

Opinion Representation and Policy Feedback: Canada in Comparative Perspective

STUART N. SOROKA *McGill University*
CHRISTOPHER WLEZIEN *Oxford University*

Perhaps the primary concern of empirical democratic theory is the relationship between public preferences and public policy. Scholars have stressed the importance of ‘responsive rule’—the correspondence between citizens’ preferences and government actions—in democratic governance (see, e.g., Pitkin, 1967; Dahl, 1971; Saward, 1994). Yet scholars have also questioned whether citizens are sufficiently informed and/or reactive enough to play a role in governing the state (Plato’s *Republic*; Mill, 1861; Lippmann, 1925; Schumpeter, 1950; Converse, 1964; Page and Shapiro, 1992; Dahl, 1998). This work highlights the importance of the interrelationships between public opinion and policy, both from opinion to policy and from policy to opinion itself. It implies that those interested in studying democracy should be concerned with *policy representation*—whether and how policy follows public preferences—and *public responsiveness*—whether preferences react to policy as well as to real-world developments.

There already is a large and growing body of work on the correspondence between public opinion and policy behaviour (e.g., Miller and

Acknowledgments: A previous version of this paper was presented at the Annual Meeting of the Canadian Political Science Association, Halifax, May 29–June 1, 2003. Portions also were presented at the Annual Meeting of the American Political Science Association, Philadelphia, August 28–31, 2003, and at the Juan March Institute, Madrid. We are grateful to Environics and Pollara for making their public opinion data available, and to Terry Moore and Graham Lyttle at Statistics Canada for their help with Canadian budgetary data. We also thank Keith Banting, Jose Maria Maravall, Juan Ramon Montero, James Stimson and, especially, Robert Shapiro for their comments and advice. We also thank the two excellent anonymous JOURNAL reviewers.

Stuart N. Soroka, Department of Political Science, McGill University, Montréal, Québec H3A 2T7; stuart.soroka@mcgill.ca
Christopher Wlezien, Nuffield College, University of Oxford, Oxford OX1 1NF, United Kingdom; Christopher.Wlezien@nuf.ox.ac.uk

Canadian Journal of Political Science / Revue canadienne de science politique
37:3 (September/septembre 2004) 531–559

© 2004 Canadian Political Science Association (l’Association canadienne de science politique)
and/et la Société québécoise de science politique

Stokes, 1961; Weissberg, 1976; McCrone and Kuklinski, 1979; Monroe, 1979; Bartels, 1991; Page and Shapiro, 1992; Hartley and Russett, 1992; Erikson et al., 1993; Goggin and Wlezien, 1993; Jacobs, 1993; Stimson et al., 1995; Wlezien 1996a; Wood and Hinton-Anderson, 1998; Hill and Hurley, 1998; Smith, 1999; Sharpe, 1999; Erikson et al., 2002; Soroka, 2003; Eichenberg and Stoll, 2003; Wlezien, 2004; Soroka and Wlezien, N.d.).¹ And work on 'thermostatic' models of the opinion-policy relationship suggests not just that policymakers respond to the public, but that the public adjusts its preferences over time in reaction to policy change (Wlezien, 1995, 1996a; Soroka and Wlezien, N.d.). This work is important. Narrowly conceived, it suggests that policymakers are attentive to public preferences and that the public is aware of and reactive to policy change, at least in certain domains. More broadly conceived, it offers empirical evidence on the nature and quality of representative democracy.

Unfortunately, longitudinal empirical research on the opinion-policy link has for the most part been restricted to the United States (US).² A wider application of this line of research could provide valuable insights into how representation varies across political systems and issue areas, however. Indeed, work using an opinion-policy *congruence* approach has already flagged some potentially significant differences across domains and, to a lesser extent, countries (Brooks, 1987, 1990; Monroe, 1979, 1998; Petry, 1999; Petry and Mendelsohn, 2004; Powell, 2000; see also Miller and Stokes, 1963). Such differences in representation across countries may be linked to institutional factors. (So too may differences in public responsiveness, though this has received even less attention in past work.) There is reason to suspect that electoral institutions are important, for instance (Lijphart, 1999; Powell, 2000). Government institutions may matter, such as the relative power of the executive versus the legislature. Highlighting differences in the opinion-policy link and connecting these with institutional differences may offer crucial information on the comparative effectiveness of democratic institutions and policy-making structures.

The current paper takes another step towards a comparative study of the dynamic inter-relationships between public preferences and budgetary policy. Using a new body of data on public opinion and government spending, we extend our own previous research on the dynamics of spending opinion and policy in the US and the UK to Canada. Specifically, we explore (1) public responsiveness—the degree to which the public responds 'thermostatically' to public expenditures, and (2) policy representation—the extent to which budgetary decisions reflect public preferences for spending. In the course of our analyses, we also consider the *nature* of responsiveness and representation, that is, whether the public and policymakers respond to information that is specific to

Abstract. Work exploring the relationship between public opinion and public policy over time has largely been restricted to the US. However, a wider application of this line of research can provide valuable insights into whether and how representation varies across political systems. This paper takes a step in this direction using a new body of data on public opinion and government spending in Canada. Analyses reveal that the Canadian public notices and responds (thermostatically) to changes in public spending in particular domains, and also that Canadian policymakers represent these public preferences in spending. The extent and nature of public responsiveness and policy representation varies across domains. Relationships are more pronounced in certain domains, and they are more ‘specific’ in some domains and more ‘global’ in others. The findings generally accord with the results of similar work in the US and the UK, although the details differ in important ways. Indeed, the differences are strongly suggestive about the structuring role of institutions.

Résumé. Les travaux portant sur la relation entre l’opinion publique et les politiques publiques se sont longtemps limités surtout aux États-Unis. Cependant, l’élargissement de cette piste de recherche peut fournir de précieuses connaissances sur les variations de la représentation au sein des systèmes politiques. Cette étude s’oriente dans cette direction en utilisant un nouveau corpus de données sur l’opinion publique et les dépenses du gouvernement au Canada. Les analyses révèlent que, dans certains domaines, la population canadienne observe les changements liés aux dépenses publiques et y réagit (de façon thermostatique) et que les décideurs canadiens traduisent les préférences de la population dans les dépenses. La portée et la nature de la réceptivité de la population ainsi que la représentation des politiques varient d’un domaine à l’autre. Les connexions sont plus étroites dans certains domaines, plus « spécifiques » dans d’autres et enfin, plus « globales » dans d’autres encore. En général, les résultats sont en accord avec ceux des travaux similaires menés aux États-Unis et au Royaume-Uni, malgré des différences importantes sur certains points de détail. En fait, les différences sont très évocatrices du rôle structurant des institutions.

particular domains, or rely on more ‘global’ information from across the different domestic domains.

The results are interesting, especially in a comparative context. As in the US and the UK, the Canadian public appears to respond thermostatically to changes in public spending, and Canadian policymakers appear to respond to public preferences. The underlying details are not the same, however, and the pattern of results across the three countries is suggestive about the structuring role of institutions. Before telling you where we end up, let us show you how we get there. We begin with our theoretical model of opinion and policy.

The Thermostatic Model of Opinion and Policy

The representation of public opinion in policy presupposes that the public notices and responds to what policymakers do. Without such responsiveness, policymakers would have little incentive to represent what the public wants. Indeed, public preferences would contain little meaningful information. There not only would be a limited basis for holding politicians accountable; expressed preferences would be of little

use even to those politicians motivated to represent the public for other reasons.

A responsive public behaves much like a thermostat (Wlezien, 1995).³ That is, the public adjusts its preferences for 'more' or 'less' policy in response to what policymakers do. When policy increases (decreases), the preference for more policy decreases (increases). For expository purposes, the public can be viewed as a collection of individuals distributed along a dimension of preference for policy activity, say, spending on defence. This characterization is not meant to imply that individuals have specific preferred levels of spending in mind; rather, it is intended to reflect the fact that some people want more than others. The public preference can be represented by the median along the dimension, which implies a certain 'ideal' level of defence spending.

