355 (0.13)* | -0.142 (0.07)* | -0.057 (0.11) | -0.078 (0.07) | -0.047 (0.05) | 0.044 (0.02)* | 0.067 (0.02)* |
| Mean of dependent variable | 0.082 | 0.070 | -0.016 | 0.056 | 0.029 | -0.069 | 0.003 | 0.008 | 0.00004 |
| SEE | 1.568 | 0.381 | 0.447 | 0.252 | 0.598 | 0.317 | 0.774 | 0.080 | 0.082 |
| R ² | 0.35 | 0.20 | 0.30 | 0.35 | 0.32 | 0.30 | 0.27 | 0.20 | 0.14 |
| Test 1 | 52.13† | 12.98 | 43.28† | 78.36† | 62.10† | 53.68† | 68.27† | 46.81† | 20.08 |
| Test 2 | 30.70† | 10.43 | 31.78† | 19.60† | 19.01† | 18.86† | 12.55 | 20.49† | 22.89† |
| Test 3 | 20.70† | 18.90† | 23.34† | 19.83† | 1.18 | 33.80† | 16.36† | 13.58 | 7.51 |

Notes: $N = 290$. Standard errors are in parentheses. Asterisks denote coefficients that are significantly different from zero at the 5% (*) and the 10% (**) levels. Test 1 is test of the null hypothesis that the response of expenditures to the business cycle is equal across provinces. Test 2 is test of the null hypothesis that the degree of persistence in expenditures is common across provinces. Test 3 is a test of the null hypothesis that the response of expenditures to the recent accumulation of provincial debt is common across provinces. The reported regression coefficients come from the model specification determined by the results of these tests at the 5% level. Daggers denote rejection of the null hypothesis at the 5% (†) and the 10% (‡) levels.

Table 4. Tests on political influences on discretionary changes to provincial expenditures.

| | Δ Total Expenditure | Δ Health | Δ Education | Δ Social Services | Δ Other Program Expend. | Δ Transport & Comm. | Δ Industrial Development | Δ Protection | Δ Recreation & Culture |
|-----------------------------------|----------------------------|-----------------|--------------------|--------------------------|--------------------------------|----------------------------|---------------------------------|---------------------|-------------------------------|
| Test 1 (a) NDP = LIB? | Reject† | Reject‡ | | Reject‡ | | | | Reject‡ | Reject‡ |
| (b) PC = SCP? | Reject† | | | Reject‡ | Reject‡ | | | Reject‡ | |
| (c) NDP = SCP? | Reject† | | | Reject‡ | Reject‡ | | | Reject‡ | |
| Test 2 (a) NDP*ELECT = LIB*ELECT? | Reject‡ | | Reject‡ | | | | Reject‡ | | |
| (b) PC*ELECT = SCP*ELECT? | | | Reject‡ | Reject‡ | | Reject‡ | Reject‡ | | Reject‡ |
| (c) NDP*ELECT = SCP*ELECT? | Reject‡ | | Reject‡ | Reject‡ | | Reject‡ | | Reject‡ | |
| Test 3 Party = Elect*Party? | NDP† | NDP†, PC† | LIB†, SCP† | NDP†, LIB†, SCP† | PC† | NDP†, LIB†, PC† | NDP† | NDP†, PC†, SCP† | NDP†, PC†, SCP† |

Notes: Test 1 is a test for partisan effects during non-election years. Test 2 is a test for partisan effects during election years. Test 3 is a test for opportunistic effects. Daggers denotes rejection at the 5% (†) and the 10% (‡) levels. For test 3, only parties for which we reject the null hypothesis are reported.

opportunistic responses, is again apparent. In Table 4, the cells for Tests 1(a) and (b) and for Tests 2(a) and (b) would be empty if it was appropriate to group parties into left-wing/right-wing designations. Instead, 16 of these 32 cells contain 'rejects,' which indicates that LIB governments behaved differently from NDP governments and that PC governments behaved differently from SCP governments in one-half of all cases. Looking at Tests 1 and 2(c), 7 of 16 cells contain rejects. Thus, almost half the time, the relatively extreme parties on the right and left make spending choices that are statistically significantly different from one another. Overall, then, we see evidence of a good deal of partisan behaviour with respect to choices regarding discretionary changes in program expenditures.

