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**DEGREES OF DEMOCRACY
PUBLIC PREFERENCES AND POLICY
IN COMPARATIVE PERSPECTIVE**

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Abstract

A large and growing body of research demonstrates a correspondence between public opinion and policy behavior. Almost all of this research has focused on the US, however. Do similar patterns obtain in other countries? Or is the US unique? This paper represents one step towards answering these questions. We extend previous research on the dynamics of spending preferences and budgetary policy in the US, using comparable longitudinal measures of public preferences and government spending in the US, UK, and Canada. The nature and magnitude of opinion-policy connections vary across both policy functions and countries. We explore this variation in public and policy responsiveness and its likely institutional causes.

INTRODUCTION¹

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 (the literature is massive, but see, e.g., Pitkin 1967; Dahl 1971; Saward 1994; Burstein 1998; Manza and Cook 2002). Yet scholars also have questioned whether citizens are sufficiently informed and/or reactive enough to play a role 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 also from policy to opinion. 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 itself.

There already is a large and growing body of work on the correspondence between public opinion and policy behavior (e.g., Miller and Stokes 1961; Weissberg 1976; McCrone and Kuklinski 1979; Monroe 1979; Bartels 1991; Page and Shapiro 1992; Hartley and Russett 1992; Erikson, Wright, and McIver 1993; Goggin and Wlezien 1993; Jacobs 1993; Stimson, MacKuen, and Erikson 1995; Wlezien 1996a; Wood and Hinton-Anderson 1998; Hill and Hurley 1998; Smith 1999; Sharpe 1999; Erikson, MacKuen, and Stimson 2002; Soroka 2003; Wlezien, 2004).² And work on ‘thermostatic’ models of the opinion-policy

¹ Previous versions of this manuscript have been presented at Annual Meeting of the American Political Science Association, Philadelphia, August 27-31, 2003, and at the Juan March Institute, Madrid, December 12, 2003. Portions of this research also were presented at the Annual Meeting of the Midwest Political Science Association, Chicago, April 2003, the Canadian Political Science Association, Halifax, June 2003, the Political Studies Association, Edinburgh, April 2002, the American Political Science Association, Boston, August-September 2002, and the Annual Conference of the Elections, Public Opinion, and Parties Group, Salford, UK, September 2002. We are thankful to various discussants and audiences for comments, especially Kevin Arceneaux, Keith Banting, Frank Baumgartner, Chris Carman, Diana Evans, Peter John, Martin Johnson, Bryan Jones, Mark Kayser, Jose Maria Maravall, Iain McLean, Jose Ramon Montero, Robert Shapiro, and James Stimson. Related project papers are available online at <http://www.degreesofdemocracy.mcgill.ca>.

² See Weakliem’s (2002) excellent review and assessment of the literature.

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; Erikson et al. 2002). 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, most empirical work to date focuses only on the US.³ Do similar patterns obtain in other countries? Or is the US unique? We simply do not know. This deficiency is partly a function of data availability—both opinion and policy data are more easily accessible in the US than elsewhere. But, as suggested above, comparative studies of opinion-policy links are fundamental to our understanding of how—or if, or how well—democracies work. Indeed, it is likely that a wider application of this line of research could provide valuable insights into how representation varies across political systems and issue areas. Differences in representation (and public responsiveness) across countries may be linked to a variety of institutional factors, such as the level of federalism, the relative power of the executive and the legislature, and party competition itself. Highlighting differences in the opinion-policy link and connecting these with institutional differences may therefore offer crucial information on the comparative effectiveness of democratic institutions.

The current paper thus takes another step towards a comparative study of the dynamic inter-relationships between public preferences and policy. Using a new body of data on public opinion and government spending, we extend research on the dynamics of spending opinion and policy in the US to Canada and the UK. 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. Our results provide insight into the comparative dynamics of representation and responsiveness across policy domains, and across countries. Before telling

³ There are some exceptions, e.g., Brooks 1987, 1990; Petry 1999; Franklin and Wlezien 1997; Eichenberg and Stoll 2003; Soroka 2003.

you where we end up, however, 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 presupposes that the public actually notices and responds to what policymakers do. Without such responsiveness, policymakers would have little incentive to represent what the public wants in policy—there would be no real benefit for doing so, and there would be no real cost for not doing so. Moreover, without public responsiveness to policy, expressed 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. We need a responsive public. Effective democracy depends on it.

A responsive public behaves much like a thermostat (Wlezien, 1995).⁴ 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. Let the public preference 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 (but not too much) for defence, then the new policy

⁴ This discussion closely follows Wlezien (1995: 981-983).

position would more closely correspond to the preferred level of spending. If the public is indeed responsive to what policymakers do, then the public would 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. 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.'