Now, if the level of policy differs from the level the public prefers, the public favours a corresponding change in policy—basically, either more or less. If the preferred level is greater than policy itself, the public favours more spending than currently is being undertaken. If policymakers respond, and provide more funding—but not too much more—for defence, then the new policy position would more closely correspond to the preferred level of spending. And if the public is indeed responsive to what policymakers do, then the public would now not favour, as much, more activity on defence. It might still favour more, on balance, but not as substantially as in the prior period; if policymakers overshoot the public's preferred level of spending, it would favour less. In effect, following the thermostatic metaphor, a departure from the favoured policy temperature, which itself can change, produces a signal to adjust policy accordingly, and once sufficiently adjusted, the signal stops.⁴

These expectations can be expressed formally. The public's preference for 'more' policy—its relative preference, R —represents the difference between the public's preferred level of policy (P^*) and the level it actually gets (P):

$$R_t = P_t^* - P_t \quad (1)$$

Thus, as the preferred level of policy or policy itself changes, the relative preference signal changes accordingly. The public is expected to respond currently to actual policy change when put into effect (at t). This is straightforward, at least in theory. It is less straightforward in practice.

Most importantly, we typically do not directly observe P^* . Survey organizations generally do not ask people how much policy they want. Instead, these organizations ask about relative preferences, whether we are spending 'too little,' whether spending should 'be increased,' or whether we should 'do more.' This, presumably, is how people think about most policies. (Imagine asking people how much health or edu-

cation spending they want.) The public preference, however defined, also is necessarily relative. This is actually quite convenient, as we can measure the thermostatic signal the public sends to policymakers. Because we must rely on proxies for P^* —and also because metrics of each variable in the model will differ—it is necessary to rewrite the model of R_t as follows:

$$R_t = a_0 + \beta_1 P_t + \beta_2 W_t + e_t, \quad (2)$$

where a_0 and e_t represent the intercept and the error term, respectively, and W designates the indicators of the public's preferred level of policy. Notice that levels of relative preferences are expected to be associated with current (time t) levels of policy; if the thermostatic model applies, the coefficient (β_1) relating the two would be less than 0.

Now, if policymakers are responsive to these public preferences, *changes* in policy (ΔP) will be associated with lagged *levels* of the public's relative preference (R), as follows:

$$\Delta P_t = a_1 + \beta_3 R_{t-1} + \beta_4 Z_{t-1} + \mu_t, \quad (3)$$

where a_1 and μ_t represent the intercept and the error term, respectively, and Z represents the set of other determinants of policy. The coefficient β_3 captures responsiveness, where the effect of preferences on policy is independent of other factors; if the coefficient is greater than 0, policy 'responds' to preferences.⁵ Notice that the change in expenditure for fiscal year t is modelled as a function of net support in year $t - 1$. This specification is not meant to imply that policies do not respond to current opinion; rather, it is intended to reflect the reality of budgetary decision making, which largely happens over the course of the previous fiscal year (see Wlezien, 1996b; Wlezien and Soroka, 2003). Thus, the specification captures responsiveness to opinion when most budgetary decisions are made.

These expectations are very general ones and we do not expect the model to apply in all policy domains in all countries. Indeed, public and policy responsiveness is likely to reflect the political importance (or 'salience') of the different domains, if only due to possible electoral consequences.⁶ Following Wlezien (2004), we might expect the pattern of representation to be symmetric to patterns of public responsiveness: where the public notices and responds to policy in a particular domain, policymakers will notice and respond to public preferences themselves; where the public does not respond to policy, policymakers will not represent public preferences. This structure fits well in the US, less well in the UK. There, we observe pervasive and specific public responsiveness and more limited and general policy responsiveness (Soroka and Wlezien, N.d.). Now, let us see how things work in Canada.

The Data

Relative Preferences for Policy

Environics has frequently asked the Canadian public about their preferences for spending, using a similar question to that employed in the US and the UK. The question is as follows: “Keeping in mind that increasing services could increase taxes, do you think the federal government is spending too much, just the right amount, or should be spending more on each of the following ... [i.e., defence]?” Respondents are asked about spending in up to 18 categories in a given survey. Those categories that have been included consistently for an extended period and for which budgetary data are readily available are: defence, welfare, education, health care, environmental protection and transportation. Following previous research, we create percentage difference measures by subtracting the percentage of people who think we are spending ‘too much’ from the percentage of people who think we are spending ‘too little’ in each domain. The resulting measures of ‘net support’ thus capture the degree to which the public wants more or less spending over time—they capture both direction and magnitude. We rely on results from Environics for all years in which data are available; for fiscal year (FY) 1996–97, we ‘link’ results from a similar question asked by Pollara. Complete details are provided in the appendix.

Budgetary Policy

Unlike the US federal government, the Canadian government does not provide data on appropriations of budget authority at any level of aggregation. What is readily available are data on actual expenditures. And although expenditures surely are important, they are not policy *per se*. That is, elected politicians have only limited control over what is actually spent, which may reflect things that they can’t anticipate or manage.⁷

We nevertheless are thankful that reliable data are available from Statistics Canada for expenditures by function back to FY1988–89. Most importantly for our purposes, these data are functionally consistent over time—yearly changes reliably reflect changes in functional spending rather than changes in functional definitions.⁸

Another now-discontinued Statistics Canada matrix contains functional spending data from FY1965–66 to FY1994–95. These data are also functionally consistent over time, but use slightly different definitions than the current series.⁹ Directly merging the data without any manipulation would create a strange punctuation in FY1988–89 for many series. Accordingly, in lieu of a single matrix that covers the entire period we are studying, we merge the two datasets as follows: the percentage

difference from FY1988–89 to FY1987–1988 is calculated based on the old series, and this percentage change is then applied to the new series. This is repeated back to FY1984–85, the first year for which we have public opinion data. The pre-FY1988–89 data are used only intermittently in forthcoming analyses, due to the (un)availability of public preferences data; these analyses should be regarded as preliminary, however, given our estimation of spending series for this early period.

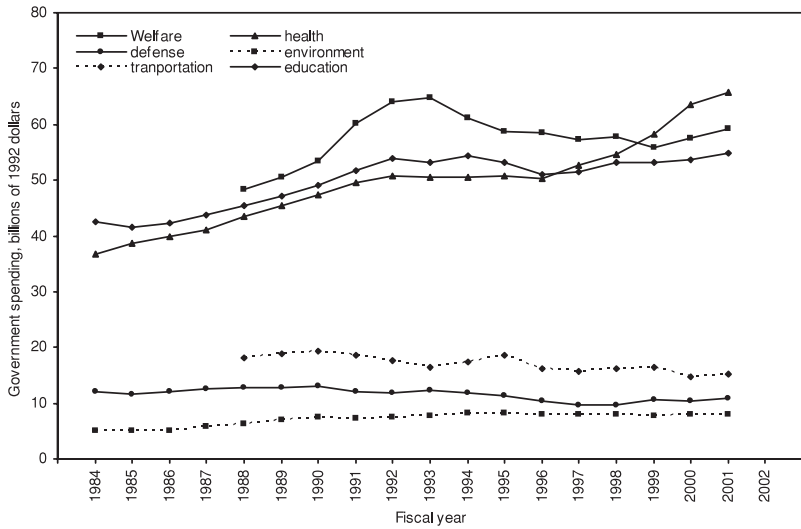
A second issue in measuring budgetary policy in Canada is whether to use federal spending or consolidated federal, provincial and local spending. The survey questions we rely on for public preferences ask about the *federal* government; we nevertheless rely on consolidated spending measures for all domains except defence, where all spending is federal. Our use of consolidated spending is based on measurement. The nature of funding in most major policy domains in Canada is such that federal spending estimates are quite poor measures of federal budgetary policy. More precisely, federal spending estimates do not include general- or combined-purpose transfers from the federal to provincial governments. This is a particular problem in social policy domains, where a vast majority of federal funding occurs via transfers such as the Canada Health and Social Transfer (CHST)—transfers that are entirely excluded from federal spending figures. As a consequence, budgetary policy in these domains can *only* be accurately measured using consolidated spending data. Our data thus reflect a combination of federal and provincial policy making, which is important to keep in mind in the analyses that follow.