Partisan differences between parties on the same side of the political spectrum are more frequent in election than in non-election years. The null hypothesis that parties on the same side of the political spectrum make the same discretionary spending choices is rejected in 9 of 16 cases during election years (Test 2), but is rejected in only 5 of 16 cases during non-election years (Test 1). In non-election years, left-wing parties differed in their spending choices in only one expenditure category. In election years, they differ in 3 of 8 categories. Right-wing parties are much more likely than left-wing parties to differ in their expenditure choices. In non-election years, PC and SCP governments differ in their discretionary spending choices in 4 of the 8 categories. In election years, they differ in 6 of 8 categories.

Spending on Health, on average the largest single expenditure category for the provinces, exhibited the least amount of partisan behaviour as measured by Tests 1 and 2. Only PC and SCP governments differed in choices on Health spending and this occurs only in non-election years. Discretionary spending on Protection, on the other hand, exhibited partisan differences in 5 of 6 cases.

We saw from Table 1 that only NDP governments exhibited statistically significant opportunistic behaviour on aggregate expenditures. From Test 3 in Table 4 we see that this behaviour was widespread across spending categories. Of the 8 spending categories, NDP governments exhibited statistically significant opportunistic behaviour in 6 categories. In 2 of these categories, they spent more in election than non-election years while in 4 categories they spent less. On the other hand, although PC governments exhibited no statistically significant opportunistic behaviour in aggregate spending, they did so in 5 of the 8 spending categories. In 4 of these 5 categories, they spent less in election than non-election years. In 3 of the 4 categories in which SCP governments exhibited statistically significant opportunistic behaviour, they spent more in election than in non-election years. Finally, LIB governments displayed statistically significant opportunistic behaviour in just 3 of the 8 spending categories. In 2 of these 3 categories, LIB governments increased spending more in election years than they did in non-election years. Over all governments, then, of the 18 statistically significant opportunistic responses in discretionary spending, 8 involved increased spending in election years relative to non-election years and 10 involved less.

Not shown in the Table 3 are province-specific coefficients on the cyclical and debt variables. With respect to the latter, debt accumulation causes a statistically significant reduction in almost every expenditure category in every province. Thus, the response to recent debt accumulation is widely spread across expenditure categories, and governments respond to debt pressures by lowering program spending.

Tables 3 and 4 suggest some regularities in terms of the direction of the opportunistic effects for the various expenditure categories. As discussed in Section II, there is some reason

to believe that spending in “more visible” spending categories will increase in election years while spending in “less visible” spending categories will decrease in election years. It was also suggested that the extent to which the type of spending is identifiable with the provincial government may be important. Of the seven identifiable spending categories, the provinces share significant financial responsibility with the federal government in Health and Social Services. The other five categories are largely provincial responsibilities. As we noted earlier, the relative visibility of the spending categories is difficult to ascertain objectively. Our admittedly subjective assessment is that expenditures in Health, Education, Transportation and Communication, Recreation and Culture, and Protection are more visible than expenditures in Social Services and Industrial Development. Thus, the four spending categories of Education, Transportation and Communication, Recreation and Culture, and Protection have the shared characteristics that they are both highly visible and clearly identifiable as provincial responsibilities, while the categories of Health, Social Services, and Industrial Development are lacking along at least one of these dimensions.

Our results suggest that the prevailing tendency is to decrease spending in Health, Social Services, and Industrial Development (hospitals, welfare, and business subsidies) in election years vis-à-vis non-election years, while spending in Education, Transportation and Communication, and Recreation and Culture (schools, roads, and hockey rinks) increase in election years versus non-election years. Thus, we see that three of the four spending categories that are both highly visible and clearly identifiable as provincial responsibilities tend to exhibit election year increases, while each of the three categories that tend towards election year declines “score” low along at least one of these dimensions. Health is an interesting case, because although it is highly visible in our subjective assessment, it is a shared responsibility between the federal and provincial governments, and is thus not clearly identifiable with the provinces.

Although we think that these results are quite suggestive when viewed through the lens of Rogoff’s (1990) version of the signalling model, it is important to note that they cannot be taken as a direct validation of that model for reasons discussed previously. Nonetheless, we are struck by the fact that the typical caricature of opportunistic politicians spending money prior to an election on programs for which they can clearly be credited (schools, roads and hockey rinks) appears to be borne out by our analysis.