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 typically 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 education spending they want.) The public preference, however defined, also is necessarily relative. In one sense, this is quite convenient, as we can actually measure the thermostatic signal the public sends to policymakers.

We can rewrite the model of R_t as follows:

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

where a and e_t represent the intercept and the error term, respectively and W designates the instruments for the public's preferred level of policy (P^*). Note that levels of relative preferences are expected to be associated with current levels of policy; if the thermostatic model applies, the coefficient (β_1) relating the two is expected to be less than 0.

Now, if policymakers are responsive to these public preferences, *changes* in policy (ΔP) will be associated with lagged ($t-1$) *levels* of the public's relative preference (R), as follows:

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

where ρ and μ_t represent the intercept and the error term, respectively, and Z represents the set of other determinants of policy such as the partisan control of government. The coefficient β_3 captures responsiveness, where the effect of preferences on policy is independent of partisan control and 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, this specification captures responsiveness to opinion when most budgetary decisions actually are made.

These expectations are 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

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 sure 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.

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 symmetrical 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 may help us understand certain patterns of policymaker behavior. For instance, it might tell us why one government is more responsive than another government to public preferences. It also may tell us why one government is more responsive to preferences for policy in some areas but not others. But it tells us little about the behavior of the public. Would we expect the public to behave differently in different countries? Under what conditions? Even taking these differences into account, might we not expect governments in some countries to pay relatively less attention to public preferences than do governments in other countries? What is the structuring role of institutions?

COMPARATIVE CONSIDERATIONS

Polities differ in many ways, and some of these differences should have dramatic implications for the nature and degree of public and policy responsiveness. Consider the fundamental importance of mass media competition: Without some minimal level of competition, it is difficult for people to receive information about what government actors do. Thus, they are less able to respond to policy change. Likewise, without some level of political competition, governments may have less incentive to respond to public opinion.⁷ These facts

⁶ We can explicitly incorporate salience (S) into our model as follows:

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

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 At the very least, the incentive would be less reliable.

are fairly obvious. Even where we have basic levels of media and political competition, however, as we do in most modern democracies, institutional differences may have important implications for public responsiveness and policy representation.

Let us first consider the public. Fundamental to public responsiveness is the acquisition of accurate information about what policymakers are doing. This not only depends on the supply of information; it depends as well on the clarity of that information. More precisely, it depends on the extent to which responsibility for policies is clear, and this is in part a function of how government itself is organized, especially division of powers. Federalism, the vertical division of powers, increases the number of different governments making policy, and thus makes less clear what ‘government’ is doing. Put differently, reasoned public responsiveness depends on an accurate signal of what government is doing, and this signal may be confused—or, rather, there may be multiple signals—in policy domains for which several governments have responsibility.

The horizontal division of powers also may be important to public responsiveness. Some past work suggests that a horizontal separation of powers confuses responsibility for government action (especially see Franklin 2004). This is important, but it is not clear that this horizontal separation will tutor the public’s information about policy decisions themselves. People may notice policy change without knowing who is responsible. Indeed, some scholars argue that horizontal separation actually makes it easier to elicit information about what governments do (Persson, Roland, and Tabellini 1997).⁸ It thus is not clear from past literature what to expect—a reduced public responsiveness due to confused responsibility or increased responsiveness due to greater availability of policy information.

Now let us consider government responsiveness to public opinion. There is reason to think that the division of powers may also play a role here. It may be that federalism makes governments less responsive to the public, for instance. We might not expect all levels of government in total to be less responsive; rather, we would expect particular levels to be less

⁸ Persson et al. argue further that the competition that separation induces can improve political accountability.

responsive in policy areas where those governments are less involved in policy-making. For example, we should expect the national government to be less responsive to public opinion on issues of local or provincial responsibility. This is straightforward.

Given a particular level of government, the separation of powers also may matter; indeed, there is reason to think it matters quite a lot. A good amount of research suggests that parliamentary democracies may be less reliable in their attendance to public opinion (see, e.g., the classic statements by Bagehot 1867 and Jennings 1959). Other research provides theoretical motivation, especially Laver and Shepsle (1996). These scholars portray a world in which cabinet governments exercise substantial discretion. The basis for this discretion is two-fold. First, in contrast with presidential systems, the executive is the proposer. Second, the legislature has only a limited check on what the executive does: declining to approve government policies or, in the extreme, a no confidence vote. The latter is a very big check, obviously. It is very costly for the majority party; undertaking such a vote requires that governing party legislators are willing to face an early election. Thus, the executive controls the legislative process in parliamentary systems.⁹ It is not only true that the legislature cannot impose its own contrary will; the legislature cannot consistently undertake ‘error correction,’ that is, adjusting the government’s position where it may be going too far or not far enough given public preferences. By implication, we might expect parliamentary governments to be less reliably responsive to the public.