Consolidated spending is available for all functions and some sub-functions from FY1988–89 to FY2001–02, and for all functions before FY1988–89. Some of our spending series are based on general functional classifications, and so can be estimated using the procedure outlined above from FY1984–85 to the present. Other series rely on data derived from a combination of functional and subfunctional estimates. These data are available only back to FY1988–89. The exception is the (subfunctional, federal) defence spending series, which was made available to us by Statistics Canada, and which runs from FY1965–66 to the present. Complete details of our spending data are available in the appendix.

A Basic Analysis of Structure

The resulting spending and preferences data are illustrated in Figure 1. In Figure 1A, we can see that spending on different functions cluster together. A lot more is spent on some programs—health, welfare and education—than others—defence, the environment and transportation. The former also show more variance over time, and the latter change more

FIGURE 1A
Spending, by Function

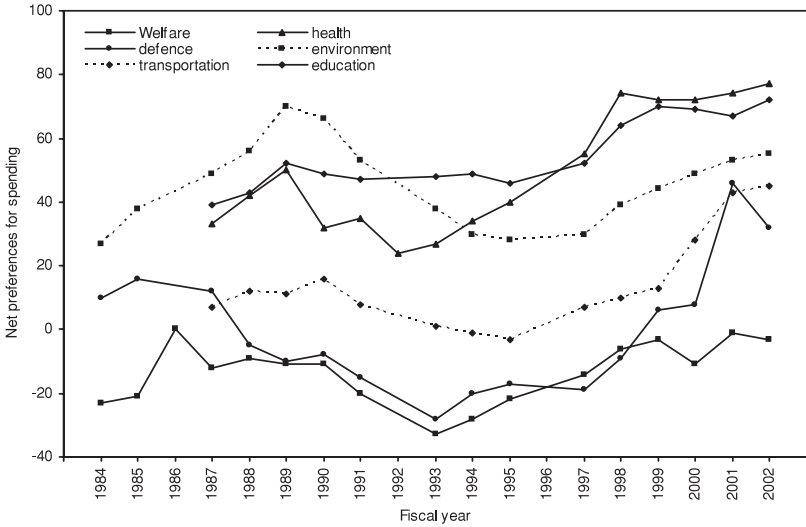


deliberately. Spending in all of the domains does tend to trend upward over time, documenting a well-known pattern of government growth. Most programs do grow faster in some periods than in others, however; in some periods, spending actually shrinks, at least in real dollars. Preferences for spending (in Figure 1B) exhibit a similar structure. Indeed, preferences for more spending tend to be higher for the exact same set of programs, namely, health, welfare and education. Preferences in all of the various domains—including defence—track together over time. Indeed, preferences appear to be surprisingly ‘global’ in comparison to the US and the UK.

Factor analyses reported in Table 1 confirm these patterns and provide additional detail. The analysis of expenditures in Table 1A reveals a guns-butter tradeoff, consistent with what we find in the US and the UK (Wlezien, 2004; Soroka and Wlezien, forthcoming). That is, defence spending is negatively related to spending in the domestic domains, which tend to load (positively) together in the first factor. The one domestic exception is transportation, for which we have no perfect explanation—it is not ‘social’ spending, but then again neither is spending on the ‘environment,’ which loads positively. Regardless, the pattern does describe the realities of policymaker behaviour during the period under study, at least in a very general way.

Interestingly, the analysis of preferences in Table 1B shows that the guns-butter tradeoff evident in spending is not apparent in public prefer-

FIGURE 1B
Net Preferences, by Function



ences. Instead, preferences in all domains are positively related over time. This may be a function of the time period for which we have opinion data.¹⁰ Regardless, the pattern indicates that preferences for spending in *all* domains have tended to move in the same liberal-conservative direction since 1989. There thus appears to be a certain ‘global’ movement of

TABLE 1A
Factor Analysis, Spending

	Factor	
	1	2
Defence	-.774	.453
Education	.906	.371
Environment	.824	.230
Health	.839	-.296
Transportation	-.819	.457
Welfare	.666	.671
Eigenvalue	3.916	1.143

N = 14.

Results are based on a principal components factor analysis, unrotated.

TABLE 1B
Factor Analysis, Preferences

	Factor	
	1	2
Defence	.887	.135
Education	.837	-.433
Environment	.427	.854
Health	.880	-.418
Transportation	.928	.130
Welfare	.886	.141
Eigenvalue	4.089	1.147

N = 14.

Results are based on a principal components factor analysis, unrotated.

opinion that may drive politicians' behaviour in various policy domains (Stimson et al., 1995). The intercorrelations, even across the purely 'social' domains, are much larger than what we have observed in the US and the UK (Wlezien, 2004; Soroka and Wlezien, N.d). This is of real consequence for our analysis, as we will see.

It also is clear from the factor loadings that the structure of preferences for spending is not perfectly unidimensional. That is, each of the preference series exhibits variance over time that is specific to the particular domains. By inference from the factor loadings, the minimum proportion of variance that is specific ranges from 14 per cent in the case of transportation to 82 per cent in the case of the environment. The median is 22 per cent.¹¹ This also is of consequence for the analysis that follows, as it makes possible specific policy responsiveness in each of the different spending domains.

The Analysis

Public Responsiveness

Recall that the thermostatic model implies that the public's relative preference for policy (R) is the difference between the public's preferred level of policy (P^*) and policy (P) itself. Now, we have available measures of R and P , at least in six spending domains in Canada. We do not, however, have measures of P^* in these domains, as noted earlier in the paper. It thus is necessary to rely on proxies. Previous research is a useful guide.

We know that public preferences for defence spending in the US have closely followed perceived variation in national security over time. Specifically, preferences have reflected the 'likes' and 'dislikes' of the Soviet Union/Russia (Wlezien, 1995, 1996a). There is reason to expect a similar pattern to hold in Canada. The problem is that we do not have comparable measures of sentiments toward Russia. However, if the measure from the US provides a reliable indication of the actual security threat from the Soviet Union during the period under study, or broad public perceptions of that threat, then it should work equally well in the Canadian context.¹² Thus, we have relied on the US measure. Our measure of Net Dislike represents the percentage of Americans who dislike Russia minus the percentage who like the country. The data are drawn from the General Social Survey. Other sources of threat may be more relevant during the period under study, including the threat associated with September 11, 2001, and its aftermath. This is difficult to measure in any general way but nevertheless easy to control for in the particular years.

Identifying specific variables to indicate underlying preferences in each of the different domestic domains is much less straightforward. We nevertheless know that preferences in these areas do exhibit common movement, and previous research indicates that it follows variation in economic security over time. It is not clear exactly what effect the economy has, however, as the findings of different studies differ quite a lot: economic security is positively related to spending opinion in some studies (Durr, 1992) and negatively in others (Erikson et al., 2002). The studies do rely on different measures: business expectations and unemployment rates, respectively. Still other research on public opinion relies on the sum of unemployment and inflation rates (Franklin and Wlezien, 1997). Following our work in the UK, we adopt the latter measure, commonly known as the 'misery index.'¹³ Specifically, the measure used here represents the average misery index in the current fiscal year.

Following the theoretical model in equation 2, the dependent variables used in the analyses of preferences represent the *levels* of net support for spending. To preserve precious degrees of freedom, we impute values when opinion data are missing using a straight linear interpolation. This allows preference time series of up to 17 years each, and has relatively little consequence for the general pattern of results; it really only serves to increase the estimated standard errors.¹⁴ The measures are regressed on corresponding levels of spending (in billions of 1992 dollars) and the proxies for the public's preferred level of spending.¹⁵ A linear counter variable is also included to account for any trend in the underlying preferred levels of spending over time, other things being equal (Wlezien, 1995). When significant, lagged net support is also included in the models.¹⁶ The results of estimating separate models of spending preferences for the six domains are shown in Table 2.