(c) Discretionary Changes to Revenue by Category

In this section we investigate whether partisan and electoral regularities appear in the revenue mix. Tables 5 and 6 present the regression results and hypothesis tests for discretionary changes in five revenue categories. We again see the merits of distinguishing across political parties and for allowing for the possibility of partisan influences in opportunistic responses. In Table 6, the cells for Tests 1(a) and (b) and for Tests 2(a) and (b) are largely empty, indicating far fewer partisan effects than we saw with respect to program expenditures. Indeed, the results of sub-test (c), which examines whether the relatively extreme parties differ in their revenue choices, in only 3 of 10 cases can we reject the null hypothesis that NDP and SCP governments make the same discretionary revenue choices. Interestingly, partisan differences never appear with respect to discretionary changes to personal income

Table 5. Political influences on the change in provincial own source revenues.

| | Δ Total Revenue | Δ Other Own Source Revenue | Δ Personal Income Tax | Δ Other Consumption | Δ Gas & Sin Taxes | Δ Corporation Income Tax |
|-------------------------------|---------------------------|--------------------------------------|---------------------------------|-------------------------------|-----------------------------|------------------------------------|
| New Democratic | 0.483 (0.09)* | 0.162 (0.07)* | 0.152 (0.04)* | 0.026 (0.03) | -0.013 (0.01) | 0.035 (0.02) |
| Liberal | 0.435 (0.09)* | 0.161 (0.06)* | 0.202 (0.04)* | -0.047 (0.03)** | -0.003 (0.01) | 0.040 (0.02)** |
| Conservative | 0.248 (0.11)* | 0.107 (0.06)* | 0.172 (0.04)* | 0.013 (0.01)** | -0.015 (0.008)** | -0.003 (0.02) |
| Social Credit | 0.425 (0.12)* | 0.156 (0.11) | 0.149 (0.05)* | 0.034 (0.02)* | 0.025 (0.02) | 0.065 (0.03)* |
| ELECT*New Democratic | -0.262 (0.18) | 0.094 (0.13) | 0.084 (0.06) | 0.055 (0.05) | -0.074 (0.02)* | -0.012 (0.03) |
| ELECT*Liberal | 0.032 (0.10) | -0.011 (0.08) | 0.053 (0.05) | -0.043 (0.04) | -0.075 (0.02)* | -0.074 (0.03)* |
| ELECT*Conservative | -0.152 (0.11) | 0.012 (0.07) | -0.088 (0.03)* | -0.028 (0.01)* | -0.034 (0.01)* | 0.002 (0.02) |
| ELECT*Social Credit | -0.293 (0.19) | 0.129 (0.17) | -0.072 (0.08) | -0.088 (0.03)* | -0.031 (0.04) | -0.210 (0.05)* |
| Mean of dependent variable | 0.266 | 0.117 | 0.112 | 0.040 | -0.007 | 0.004 |
| SEE | 0.914 | 0.711 | 0.332 | 0.246 | 0.147 | 0.204 |
| R^2 | 0.15 | 0.16 | 0.21 | 0.20 | 0.24 | 0.23 |
| Test 1 | 74.31† | 49.92† | 50.22† | 59.44† | 53.58† | 31.44† |
| Test 2 | 17.94† | 16.92† | 28.45† | 3.00 | 26.62† | 20.06† |
| Test 3 | 28.30† | 5.59 | 7.40 | 45.46† | 5.18 | 8.52 |

Notes: $N = 290$. Standard errors are in parentheses. Asterisks denote coefficients that are significantly different from zero at the 5% (*) and the 10% (**) levels. Test 1 is test of the null hypothesis that the response of revenues to the business cycle is equal across provinces. Test 2 is test of the null hypothesis that the degree of persistence in revenues is common across provinces. Test 3 is a test of the null hypothesis that the response of revenues to the recent accumulation of provincial debt is common across provinces. The reported regression coefficients come from the model specification determined by the results of these tests at the 5% level. Daggers denote rejection of the null hypothesis at the 5% (†) and the 10% (‡) levels.

tax revenues or for the residual category, Other Own Source Revenues. This despite the fact that these two categories made up an average of 67% of total provincial revenue. Partisan effects are most common for Other Consumption Taxes (which include provincial retail sales taxes) and the Corporation Income Tax, two categories that make up an average of less than 23% of provincial revenues. This is especially true during elections. Thus, Canadian provincial parties were not only relatively homogeneous in their choices regarding discretionary changes in revenue, but what partisan influences existed were concentrated in relatively minor revenue categories.