Government institutions may matter, then. So too may electoral systems. Indeed, this has been the emphasis of most of the existing relevant literature. The most recent work focuses specifically on the majoritarian and proportional visions, using Powell’s (2000) language. Lijphart’s (1999) research suggests that proportional systems, especially consensual ones, provide better descriptive representation and general policy congruence as well. Powell (2000) further evidences the importance of proportional representation for substantive representation and explores the means to this end, that is, electoral sanction and policymaker responsiveness. Most importantly, he shows that the general ideological

⁹ Laver and Shepsle also place much emphasis on the independence of individual ministers.

complexion of policy and the ideological bent of the electorate tend to match up better in countries that use proportional representation. The proportional vision improves policy congruence. According to Powell, this reflects the greater, direct participation of constituencies the vision affords.

There thus are various reasons to expect patterns of public and policy responsiveness to differ across countries. In particular, we have hypothesized that public responsiveness will reflect the division of government powers both vertically and horizontally, especially the former. Specifically, public responsiveness should be greatest in unitary systems. We also have hypothesized that government responsiveness will reflect this division of powers, especially the horizontal separation, as well as the proportional-majoritarian quality of the electoral system. That is, government responsiveness should be greatest in presidential systems with proportional representation, an unusual combination. It should be least in majoritarian parliamentary systems, which themselves are not that common. The other two, much more typical, cases—majoritarian presidential and proportional parliamentary—should lie somewhere in between. It is not clear in what order, however. Given Powell's work, we might expect that the latter better serves representation. In effect, proportionality would be expected to powerfully mitigate the autonomy of cabinet governments.¹⁰

In theory, we can explicitly test the different hypotheses. The problem is that we have data for but a handful of countries, namely, Canada, the UK, and the US. These countries are not randomly drawn—to a large extent, they are 'most similar.' This may work in our favour. Notice first that the countries are majoritarian systems. In effect, the case selection controls for this difference to begin with. This leaves important differences with respect to government institutions, however. First, the countries differ greatly on the federal dimension (Joumard and Kongsrud 2003). The UK is a highly unitary system, among the most unitary modern democracies at least until recent moves toward devolution. The US and Canada meanwhile are highly federalized systems, especially Canada, which, along with Switzerland,

¹⁰ There is an alternative view, at least a more complex one. For instance, Rogowski and Kayser (2002) argue that the comparatively higher seats-votes elasticities in majoritarian systems make governments in those systems more responsive to consumer interests than those of producers.

may be most in opposition to the UK. Second, the countries differ greatly with respect to separation of powers. The UK and Canada are classic parliamentary systems with unified powers. The US is the classic presidential system with separation of powers.

We thus expect responsiveness in Canada, the UK, and the US to differ quite significantly. Our expectations are most clear for the public side of the equation, where the dimensionality is essentially singular. That is, we expect public responsiveness to policy will vary with federalism and thus will be greatest in the UK, lesser in the US, and lesser still in Canada.¹¹ On the government side, things are slightly more complex, depending on the role federalism plays. If federalism has limited effects, we expect representation of opinion to reflect the separation of powers and be greatest in the US and lesser in Canada and the UK. If federalism also has effects, we might expect a different pattern, where the differences between the countries are seriously attenuated. In the extreme, where only federalism matters, we would expect government responsiveness to perfectly parallel our expectations about public responsiveness. Although we cannot fully examine the effects of the various institutional differences, an analysis of these three countries thus may offer us insight into the structuring roles of institutions. Let us see what the data reveal.

THE DATA

The dataset used here includes comparable measure of budgetary policy and public preferences for spending in various policy domains over time, in Canada, the UK and US. Measures of spending preferences rely on a common question, asked relatively consistently in all three countries. With minor variations, the question is as follows:

¹¹ Effects owing to separation of powers might change things dramatically. If separation decreases information, we would expect differences between countries to increase, especially between the US and UK; if separation increases information, we would expect relatively little difference between the three countries.

‘Do you think the government is spending too much, too little or about the right amount on [defense]?’