TABLE 2
Public Responsiveness, by Function

Independent variables	Dependent variable: net preferences _t ^a						
	Defence ^b	Welfare	Health	Education	Environment	Transport	
Spending (billions \$, 1992) _t ^c	3.968 (3.337)	-3.626* (1.835)	-1.242** (.482)	-.377 (1.109)	-.520 (.637)	-6.265** (2.545)	-1.941 (1.902)
Misery index _t	—	—	-.191 (1.577)	-4.481* (2.353)	-1.966 (1.247)	-3.770** (1.606)	-1.967 (1.425)
Net US dislike of Russia _t	.514** (.187)	.095 (.107)	—	—	—	—	—
Counter	3.277** (1.282)	—	1.110 (.777)	.174 (1.847)	-.033 (.887)	-.240 (.757)	-.445 (.788)
Constant	-31.691** (11.014)	-5.477** (2.386)	-7.038 (4.995)	35.007** (15.291)	43.490** (16.895)	49.049*** (8.954)	21.429*** (6.136)
Observations	17	18	14	14	14	17	14
R ²	.931	.890	.878	.871	.879	.858	.882
Adj R ²	.900	.854	.823	.813	.826	.811	.830
Durbin's h	.084	.078	-.708	-1.01	-.056	.137	-.056

Cells contain OLS regression coefficients with standard errors in parentheses. All variables are mean-centred.

^aModel includes lagged dependent variable (at $t - 1$).

^bIncludes a dummy variable for the post-9/11 period.

* $p < .10$; ** $p < .05$; *** $p < .01$.

Results in the first column indicate that defence spending preferences in Canada do closely follow the measures of net dislike for Russia observed in the US. The coefficient actually is larger than what we observe in the US and twice the estimated effect found in the UK. It thus appears that the public's underlying preferred levels of defence spending in Canada, as in the US and UK, appear to change in understandable ways.¹⁷ In direct contrast with what we see in the US and the UK, however, the coefficient for spending actually is positive but not significant. This implies that the Canadian public does not notice and respond to what policymakers do. Part of the problem may be extremely high levels of collinearity among the independent variables, where the bivariate correlations with spending are .73 and .83. Excluding the counter variable—for which the significant positive coefficient makes little sense without negative feedback—shifts things substantially.¹⁸ As can be seen in the second column, the coefficient for spending is now negative and significant, if only modestly so. At the same time, the estimated effect of net dislike is much lower and no longer significant. The results imply that the defence spending domain is only of modest importance to the Canadian public.¹⁹

Results for the domestic domains are more supportive of the thermostatic model. To begin with, note that effects of the misery index are consistently negative, if only significant for health and environment. When the misery index increases, the public favours less spending. This is exactly the opposite relationship of what we found in the UK, where the public wants governments to spend more during periods of recession. It is to some extent consistent with what we see in the US, however (Wlezien, 1996a).²⁰

Most importantly for our analysis, it appears in Table 2 that the public adjusts its preferences for more domestic spending in response to spending itself. That is, when spending goes up (down), preferences for 'more' spending go down (up), other things being equal. This is the crux of the thermostatic model. The negative coefficient on spending obtains in all domains, although its size and significance vary substantially. Only for welfare and environment can we conclude with much confidence that the public responds to changes in government spending over time (although analyses below reveal responsiveness in health as well).

The welfare spending coefficient in the third column of Table 2 implies that a one billion-dollar increase in spending produces a 1.2-point decrease in net support for more welfare spending. The environment spending coefficient implies a much greater effect from an identical increase in spending, a 6.3-point drop in preferences. These differences actually are quite understandable given the differences in the size and variance of spending in the two domains. For example, a one-standard deviation (4.6 billion dollars) increase in welfare spending leads to a 5.7-point decrease in preferences, on average, roughly the same as a one stan-

dard deviation (or 1.1 billion dollars) increase in environment spending, which produces a 6.7-point drop in preferences.

In the other domains, the evidence of public responsiveness is more tenuous. This is in sharp contrast with what we observe in the US and especially in the UK, where public responsiveness is pervasive across all domains. It nevertheless is clear that the Canadian public does respond thermostatically to changes in policy. In a forthcoming section, the extent and nature of this responsiveness will become clearer still. First, however, let us examine policy representation.

Policy Representation

Thus far, we have seen that the public responds to spending in Canada, although the responsiveness varies in significant ways. This is of obvious importance. However, we also want to know whether and to what extent politicians represent these preferences in policy itself. For this analysis, we build directly on recent 'political' models of policy change in the US (Stimson et al., 1995; Wlezien, 1996a, 2004; Smith, 1999) and the UK (Soroka and Wlezien, N.d.), which include measures of (relative) public preferences and party control of government.

Following equation 3, the dependent variables used in the analyses represent the first *differences* in spending (in billions of 1992 dollars) for each of the six spending categories. Recall that these changes in spending are expected to be positively related to the *levels* of net support for spending, which capture the public's relative preferences. Politicians are expected to respond promptly. In the budgetary context, this means that a change in spending for fiscal year t follows the level of net support in year $t - 1$, when the bulk of spending decisions for fiscal year t are made.

The party control variable is fairly standard and takes the value '1' under Liberal federal governments and '0' under Conservative federal governments. The measure thus taps the levels of partisan control, which might appear to be inconsistent with the (differenced) dependent variables. Given that budgetary policy feeds back in 'thermostatic' fashion on public preferences, however, the specification is actually theoretically implied (Wlezien, 2004). It is also supported by separate diagnostic analyses. As mentioned above, relying on consolidated spending data somewhat complicates the use of party control variables. Party control of the federal government is likely not an ideal predictor of party influence on consolidated (federal, provincial and municipal) expenditures. It is the best we can provide, however, and we include it here to test the extent to which federal partisanship is related to combined federal and provincial budgetary policy.²¹

In addition to preferences and party control variables, the model includes a measure of net public debt (in billions of 1992 dollars). It is

included based on the expectation that Canadian governments will tend to reduce spending in reaction to accumulated deficits, following comparative work by Blais, Blake and Dion (1993, 1996) and our own work in the UK (Soroka and Wlezien, N.d.). That debt is included in levels rather than changes suggests a particular kind of reaction—when the national debt remains high, governments are expected to continue to reduce spending, or at least not increase spending as much. The specification is supported by diagnostic analysis. In line with our spending estimates, we use net federal debt for defence and net consolidated debt otherwise. Including other ‘baseline’ variables such as unemployment and inflation does not meaningfully alter the results, except for welfare spending, where unemployment is a significant predictor.²² As for our models of preferences, we include the lagged level of spending when its effect is statistically significant (see also note 16). Otherwise, the analysis that follows largely relies on a simple model that includes measures of public preferences for spending, the party control of government, and the level of public debt.

Results of estimating the model for the six budgetary domains are shown in Table 3. The control variables act about as we predicted. The debt coefficient is negative in all domestic domains, although it is statistically significant only twice—for welfare and education. Liberal control of (federal) government is much less consistent in its effect, as we might expect given the use of consolidated spending figures. The party control of government appears to have made little difference, other things being equal.

Our central interest is in the public preference variables. In the first column notice that the link between defence spending preferences and actual spending is modest: the coefficient is positive but *just* misses conventional levels ($p = .10$) of significance. There thus is a strong hint of representation in the Canadian defence spending domain.²³ Although this is in clear contrast with the US and the UK, where responsiveness is highly reliable, it fits nicely with the analysis of Canadian public preferences, which shows only weak responsiveness to spending. Indeed, the result is exactly as we might expect.

For the other domains, the preference coefficient is positive in every case except transportation, and statistically significant twice, for welfare and health. A one-point increase in net preferences is associated with an average increase in consolidated welfare spending of about 348 million (1992) dollars and to a smaller 80 million (1992) dollar increase in consolidated health spending. Given that levels of spending in the two domains are about equal on balance, the differences are quite meaningful.²⁴

But why welfare and health? What about the other four domains? One possibility is that welfare and health are the more salient domains. This clearly seems the case for welfare, where we have seen clear evidence of public responsiveness. In this domain, therefore, responsive-

TABLE 3
Policy Representation, by Function

Independent variables	Dependent variable: changes in spending ^a (billions \$, 1992) _t					
	Defence	Welfare ^b	Health	Education	Environment	Transport
Net functional preferences _{t-1}	.026 (.015)	.348*** (.077)	.080*** (.022)	.029 (.038)	.007 (.008)	-.021 (.049)
Public debt (billions \$, 1992) _{t-1} ^c	-.681 (.670)	-.018* (.009)	-.004 (.007)	-.014** (.006)	-.001 (.001)	-.013 (.009)
Government (Lib = 1) _{t-1}	.003 (.003)	2.642 (2.304)	-.244 (1.575)	1.092 (1.427)	-.052 (.380)	2.421 (1.575)
Constant	.167 (.343)	-1.626 (1.457)	.139 (.949)	-.624 (.864)	.025 (.195)	-1.490 (1.017)
Observations	17	13	14	14	17	13
R ²	.215	.878	.623	.547	.218	.231
Adj R ²	.034	.816	.510	.410	.037	-.025
DW	1.984	2.537	2.686	1.785	1.645	2.435

Cells contain OLS regression coefficients with standard errors in parentheses. All variables are mean-centred.