In Table 2 we saw that all four parties exhibited opportunistic behaviour with respect to total revenues. Table 6 shows that only in the residual category, Other Own Source Revenue, was opportunistic behaviour not observed. In the other four revenue categories, there are 9 statistically significant opportunistic responses. In every case, the response was in the same

Table 6. Tests on political influences on discretionary changes to provincial revenues.

| | Δ Total Revenue | Δ Other Own Source Revenue | Δ Personal Income Tax | Δ Other Consumption Taxes | Δ Gas & Sin Taxes | Δ Corporation Income Tax |
|--------|----------------------------|-----------------------------------|------------------------------|----------------------------------|--------------------------|---------------------------------|
| Test 1 | | | | | | |
| | (a) NDP = LIB? | | | Reject† | Reject‡ | Reject† |
| | (b) PC = SCP? | | | | Reject‡ | |
| | (c) NDP = SCP? | | | | Reject‡ | |
| Test 2 | | | | | | |
| | (a) NDP*ELECT = LIB*ELECT? | | | Reject‡ | | Reject† |
| | (b) PC*ELECT = SCP*ELECT? | | | Reject‡ | | Reject† |
| | (c) NDP*ELECT = SCP*ELECT? | | | Reject‡ | | Reject† |
| Test 3 | | | | | | |
| | Party = Elect*Party? | NDP†, LIB†, PC†, SCP† | LIB†, PC†, SCP† | PC†, SCP† | NDP†, LIB† | LIB†, SCP† |

Notes: Test 1 is a test for partisan effects during non-election years. Test 2 is a test for partisan effects during election years. Test 3 is a test for opportunistic effects. Daggers denotes rejection at the 5% (†) and the 10% (‡) levels. For test 3, only parties for which we reject the null hypothesis are reported.

direction; in response to an election, and all else being equal, less revenue was collected than in non-election years.¹² The opportunistic responses with respect to discretionary revenue choices have, therefore, been quite different from the discretionary expenditure response, where the opportunistic responses were mixed.

As with government expenditures, it is possible to subjectively characterize the revenue categories along the two dimensions of “visibility” and “identifiability.” With respect to the latter, in Canada, all of the revenue sources are shared between provincial and federal governments. However, and perhaps arguably, it is easier to disentangle identifiable responsibility for some revenue categories more than others. Of the four distinct revenue categories, the easiest to identify directly with provincial governments are Other Consumption Taxes, which includes provincial retail sales taxes. Gas and Sin Taxes are levied separately by both levels of government, and may therefore be considered quite visible, though perhaps to a lesser extent. Personal and Corporate Income Taxes may be considered to be somewhat less identifiable by level of government. In the case of personal income taxes this is due in part to the “tax on tax” approach followed by the provinces.¹³ Visibility is also difficult to ascertain. Other Consumption Taxes are very transparent, being levied separately and identifiably on each transaction. Gas and Sin Taxes are explicitly hidden, as the goods to which they are applied are priced on a tax-in basis. Although *statutory* personal and corporate tax rates are quite visible, the complexity of these systems due to various credits, write-offs, etc., render them, in our view, less visible and transparent. Thus, in terms of the two dimensions discussed above, we might expect Other Consumption Taxes to be the most visible and identifiable of the various revenue categories. In any event, as discussed above, our results suggest that there is no tendency for provincial governments to rely more or less on any of these revenue sources for opportunistic purposes.

Finally, not shown in the tables is the effect of the cyclical and debt accumulation variables. With respect to the latter, debt accumulation elicited a discretionary revenue increase in Gas & Sin taxes in all provinces, but these responses were economically small. Beyond that, we found only statistically significant discretionary tax increases in the Other Consumption Taxes category but in only four provinces (Newfoundland, Prince Edward Island, New Brunswick and British Columbia). Thus, the provinces have been more inclined to respond to debt pressures on the expenditure side of the budget (by decreasing expenditures) than on the revenue side of the budget (by increasing revenues).

In sum, unlike government spending, there is much more homogeneity in the opportunistic behaviour of governments across both parties and revenue categories. Virtually all parties engage in opportunistic behaviour by lowering revenues in election years relative to non-election years in virtually every revenue category. Moreover, there is no evidence of opportunistic cycles in the revenue mix.