Respondents are asked about spending in various categories besides defense – just three others in the UK, but eight more in the US and seven more (consistently) in Canada. The question is also asked with varying frequencies across countries: in Canada, Environics asked these questions between 14 and 16 times (depending on the spending domain) from 1984 to 2002, and some missing years can be filled in using similar data from Pollara;¹² in the UK, Gallup asked the question 19 times in only 13 years and not at all since 1995;¹³ in the US, the GSS includes these questions almost every year from 1973 to 1994, and then every other year until 2000. Using these data, we can create time series covering from 14 to 21 fiscal years between 1976 and 2002, though note that there are gaps in many of the series, which we address below. For the analysis, we focus solely on defense and the domestic policy domains, specifically, welfare, health, education, the environment, transportation, and cities.

The simplest, most reliable way to reflect public preferences using these data is to 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 measures of ‘net support’ (R_t) thus capture the degree to which the public wants ‘more’ or ‘less’ spending over time – indeed, the measures capture both direction and magnitude.

Our measures of budgetary policy (P_t) rely on estimates of spending by function in Canada, the UK and US. Finding directly comparable data is not easy – unlike in the US, for instance, Canadian and UK governments do not provide data on appropriations of budget

¹² Environics asked questions about most policy domains from 1984 to 2002. Data are missing in 1986, 1992, and 1996; for domains in which Pollara also asked questions, 1996 data are filled in using Pollara results. (For further details and a comparison of the Environics and Pollara series, see Soroka and Wlezien 2003b.)

¹³ Gallup did not ask the question in 1980, 1981, 1984, 1987 and 1994, but we are able to use measures from proximate periods for years 1981 and 1987. Data remain missing in the other three years. Note also that when more than one poll exists in a single fiscal year, results are averaged.

authority at any level of aggregation. All that is available is data on expenditures (outlays). Although expenditures surely are important, they are not policy *per se*. That is, elected politicians have only limited control over what is spent, which may reflect things that they cannot anticipate or manage. Using expenditures thus biases analyses against finding opinion representation (see Wlezien 1996a; Wlezien and Soroka 2003).

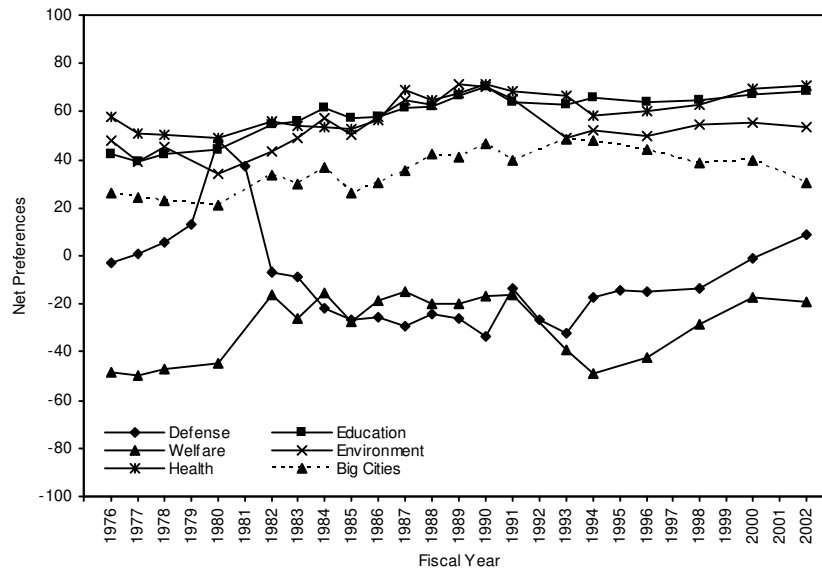
To provide comparability across countries, we rely on expenditures in each of the countries. (Note that we do provide estimates using US appropriations in Appendices B & C.) US appropriations and outlays are drawn directly from the *Historical Tables* in the 2003 Budget, and the specific definitions of the functions used are described in Wlezien (2004). Functional spending figures in Canada are available from various Statistics Canada CANSIM matrices; details on these data are available in Soroka and Wlezien (2003b).¹⁴ Our measures of functional spending in the UK rely on a new database that solves the problem of inconsistent functional definitions that complicates the use of data available in HM Treasury's *Public Expenditure Statistical Analyses*; details on these data are available in Soroka and Wlezien (2003a).

The resulting spending and preferences data are illustrated in Figures 1A-C. Factor analyses are summarized in Tables 1A-B. (Descriptives for all preferences and spending variables are listed in Appendix Table A1.) The results indicate that spending on the different functions clusters together, at least in levels. A lot more is spent on some programs than others; not surprisingly, the latter seem to change only very deliberately over time and the former show more variance. Spending in most domains does tend to trend upward over time, documenting a well-known pattern of government growth. Note also that spending on defense tends to move in the opposite direction, at least in the US and UK, implying a guns-butter trade-off.