^aFederal spending for defence, and Consolidated spending otherwise.

^bThe model includes a control for the level of unemployment.

^cFederal debt for defence, and consolidated debt otherwise.

*p < .10; **p < .05; ***p < .01.

ness and representation are symmetrical. It is less clear for health care, where we have not yet observed public responsiveness, but see the analyses to come. The environment domain is more troublesome. Here we see striking public responsiveness that is unmatched by policy representation.

*On the Nature of Responsiveness and Representation
in Different Domains*

Thus far, we have assumed that representation (and public responsiveness) is specific to domains. That is, politicians are expected to respond to public opinion within particular areas. This reflects the traditional characterization of representation (see, e.g., Monroe, 1979; Bartels, 1991; Page and Shapiro, 1992; Hartley and Russett, 1992; Geer, 1996; Sharpe, 1999). It may be, however, that representation is more general (see Stimson et al., 1995; Wlezien, 2004). We have already seen that preferences for spending and actual spending in the different domestic programs move together over time. Perhaps policymakers notice this common or 'global' movement and not the specific movement unique to the different domains. Perhaps the public likewise notices the changes in spending for the different programs taken together and not the changes that are particular to each domain. It is important to consider these possibilities.

One way to address these issues is to separate out the specific component of spending preferences (and spending itself) in the different areas from the common component that is shared across these domains. For expository purposes, let us focus on spending. The most direct measure of the common variance of spending comes from factor analysis of the five domestic domains. This gives us the domestic ('global') component. The specific component is simply the variance that is unique to each domain. To create a common metric, the domestic component of spending represents the predicted values from the pooled regression of by-domain spending on the underlying factor score. The domain-specific component consists of the residuals from this regression, i.e., the actual value of spending minus the domestic component.

By substituting the 'domestic' and 'specific' components of spending into the models of preferences, we can directly assess the focus of public responsiveness (Wlezien, 2004). If the public is responding to spending in particular domains, preferences will be about equally related to both components of spending; if the public is responding to domestic spending alone, preferences will only be related to the common component. An identical set of expectations applies on the spending side, of course. That is, we can substitute the 'domestic' and 'specific' components of preferences into the models of spending and directly assess the focus of policy responsiveness. The results of the analysis of preferences and spending are described in Tables 4 and 5, respectively.

TABLE 4
Assessing the Focus of Public Responsiveness, by Function

Independent variables	Dependent variable: net preferences _t				
	Welfare	Health	Education	Environment ^a	Transport
Global spending (billions \$, 1992) _t	-2.345** (.964)	-2.071** (1.018)	-2.548** (1.082)	-19.107*** (5.606)	2.296 (3.049)
Specific spending (billions \$, 1992) _t	-1.778* ^b (1.932)	1.606 (1.138)	.618 (1.734)	-1.301 (5.556)	-2.427 (1.756)
Misery index _t	1.855 (1.604)	-2.114 (1.941)	1.663 (1.734)	-2.269 (1.736)	-.400 (1.596)
Counter	2.548** (1.193)	4.324** (1.772)	3.896*** (1.133)	1.238 (.894)	1.093 (1.160)
Constant	-19.700* (7.035)	-23.737 (26.528)	33.169 (19.478)	35.468** (10.801)	9.605 (9.209)
Observations	14	14	14	14	14
R ²	.813	.926	.808	.934	.913
Adj R ²	.730	.893	.723	.893	.859
DW	1.609	2.449	1.458	-.430 ^c	2.588

Cells contain OLS regression coefficients with standard errors in parentheses. All variables are mean-centred.

* $p < .10$; ** $p < .05$; *** $p < .01$.

^aResults based on an estimated model that includes a lagged dependent variable.

^bThe coefficients for the global and specific components are not significantly different ($F_{1,9} = .11, p = .75$).

^cAs the model contains a lagged dependent variable, the statistic is Durbin's h.

Consider first the results of the analysis of public preferences in Table 4. Here we can see that the coefficients for the 'global' component are negative and statistically significant in all domains but transport. The public thus is much more responsive than analysis using by-domain measures of spending would lead us to believe. That is, there is evident responsiveness for health and education, where we did not see responsiveness in the preceding analysis. The results help make more understandable the fairly strict parallelism of preferences over time. The coefficients do differ, however, especially in the case of the environment. This is because the metrics relating spending and preferences differ. For the environment, the variance (and mean) of the global spending measure is much smaller than for the other domains, approximately one-ninth as much on average. Thus, as noted earlier, a *much* larger change in 'welfare' spending is required to generate the same public response.

The coefficient for the specific component is significant only for welfare, however. Since the global and specific coefficients in this domain are also not distinguishable ($F_{1,9} = .11, p = .75$), we can conclude that the Canadian public notices welfare spending, which is exactly the result

TABLE 5
Assessing The Focus of Policy Representation, by Function

Independent variables	Dependent variable: changes in spending ^a (billions \$, 1992) _t				
	Welfare ^b	Health	Education	Environment	Transport
Global preferences _{t-1}	.351*** (.092)	.092*** (.027)	.040 (.048)	-.020 (.021)	-.012 (.050)
Specific preferences _{t-1}	.341** (.132)	.015 (.079)	-.012 (.107)	-.004 (.018)	.048 (.088)
Public debt (billions \$, 1992) _{t-1} ^c	-.018 (.010)	-.001 (.007)	-.012 (.008)	-.003 (.002)	-.013 (.009)
Government (Lib = 1) _{t-1}	2.567 (2.675)	.145 (1.663)	1.012 (1.503)	.293 (.460)	2.631 (1.601)
Constant	-1.457 (1.658)	-.009 (1.081)	-.667 (.996)	-.177 (.296)	-1.619 (1.033)
Observations	13	14	14	14	13
R ²	.878	.651	.555	.399	.307
Adj R ²	.790	.495	.357	.132	-.039
DW	2.547	2.325	1.875	2.298	2.369

Cells contain OLS regression coefficients with standard errors in parentheses. All variables are mean-centred.

*p < .10; **p < .05; ***p < .01.

^aFederal spending for defence, and Consolidated spending otherwise.

^bThe model includes a control for the level of unemployment.

^cFederal debt for defence, and consolidated debt otherwise.

which we see in the US. In the health and education domains, the coefficients for the specific components are positive. In the environment domain, the coefficient is appropriately negative but highly unreliable. With the important exception of welfare, the public in Canada appears to notice only very general patterns of social spending. Let us see how this fits with the spending side.

The results of estimating the parallel models of spending change are displayed in Table 5. What we see here is only partly consistent with what we saw in the preceding table. There is clear, specific responsiveness in the welfare domain. The effects of both global and specific preferences are positive and significant; indeed, the coefficients are virtually identical. This fits perfectly with the analysis of public preferences. There is also clear global responsiveness in the health domain. The effect of the global preference is positive and significant and the effect of the specific preference is tiny and irretrievable. This is also consistent with the analysis of public preferences. There is no evidence of representation in the other domains, however. The result is in contrast with our analysis of public preferences for education and environmental spending, which revealed strong global public responsiveness. Canadian policymakers thus

appear dependent—at least reliant—on public opinion in some domains and largely independent in others.