V. Summary and Concluding Remarks

This paper investigates whether opportunistic and partisan patterns appear in the fiscal policy choices of Canadian provincial governments. We argue that the finances of Canadian provinces offer an excellent laboratory in which to investigate the presence of opportunistic and partisan effects in fiscal policy instruments. This is so because of the common monetary

and exchange rate regimes in which provinces operate, and the common legislative, electoral, and social institutions in which Canadian provincial governments formulate policy. Thus, unlike studies using country data, we are able to control for institutions and economic conditions that have been found in the literature to play an important role in determining fiscal policy choices.

Aside from the examination of political influences at the sub-national level, there are two other unique aspects of the study. The first is the investigation of partisan and opportunistic behaviour at a disaggregated level, in terms of spending and revenue sub-categories. The second is the investigation of partisan effects at the party level, rather than across a rough left-versus right-wing dichotomy, and the allowance for interactive effects between partisan and opportunistic influences; thus, we allow for partisan influences in opportunistic behaviour.

One of our key results is the finding of a clear electoral cycle in provincial revenues. In election years, the predilection of provincial governments of all political stripes to increase taxes is temporarily halted. This response is fairly widespread across the revenue categories we examined and across all political parties.

Opportunistic responses with respect to provincial spending are equally widespread but the direction of the response is less homogeneous across political parties. The prevailing tendency is to decrease spending in Health, Social Services and Industrial Development in election years vis-à-vis non-election years, while spending in Education, Transportation and Communication, and Recreation and Culture increases in election years versus non-election years. These results are, we think, quite suggestive when viewed through the lens of Rogoff's (1990) version of the signalling model. Our interpretation of the predictions of that model within the context of this study is that provincial governments will be more likely to increase expenditures in election years in areas that are visible and identifiable as the responsibility of the provincial government. A rough, and admittedly subjective, ranking of the spending categories along these two dimensions suggests that Education, Transportation and Communications, and Recreation and Culture (schools, roads, and hockey rinks) are all both highly visible and clearly identifiable as provincial government responsibilities. On the other hand, Social Services (welfare) ranks low along both of these dimensions, Industrial Development (business subsidies) ranks low in terms of visibility, and Health (hospitals), while likely quite visible, is a shared responsibility that is not clearly identified with the provinces. These results fit surprisingly well with the caricature of the opportunistic politician building roads, hockey rinks and schools just prior to elections. Interestingly, while the composition of spending differed in election relative to non-election years, aggregate spending did not generally change in response to elections.

The lack of an opportunistic response in aggregate spending coupled with the opportunistic response toward lowering tax revenues combine to produce an opportunistic response in the direction of larger primary deficits in election years. This is suggestive of the presence of an overall political debt cycle.

We find partisan differences to be relatively muted for aggregate revenue and across revenue categories. Partisan effects show up in Other Consumption Taxes (sales taxes) more often than any other revenue source. We find no evidence that the largest revenue source for the provinces, the personal income tax, is linked to partisan differences.

Although not a focus of our study, we also find that provincial governments respond to fiscal pressure arising from recent debt accumulation by cutting program spending rather than

by increasing taxes. This response is widespread across spending and revenue categories. One interpretation of this result is that when faced with a deficit crunch, across-the-board cuts to spending that affect all political constituencies more or less equally are preferred to targeted cuts that affect only a few. The lack of revenue response in the face of a recent accumulation of debt may reflect the relatively high tax burden in Canada throughout the study period. This is certainly an area worthy of future research.

While our empirical investigation provides support for the presence of opportunistic and partisan cycles in fiscal policy, both independently and interactively, it suggests that these regularities may be much more complicated than previously thought. Investigating the source and nature of these complexities merits further research, both empirically and theoretically.

Data Appendix

Provincial government data on expenditures and revenues are from CANSIM matrices 2782 through to 2791. These data are fiscal year (ending March 31st) and measured in millions of nominal dollars.

We aggregated two series contained in the CANSIM data set ('Motive Fuel Taxes' and 'Alcohol and Tobacco Taxes') to form our series 'Gas & Sin Taxes.' Our series 'Other Consumption Taxes' was created by subtracting 'Motive Fuel Taxes' and 'Alcohol and Tobacco Taxes' from CANSIM category 'Consumption Taxes.'