¹⁴ While US spending figures are for the federal government only, Canadian figures for all domains except defense are for consolidated federal and provincial spending. In Canada, most major social domains are provincial responsibilities, funded in part through large block grants from the federal government (e.g., Canada Health and Social Transfer). There is substantial flexibility for provinces in how they divide these block grants across functions, so federal block grants cannot easily be allocated to functions. Rather, the only way to categorize this (considerable amount of) federal spending is to use consolidated federal and provincial spending estimates.

Figure 1A. US Preferences and Spending Series

Preferences



Spending

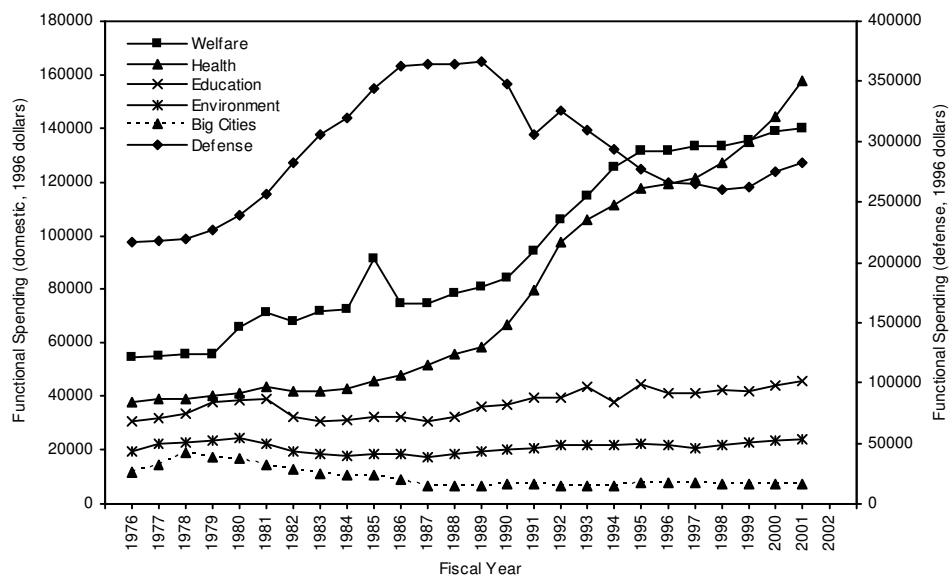


Figure 1B. UK Preferences and Spending Series

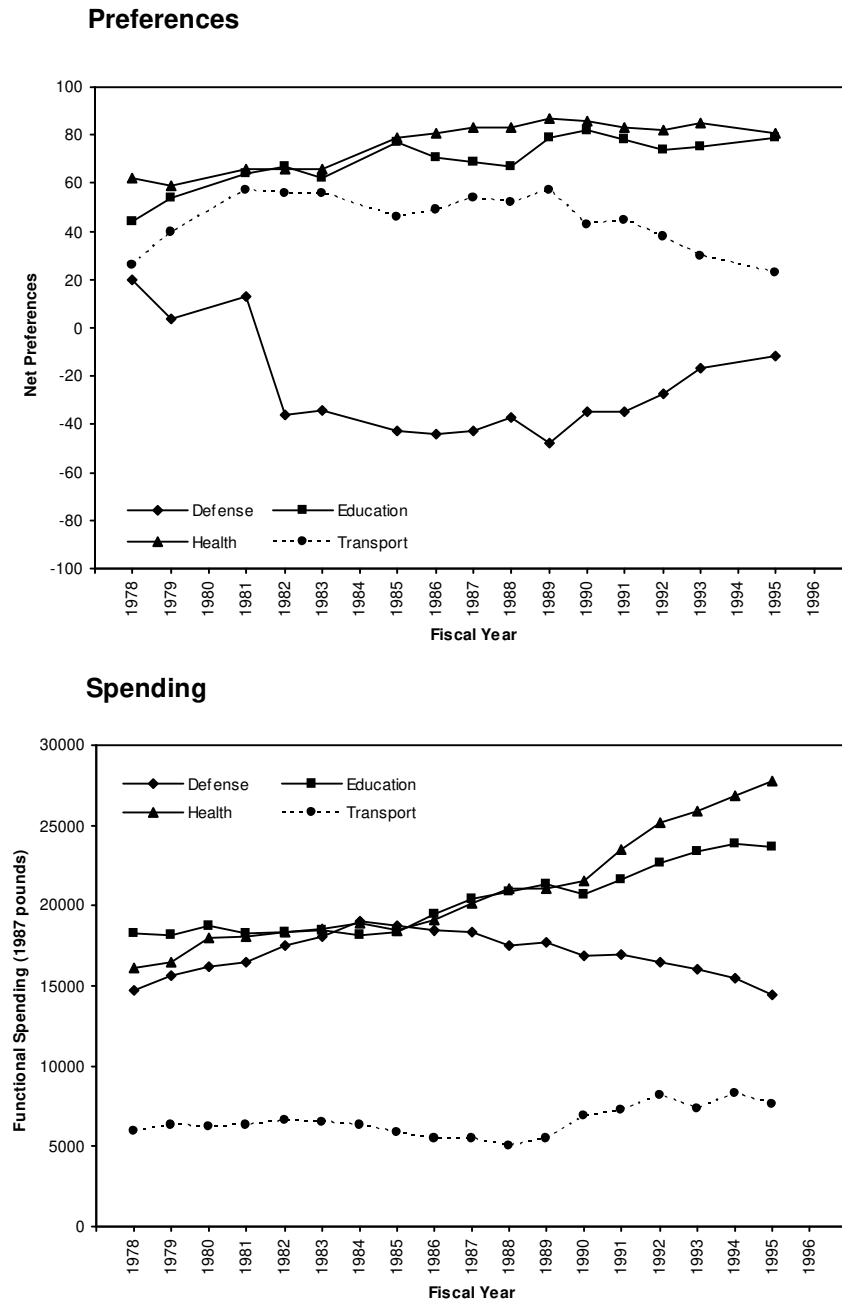
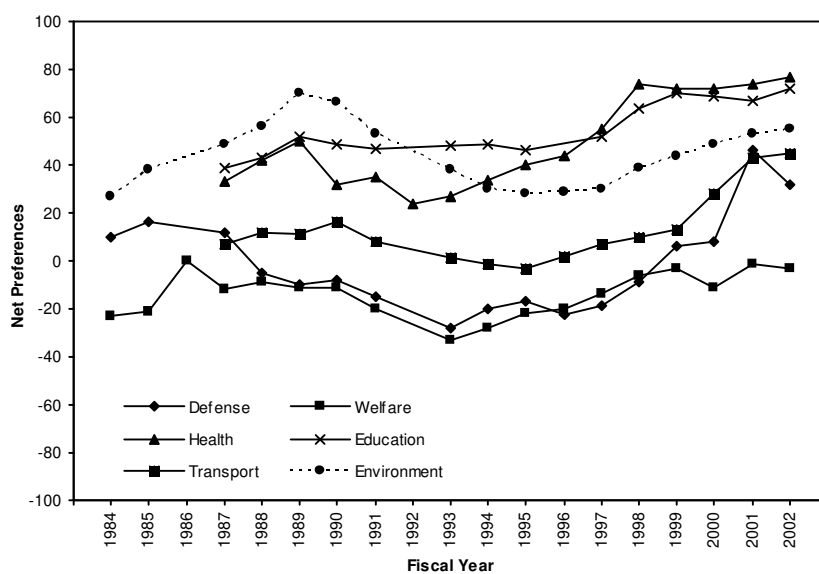
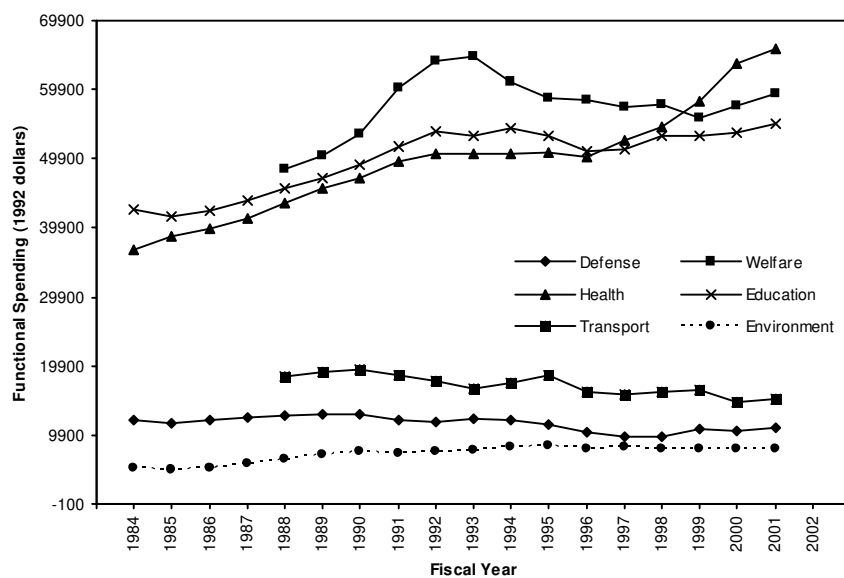