The Domestic Domains Taken Together

Although the analysis shows that public responsiveness and policy representation vary across domains, it is useful to consider what happens when we aggregate across the set of social programs. It has, after all, become quite commonplace to lump programs together in analyses, especially of representation (e.g., Erikson et al., 1993; Stimson et al., 1995; Wood and Hinton Andersson, 1998), and doing so may have consequences for our analyses. Such aggregation may actually reveal additional feedback and/or representation. That is, it may be that the different policy domains are substitutable to the public (policymakers), so that responsiveness (representation) is collective. Were this the case, responsiveness and representation would be more pronounced when the domains are taken together than when taken separately (Wlezien, 2004).

To consider the effects of aggregating, the basic model is estimated using total domestic spending and average net support in the five domestic domains. The results of this analysis are shown in Table 6. The first column contains results from an aggregate model of domestic spending preferences—our model of public responsiveness. These results essentially summarize the results of the by-domain analyses in Table 2. The ‘domestic’ spending preference moves alongside economic conditions: when the misery index increases, the Canadian public favours less spending in these domains. The domestic preference also reflects spending itself. A one-billion (1992) dollar increase in spending across the seven domestic domains produces a .3 point decrease in average net preferences for spending in these domains.²⁵

The second column of Table 6 shows the results of the aggregate spending model—our model of policy representation. These results also summarize the by-domain analyses, from Table 3. A one-point increase in net preferences leads to an average increase in aggregate domestic spending of 282 million (1992) dollars. This is less than we would expect based on the by-domain coefficients. The sum of the coefficients for the five domains in Table 3 is .437, which implies that a one-point change in preferences in each domain would produce a 400- to 500-million (1992) dollar increase in spending. Thus, aggregating does not clearly add anything to what we already knew from Table 3; if anything, it would appear to subtract.²⁶

The results for the other variables are less straightforward. The estimated effect of party control is appropriately positive and highly unreliable, which is expected given the mixed effects from the results in Table 3. The effect of debt is appropriately negative, consistent with the

TABLE 6
Responsiveness and Representation, Domestic Functions Combined

Independent variables	Dependent variables			
	Preferences _t ^a	Changes in spending (billions \$, 1992) _t		
Domestic spending (billions \$, 1992) _t	-.327** (.125)	—	—	—
Misery index _t	-1.994** (.865)	—	—	—
Counter	.427 (.551)	—	—	—
Net preferences _{t-1}	—	.282** (.100)	.359*** (.090)	.285*** (.084)
Public debt (billions \$, 1992) _{t-1}	—	-.028 (.019)	—	-.026*** (.007)
Party in government _{t-1}	—	.277 (3.662)	-4.612*** (1.554)	—
Constant	26.851*** (5.315)	-.140 (2.321)	3.204** (1.231)	.000 (.668)
Observations	14	13	13	13
R ²	.959	.774	.721	.774
Adj R ²	.941	.699	.665	.729
DW	-.781 ^b	2.158	2.559	2.185

Cells contain OLS regression coefficients with standard errors in parentheses. All variables are mean-centred.

* $p < .10$; ** $p < .05$; *** $p < .01$.

^aModel includes lagged dependent variable.

^bAs the model contains a lagged dependent variable, the statistic is Durbin's h .

by-domain analyses, but nevertheless insignificant. This is somewhat surprising. It is also deceiving, as high collinearity ($r = .89$) between government partisanship and debt inflates the standard errors.²⁷ Including partisanship and debt in the model individually provides some clarity. In column 3, where the debt variable is excluded from the model, we see that partisanship has a significant effect on government spending. The negative coefficient for Liberal governments is not what one would expect, however—all other things being equal, Liberal governments should spend more than Conservative governments. In column 4, where the party variable is excluded, we can see that the public debt coefficient is both significant and appropriately negatively signed. The adjusted R -squareds also indicate that this model outperforms the others. It appears that it was looming debt, not government partisanship, that influenced domestic spending during this period.²⁸ Of course, as we have seen, public opinion did too.

Discussion and Conclusions

What we have observed in Canada both comports and conflicts with what we observe in other countries. To begin, consider the fundamental similarity: as in the US and the UK, the thermostatic model works in Canada. We observe that the public adjusts its relative preferences for spending in response to spending itself—there is negative feedback. We also observe that spending itself follows changes in preferences over time—there is representation. In effect, democracy works, at least in a very general sense.

There are important differences in the details, however. First, public responsiveness is less pronounced in Canada than in the US and the UK. Responsiveness is spottier and also more general, particularly in comparison with the UK. We have suggested elsewhere that the particularly pronounced feedback in the UK may partly be a product of that country's unitary system, which makes the locus of responsibility for policy comparatively clear and reliable (Soroka and Wlezien, N.d.). The Canadian findings are perfectly consistent with this conjecture: that is, given the country's very high level of federalism.²⁹ The vertical division of powers increases the number of different governments making policy, and in theory makes less clear what 'government' is doing (see, e.g., Downs, 1999). As effective public responsiveness depends on an accurate signal of what government is doing, it may be that the relationship between spending and opinion is mitigated in policy domains for which multiple governments have responsibility. This may make the apparently only very global responsiveness in health and education in Canada more understandable.

Second, policy representation in Canada is less pronounced than in the US and more like what we observe in the UK. We have suggested that the differences between the US and the UK may reflect the horizontal separation of powers (Soroka and Wlezien, N.d.). That is, we might expect that policymakers are less representative in parliamentary systems than in presidential systems, reflecting the relative imbalance of power between the executive and legislature.³⁰ In parliamentary systems, the cabinet exercises substantial control over policy decisions in all domains. First, the legislature does not propose. Second, it cannot effectively amend what the cabinet does propose. By implication, the cabinet is able to exercise considerable discretion.³¹ We thus might expect governments in parliamentary systems to be less *reliably* responsive to the public. This is what we observe in the UK and in Canada.

Of course, we cannot be sure about these explanations. After all, what we have provided here is a third case. Only when our analyses encompass a larger and more wide-ranging set of countries can we really sort out how and why opinion-policy linkages vary. We do now know

quite a lot, however. Most importantly, we know that the thermostatic model works in at least three different countries.

Appendix. Data Sources

Government Expenditures

Complete descriptions of functions and subfunctions are available from Statistics Canada, *Financial Management System (FMS) 2002*. Series were transformed into constant 1992 Canadian dollars using the deflator in CANSIM series V735319. Brief descriptions of the series follow.

Defence: Subfunction 12.01, National Defence. A series that is functionally consistent from FY1965–66 was made available by Statistics Canada. All spending is by the federal government.

Welfare: Subfunction 15.01, Social Assistance. Includes income maintenance, social security, family allowances and miscellaneous social services. Consolidated expenditures available from FY1988–99; federal spending accounts for between 75 and 90 per cent of consolidated spending.

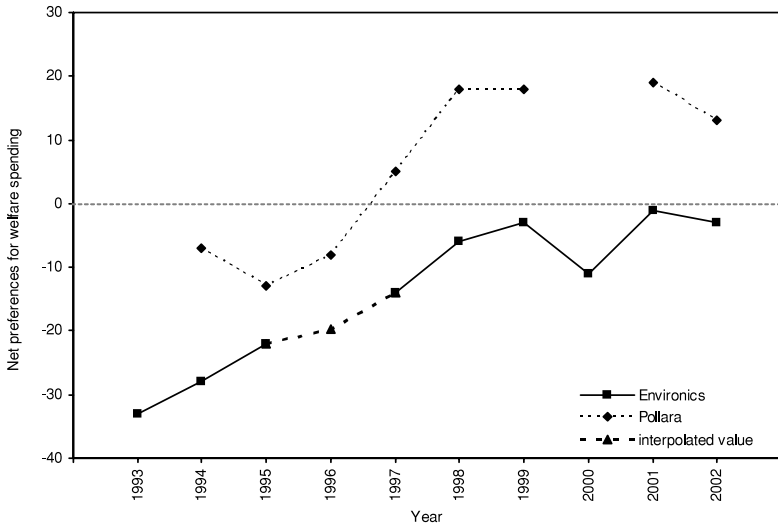
Education: Function 16, Education. Includes elementary and secondary education, and retraining services. Consolidated expenditures estimated from 1980–81; from FY1988–89, federal spending accounts for between 6 and 12 per cent of consolidated spending.