Data on the Canada-U.S. nominal exchange rate is from CANSIM series B3400. This is a monthly series which we converted to a fiscal year basis. The short-term real interest rate is constructed using the 90 day federal treasury bill rate (series B14060) and a measure of the observed rate of consumer price inflation in each province. This is a monthly series that was converted to a fiscal year basis. Thus the interest rate is an *ex post* real interest rate. Provincial rates of inflation are derived from the all-items CPI for each province. Data for 1966–1992 are from Statistics Canada catalogue 62-010. Data for 1992–1997 is from CANSIM series D28627, D28648, D28669, D28690, D28711, D28732, D28753, D28774, D28795, and D28816. These CPI data are calendar year data. They were converted to a fiscal year basis using the formula $CPI_{FY,t} = 0.25 * CPI_{CY,t} + 0.75 * CPI_{CY,t-1}$.

Provincial unemployment rates are calculated from provincial labour force and employment data from Statistics Canada catalogue 13-213. Provincial GDP data are from the same source. GDP and unemployment rates are calendar year series converted to a fiscal year basis in the manner used to convert CPI data.

Data on election years and on the number of seats in provincial legislatures by political party are from the *Canadian Parliamentary Guide*. If an election occurred in the first half of fiscal year t (between April 1st and September 30th), the ELECT dummy variable was set equal to zero in fiscal year t and set equal to one in fiscal year $t - 1$. If the election occurred in the second half of fiscal year t (between October 1st and March 31st), the ELECT dummy was set equal to one in that fiscal year. The reasoning behind this decision rule was to allow sufficient time for opportunistic behaviour to occur. Thus if an election takes place in the first half of the fiscal year we assume that the opportunistic behaviour (if any) took place in the previous fiscal year.

LEFT and RIGHT are dummy variables equal to unity if a left-wing (right-wing) government was in government. Left-wing governments were defined as governments controlled by the Liberal or the New Democrat parties. Right-wing governments were defined as governments controlled by the Progressive Conservative or Social Credit parties. LIB, NDP, PC, SCP are dummy variables identifying Liberal, New Democrat, Progressive Conservative and Social Credit governments, respectively. Two political parties unique to the province of Quebec, the Parti Québécois and the Union Nationale, were included with NDP and SCP governments, respectively. Each of these dummy variables was set equal to unity if that political party was in power for all or most of the first half of the fiscal year (April 1 to September 30). This decision rule reflects an assumption that budget choices are made early in the fiscal year. Thus the party controlling the first half of the fiscal year likely determines (or is mainly responsible for) choices for the whole of the fiscal year.

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Notes

1. Reid (1998) finds no evidence of endogenous election timing for Canadian provinces. Thus in our empirical analysis, we treat the timing of elections as exogenous and independent of the economic conditions.
2. Most models cannot rule out a pooling equilibrium, where by there is no signalling, without the imposition of more stringent assumptions.
3. Rogoff's (1990) model has only two types of incumbents, the competent and incompetent. In his separating equilibrium, competent incumbent governments distort fiscal choices in election years while incompetent governments do not.
4. Data sources and the definitions of variables are provided in the appendix.
5. The ten Canadian provinces, from west to east, are: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland.
6. We experimented with various time trends to no effect.
7. The exact method for defining the dummy variables is left to the appendix.
8. Because we have included in matrix $D_{j,t}$ dummy variables representing all political factions, we omit an independent intercept term from equation (1).
9. Partisan effects in total revenues are not totally absent however. We can reject the null hypothesis that Progressive Conservative governments make the same choices as Liberal governments and that Progressive Conservative governments make the same choice as New Democratic governments.
10. In Kneebone and McKenzie (1998), we find substantial differences across provinces in how the business cycle affects provincial budgets. See Reid (1998) for a study of partisan and opportunistic effects that assumes a common cyclical response across provinces.
11. In their study of fiscal policy differences between governors at the end of their term limit and those that could run again, Besely and Case (1995) also find evidence of partisan influences in opportunistic behaviour. Specifically, they identify opportunistic behaviour on the part of Democrat governors but not Republican governors.
12. In 5 of these 9 cases, less tax revenue was taken in election years when in non-election years more revenue was collected. In 2 cases, less revenue is taken in election years when in non-election years revenue was not

- changed. In the other 2 cases, less revenue was taken than in a non-election year, but this was accomplished by holding tax revenue constant during the election when normally more revenue would have been collected.
13. Under this approach, the provincial taxes are determined as a percentage of the federal tax liability, as opposed to being levied separately on the same (or similar) base.

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