Figure 1C. Canadian Preferences and Spending Series

Preferences



Spending



Public preferences for spending exhibit similar structure. Preferences in domestic domains tend to flow together over time in each country, especially for the ‘social’ domains, namely, health, welfare, and education. In contrast with what we see for spending, the preference series are more strictly parallel, that is, they show very similar variance. The environment follows the social series; big cities and transport do not. Indeed, the latter tend vary in a very contrary way. Preferences for defense spending also largely mirror domestic preferences in the UK and Canada. Thus, putting aside cities and transport, spending and public preferences in the different domains tend to move in the same liberal-conservative direction over time in each country. These results all are potentially quite telling for our analysis. Indeed, the patterns imply a certain ‘global’ movement of opinion that may drive politicians’ behavior in various policy domains. The movement is not entirely global, however. That is, some of the variance of spending and preferences is domain-specific. This is easy to overlook but of real importance, as we will see. Now, let us examine how preferences and spending relate to each other over time. We begin with public preferences.

Table 1A. The Structure of Public Preferences

US		UK			Canada		
	Factor		Factor			Factor	
	1		1	2		1	2
Defense	-.745	Defense	-.894	.289	Transport	.928	.130
Education	.914	Education	.905	.272	Defense	.887	.135
Environment	.901	Health	.888	.369	Welfare	.886	-.141
Health	.849	Transport	.344	-.918	Health	.880	-.418
Big Cities	.811				Education	.837	-.434
Welfare	.703				Environment	.427	.854

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

Table 1B. The Structure of Government Spending

US			UK		Canada		
Factor			Factor		Factor		
	<i>I</i>	2		<i>I</i>		<i>I</i>	2
Defense	-.092	-.928	Defense	-.814	Defense	-.774	.453
Health	.983	-.068	Education	.960	Education	.906	.371
Welfare	.958	-.188	Health	.965	Health	.839	-.296
Education	.932	.217	Transport	.284	Environment	.824	.230
Environment	.523	.803			Welfare	.666	.671
Big Cities	-.600	.768			Transport	-.819	.457

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

AN ANALYSIS OF POLICY FEEDBACK

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 , in various spending domains in the US, UK and 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 instruments. Previous research is a useful guide.

We know that public preferences for defense spending in the US closely follow perceived variation in national security over time. Specifically, preferences have reflected attitudes toward the Soviet Union/Russia as indicated by the 'likes' and 'dislikes' of that country (Wlezien, 1995). There is reason to expect a similar pattern to hold in the UK and Canada. The problem is that we do not have comparable measures of likes/dislikes of Russia in those countries. However, if the measure from the US provides a reliable indication of the actual security threat from the Soviet Union during the period, or broad public perceptions of that threat, then it should work equally well in the UK and Canada. Thus, we use the US measure there. Our measure of Net Dislike represents the percentage of Americans who dislike Russia minus the percentage who like the country. The data are drawn primarily from the General Social Survey (GSS) but were supplemented using American Institute for Public

Opinion (AIPO) data in 1979 and 1981, when the GSS was not in the field. In 1992, 1995, and 1997, when GSS also was not in the field, we interpolate using data from adjacent years.

Identifying specific instruments for the different domestic domains is much less straightforward, and our attempts to do so were not successful. 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, 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). For this analysis, we adopt this latter measure, commonly known as the ‘misery index.’ The decision is based on theoretical grounds – that the measure provides a good indication of the direction, magnitude, *and* impact of economic change – and practical grounds – unemployment and inflation are among the few comparable measures that are available in all three countries. Specifically, the measure used here represents the average of the misery index in fiscal year t . Diagnostic empirical analyses indicate that estimating the separate effects of unemployment and inflation or using other measures of economic security makes no real difference.

Previous research also shows that there is a guns-butter trade-off in social spending preferences in the US (Wlezien, 1995). That is, an increase in national security threat leads to a decrease in preferences for social spending.¹⁵ This also may be true in the UK, as we have seen that preferences (and spending) for defense and domestic programs are inversely related. The possibility of a guns-butter trade-off is not considered here, but do see Soroka and Wlezien (2003a).