Health: Function 14, Health. Includes hospital care, medical care, preventative care and other health services. Consolidated expenditures estimated from 1980–81; from FY1988–89 to 1995–96, federal spending accounts for between 15 and 20 per cent of total spending; following the establishment of CHST (FY1996–97), federal spending accounts for about 2 per cent of consolidated spending.

Environmental Protection: Function 18, Environment. Includes water purification and supply, pollution control and other environmental services. Consolidated expenditures estimated from 1980–81; from FY1988–89 to 1992–93, federal spending accounts for about 10 per cent of consolidated spending; following the Green Plan (FY1993–94), federal spending accounts for about 16 per cent of consolidated spending.

Transportation/Infrastructure: Function 13, Transportation and Communication minus federal expenditures on subfunction 13.07, Telecommunications (provincial expenditures on subfunction 13.07 are unavailable). Includes air transport, road transport, public transit, rail transit, water transit, etc. Consolidated expenditures available from FY1988–99; federal spending declines steadily from 25 to 10 per cent of total expenditures.

FIGURE A1
 Environics and Pollara Net Preferences Data on Welfare



Public Preferences

Series on net public preferences for spending are drawn from Environics' Focus Canada omnibus surveys, usually in the 3rd quarter of the current fiscal year. Environics did not ask these questions in FY1996–97, so results from Pollara are used to substitute for this missing data. The Pollara question is not preceded with the caveat “Keeping in mind that increasing services could mean increasing taxes” As a consequence, Pollara net preferences are consistently higher than Environics net preferences. Predictably, the two series move together longitudinally (see Figure A1), so we use the Pollara data to estimate the missing value in the Environics series, at least in those series where Pollara has equivalent spending domains (defence, welfare, health care, environmental protection and transportation).

Notes

- 1 Also see Burstein's (2003) and Weakliem's (2003) reviews of the literature.
- 2 There are some exceptions. See, especially, Eichenberg and Stoll's (2003) analysis of defence spending and opinion in different countries.
- 3 This discussion closely follows Wlezien (1995: 981–983).
- 4 This conceptualization of public preferences has deep roots in political science, including Easton's (1965) classic depiction of a political system and Deutsch's (1963) models of 'control.'

- 5 This does not mean that politicians actually respond to changing public preferences, for it may be that they and the public both respond to something else. All we can say for certain is that the coefficient (β_3) captures policy responsiveness in a statistical sense, that is, whether and the extent to which public preferences directly influence policy change, other things being equal.
- 6 We can explicitly incorporate salience (S) into our model as follows:

$$\Delta P_t = \rho + \beta_3 S_{t-1} R_{t-1} + \beta_4 W_{t-1} + \beta_t,$$

where S ranges between 0 and 1. Here the effect of opinion on policy depends on the level of salience. This follows Franklin and Wlezien (1997); also see Jones (1994) and Soroka (2003).

- 7 Using expenditures thus biases analyses against finding opinion representation and policy feedback itself. See Wlezien (1996a) and Wlezien and Soroka (N.d.).
- 8 This was not the case in the UK, for example; our analyses in that country required that we create entirely new estimates of spending by function.
- 9 There are minor changes in functional definitions, and also in the definition of total government expenditures. That said, the differences in spending estimates are relatively small. For a complete description of the differences between the old and new CANSIM matrices, see Statistics Canada (2002).
- 10 Because some of our preferences series do not begin until that year, this factor analysis only includes data since 1989, and it is entirely possible that this period—after the Cold War, and during a period of economic boom—shows a very different relationship between defence and domestic preferences than earlier periods.
- 11 As the factors are based on an analysis that includes preferences in each of the domains, these estimates clearly are conservative ones. Also note that the specific movement in preferences is not mere sampling error. Given the frequencies and sample sizes of the actual polls, the amount of observed variance that is due to sampling error is, on average, 3–4 per cent and no higher than 6 per cent (welfare). See Heise (1969).
- 12 The measure works very well in the UK (Soroka and Wlezien, N.d.).
- 13 The original decision was based on theoretical grounds—that the measure provides a good indication of the direction and impact of economic change—and empirical analyses of the various measures.
- 14 More powerful techniques for imputing missing data are not appropriate here—or even possible in some cases—given the relatively short length of our time series.
- 15 Using a first-difference specification produces similar results, though such results are less robust, partly owing to missing data.
- 16 That is, lagged net support is included for statistical reasons only—to capture correlation among the residuals. Where there is no statistical reason to include this lag, it is dropped. Note also that Dickey-Fuller tests indicate that the preference series exhibit stationary tendencies, which is exactly as we would expect, given the thermostatic model. That is, preferences represent the difference between what the public wants and what the public gets, both of which are, in theory, integrated. If this is true, and if policymakers represent preferences over time, then preferences are stationary by definition, i.e., the linear combination of two cointegrated series. See Wlezien (2000).
- 17 Note also that preferences for more defence spending increased sharply after September 11th.
- 18 A positive trend without negative feedback would imply that preferences for *more* spending keep increasing over time, which is impossible.
- 19 This is consistent with some previous research (Nevitte and Gibbins, 1986).
- 20 Separate diagnostic analyses reveal that estimating the separate effects of the two components of misery—unemployment and inflation—offers little additional information.

- 21 We tested additional measures of the partisan composition of provincial governments, including the mean partisanship score for provincial dummy variables where Liberal, NDP and Bloc governments were lumped together, and a version where these provincial partisanship dummies were weighted by the provinces' average yearly shares of total provincial expenditures. These measures were not statistically significant and did not have any consistent, discernable effects on the other estimated parameters. These specifications are all of course far from perfect, but still about the best we can do without valid and reliable measures of spending (and opinion) by province.
- 22 This is exactly as we expect given the automatic nature of many welfare entitlements. It also was not possible to neatly isolate and subtract out entitlement funding, as it was in the case of the US.
- 23 Note that even minimal adjustment for sampling error boosts significance across the threshold.
- 24 For instance, the differences in standardized effects for the two domains are only slightly less pronounced: for welfare, a one-standard deviation (or 9.1-point) increase in preferences leads to a 3.2 billion dollar increase in welfare spending; for health, a one-standard deviation (17-point) increase leads to a 1.4 billion dollar increase in spending.
- 25 This is a slightly smaller level of responsiveness than we would expect based solely on the analyses in Table 2, though this is not entirely clear from the by-domain results. The total spending figures conceal important differences in the levels and, more importantly, the annual changes in spending differ across domains. A one-billion dollar change in our measure of domestic spending does not come equally from the five domains, but instead is more likely to be found in welfare and health and education. In order to draw strict comparisons with by-domain analyses, we must weight the coefficients in Table 2. Doing so, which is not straightforward, indicates that estimated responsiveness to aggregate domestic spending is slightly less than we would expect based on evident by-domain responsiveness. Also see note 24.
- 26 This is to some extent deceiving, as the results of the aggregate model are not directly comparable to the results of the by-domain analyses. That is, aggregate domestic spending preferences reflect the different variances of preferences in the particular domains. Thus, a one-unit change in aggregate preferences does not represent a one-unit change in all of the particular domains. Taking the variances into account predictably reduces the difference in estimated representation. Also see note 25.
- 27 The collinearity is understandable given that the move from Conservative to Liberal rule coincided with a move towards balanced budgets.
- 28 Recall that the weakness of the partisanship variable here is not surprising, given that our dependent variable is consolidated (federal and provincial) spending.
- 29 For a very useful fiscal perspective, see Joumard and Kongsrud (2003).
- 30 See Bagehot (1867) and Jennings (1959) for traditional statements and Laver and March (1996) for a more modern one, but especially see Tsebelis (2002).
- 31 It can choose not to approve government policies. This obviously is—or can be—a very big check on government if it takes the form of a no-confidence vote. Undertaking such a vote, after all, requires that governing party legislators are willing to face election.

References

- Arceneaux, Kevin. 2003. *The Federal Face of Democratic Representation: The Effects of Responsibility Attribution on Cross-Level Voting Behavior and Government Responsiveness in the United States*. Doctoral dissertation. Rice University, Houston.
- Bagehot, Walter. 1867 (1966). *The English Constitution*. Ithaca, New York: Cornell University Press.

- Bartels, Larry M. 1991. "Constituency Opinion and Congressional Policy Making: The Reagan Defence Buildup." *American Political Science Review* 85: 429–456.
- Blais, Andre, Donald Blake and Stephane Dion. 1993. "Do Parties Make a Difference? Parties and the Size of Government in Liberal Democracies." *American Journal of Political Science* 37(1): 40–62.
- Blais, Andre, Donald Blake and Stephane Dion. 1996. "Do Parties Make a Difference: A Reappraisal." *American Journal of Political Science* 40: 514–520.
- Brooks, J.E. 1987. "The Opinion-Policy Nexus in France—Do Institutions and Ideology Make a Difference?" *Journal of Politics* 49: 465–80.
- Brooks, J.E. 1990. "The Opinion-Policy Nexus in Germany." *Public Opinion Quarterly* 54: 508–29.
- Burstein, Paul. 2003. "The Impact of Public Opinion on Policy: A Review and Agenda." *Political Research Quarterly* 56: 29–40.
- Dahl, Robert A. *Polyarchy*. New Haven: Yale University Press, 1971.
- Deutsch, Karl. 1963. *Nerves of Government*. New York: Free Press.
- Downs, William M. 1999. "Accountability Payoffs in Federal Systems? Competing Logics and Evidence from Europe's Newest Federation." *Publius: The Journal of Federalism* 29: 87–110.
- Durr, Robert H. 1993. "What Moves Policy Sentiment?" *American Political Science Review* 87: 158–70.
- Easton, David. 1965. *A Framework for Political Analysis*. Englewood Cliffs, N.J.: Prentice-Hall.
- Eichenberg, Richard, and Richard Stoll. 2003. "Representing Defence: Democratic Control of the Defence Budget in the United States and Western Europe." *Journal of Conflict Resolution* 47: 399–423.
- Erikson, Robert S., Michael MacKuen and James A. Stimson. *The Macro Polity*. New York: Cambridge University Press, 2002.
- Franklin, Mark N. 2004. *Voter Turnout and the Dynamics of Electoral Competition*. New York: Cambridge University Press.
- Franklin, Mark and Wolfgang Hirczy. 1998. "Separated Powers, Divided Government, and Turnout in US Presidential Elections." *American Journal of Political Science* 42: 316–326.
- Franklin, Mark and Christopher Wlezien. 1997. "The Responsive Public: Issue Salience, Policy Change, and Preferences for European Unification." *Journal of Theoretical Politics* 9: 247–263.
- Goggin, Malcolm and Christopher Wlezien. 1993. "Abortion Opinion and Policy in the American States." In *Understanding the New Politics of Abortion*, ed. Malcolm Goggin. Newbury Park, CA: Sage.
- Hartley, Thomas and Bruce Russett. 1992. "Public Opinion and the Common Defence: Who Governs Military Spending in the United States?" *American Political Science Review* 86: 905–915.
- Heise, D.R. 1969. "Separating Reliability and Stability in Test-Retest Correlations." *American Sociological Review* 34: 93–101.
- Jankowski, Richard and Christopher Wlezien. 1993. "Substitutability and the Politics of Macroeconomic Policy." *Journal of Politics* 55: 1060–1080.
- Jennings, Sir Ivor. 1959. *Cabinet Government*, 3rd ed. Cambridge: Cambridge University Press.
- Jones, Bryan. 2001. *Politics and Architecture of Choice: Bounded Rationality and Governance*. Chicago: University of Chicago Press.
- Joumard, Isabelle and Per Mathis Kongsrud. 2003. "Fiscal Relations Across Government Levels." *Economics Department Working Papers* (no. 375). Organization for Economic Cooperation and Development, document available at [http://www.oilis.oecd.org/olis/2003doc.nsf/linkto/eco-wkp\(2003\)29](http://www.oilis.oecd.org/olis/2003doc.nsf/linkto/eco-wkp(2003)29); site last accessed 15 June 2004.

- Kiewiet, D. Roderick and Mathew D. McCubbins. 1988. "Presidential Influence on Congressional Appropriations Decisions." *American Journal of Political Science* 32: 713–736.
- Laver, Michael and Kenneth A. Shepsle. 1996. *Making and Breaking Governments: Cabinets and Legislatures in Parliamentary Democracies*. Cambridge: Cambridge University Press.
- Lijphart, Arend. 1999. *Patterns of Democracy*. New Haven: Yale University Press.
- Manza, Jeff and Fay Lomax Cook. 2002. "Policy Responsiveness to Public Opinion: The State of the Debate." In *Navigating Public Opinion: Polls, Policy, and the Future of American Democracy*, eds. Jeff Manza, Fay Lomax Cook and Benjamin I. Page. New York: Oxford University Press.
- Miller, Warren E. and Donald E. Stokes. 1963. "Constituency Influence in Congress." *American Political Science Review* 57: 45–56.
- Monroe, Alan. 1979. "Consistency between Constituency Preferences and National Policy Decisions." *American Politics Quarterly* 12: 3–19.
- Monroe, Alan. 1998. "Public Opinion and Public Policy 1980–1993." *Public Opinion Quarterly* 62: 6–28.
- Page, Benjamin I. and Robert Y. Shapiro. 1992. *The Rational Public*. Chicago: University of Chicago Press.
- Petry, Francois. 1999. "The Opinion-Policy Relationship in Canada." *Journal of Politics* 61: 540–550.
- Petry, Francois and Matthew Mendelsohn. 2004. "Public Opinion and Policy Making in Canada, 1994–2001." *Canadian Journal of Political Science* 37: 505–529.
- Pitkin, Hanna. 1967. *The Concept of Representation*. Berkeley: University of California Press.
- Powell, G. Bingham. 2000. *Elections as Instruments of Democracy: Majoritarian and Proportional Visions*. New Haven: Yale University Press.
- Savoie, Donald J. 1999. *Governing from the Centre: The Concentration of Power in Canadian Politics*. Toronto: University of Toronto Press.
- Sharpe, Elaine. 1999. *The Sometime Connection: Public Opinion and Social Policy*. Albany, New York: SUNY Press.
- Smith, M.A. 1999. "Public Opinion, Elections, and Representation within a Market Economy: Does the Structural Power of Business Undermine Popular Sovereignty?" *American Journal of Political Science* 43: 842–863.
- Soroka, Stuart N. 2003. "Media, Public Opinion and Foreign Policy." *Harvard International Journal of Press and Politics* 8(1): 27–48.
- Soroka, Stuart N. and Christopher Wlezien. N.d. "Opinion-Policy Dynamics: Public Preferences and Public Expenditure in the United Kingdom." *British Journal of Political Science*, forthcoming.
- Soroka, Stuart N. and Christopher Wlezien. 2004. "Degrees of Democracy: Public Opinion and Policy in Comparative Perspective." *Center for Advanced Study in the Social Sciences Working Paper Series*. Madrid: Juan March Institute.
- Statistics Canada. 2002. *Financial Management System (FMS) 2002*. Canada: Minister of Industry.
- Stimson, James A., Michael B. MacKuen and Robert S. Erikson. 1995. "Dynamic Representation." *American Political Science Review* 89: 543–565.
- Tsebelis, George. 2002. *Veto Players: How Political Institutions Work*. New York: Russell Sage Foundation.
- Weakliem, David. 2003. "Public Opinion Research and Political Sociology." *Research in Political Sociology* 12: 49–80.
- Wlezien, Christopher. 1995. "The Public as Thermostat: Dynamics of Preferences for Spending." *American Journal of Political Science* 39: 981–1000.

- Wlezien, Christopher. 1996a. "Dynamics of Representation: The Case of U.S. Spending on Defence." *British Journal of Political Science* 26: 81–103.
- Wlezien, Christopher. 1996b. "The President, Congress, and Appropriations, 1951–1985." *American Politics Quarterly* 24: 43–67.
- Wlezien, Christopher. 2004. "Patterns of Representation: Dynamics of Public Preferences and Policy." *Journal of Politics* 66: 1–24.
- Wlezien, Christopher and Stuart Soroka. 2003. "Measures and Models of Budgetary Policy." *Policy Studies Journal* 31: 273–286.