¹⁵ The trade-off does not run the other way, from butter to guns, however. In effect, preferences for social programs in the US are endogenous to public preferences for defense spending, which in turn are exogenous.

Public Responsiveness in Particular Domains

Following the theoretical model in equation 1, the dependent variables used in this analysis represent the *levels* of net support for spending. To preserve precious degrees of freedom, we impute values when opinion data is missing using a straight linear interpolation. This actually has relatively little consequence for the general pattern of results; that is, it mostly increases the reliability of estimated parameters.¹⁶ The measures are regressed on corresponding levels of spending (in billions of inflation-adjusted currencies) and the instruments for the public's preferred level of spending.¹⁷ A linear counter variable also is included to account for any increase in the underlying preferred levels of spending over time, other things being equal (Wlezien, 1995). The results of estimating separate models of spending preferences for specific domains in the US, UK, and Canada are shown in Tables 2A-C.

The results in Table 2A indicate that the general thermostatic model works quite well in the US (as in Wlezien 1995). Let us first consider the results for the defense domain in the first column. Here we can see that defense spending preferences do not appear to follow variation in hostilities toward Russia during the period. Although the coefficient is appropriately positive, it is not highly reliable. This partly reflects the focus on outlays. As can be seen in Appendix Table A2, appropriations indicate that defense spending preferences do nicely follow public attitudes toward Russia during the period: When the public dislike of Russia increases, support for more defense spending increases.¹⁸ In Table 2A, we can see that the public's support for more defense spending reflects spending itself. As indicated by the significant negative coefficient, when spending increases, support for more spending decreases. The effect is quite pronounced: A 10 billion (1996) dollar (or 3.3%) increase in

¹⁶ More powerful techniques for imputing missing data are not appropriate here—or even possible in some

cases—given the relatively short lengths of our time series.

¹⁷ Using first differences and an error correction model specification produces similar results.

¹⁸ Given that the variation in dislike connects with real world events, the pattern implies that national security drives the public's preferred level of spending.

spending produces a 2.1 point decline in support. The coefficient implies that each marginal point in the public's net support registers a preference for an additional 4.7 billion dollars.¹⁹

Table 2A . Basic Models of Net Support, by Domain, US

	<i>Dependent Variable: Net Preferences_t^a</i>					
	Defense ^b	Welfare	Health	Education	Env'ment	Cities
Spending (billions \$1996) _t	-.210*** (.057)	-.771*** (.243)	-.142** (.056)	-.396** (.195)	-1.668*** (.569)	-1.191** (.459)
Net Dislike of Russia _t	.223 (.133)	—	—	—	—	—
Misery Index _t	—	.101 (.684)	.340 (.400)	.214 (.221)	-.264 (.457)	-.194 (.373)
Linear Trend	.866 (.681)	3.394*** (1.161)	1.165*** (.382)	.566** (.247)	.178 (.266)	.048 (.268)
Constant	-13.994* (4.399)	10.599 (12.018)	14.116 (9.387)	13.910** (6.511)	18.320* (7.155)	25.228 (5.941)
Observations	26	26	26	26	26	26
Rs _q	.760	.715	.824	.934	.660	.791
Adj Rs _q	.699	.660	.790	.922	.596	.751
Durbin's h	.653	.594	.041	-.103	-.540	-.760

Cells contain regression coefficients, with standard errors in parentheses; All independent variables are mean-centered.

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

^a Model includes a lagged dependent variable.

^b Includes a control for the Iraq-Kuwait war in 1991.

The results for the five domestic domains—welfare, health, education, environment, and cities – in Table 2A are mixed. To begin with, notice that spending preferences in these domains do not follow variation in the misery index over time. This is somewhat surprising given the previous research noted above, though do keep in mind that much of that research is contradictory. What is clear in the table is negative feedback: The coefficient for spending is negative in each of the five domains and easily exceeds conventional levels of statistical

¹⁹ This is much larger than analysis of appropriations implies. Based on the analysis in Table A2, each preference point is 'worth' 2.5 billion (1996) dollars. The coefficient for the linear trend variable thus has a very meaningful interpretation; indeed, it reveals that the public's underlying preferred level of spending increases by about 3.5 (1.41/.401) billion dollars on an annual basis.

significance. The coefficient does differ across the domains, however, and by quite a lot. Indeed, the differences appear to run counter to intuition, as estimated feedback is larger for the environment and big cities than it does for welfare and, especially, health. These differences are real but telling only about differences in the variance of spending in the domains, which is much larger for health and welfare than for the cities and the environment. Given that the over-time variance in preferences for spending in the different domains is essentially the same, it takes a much larger change in welfare and health spending to generate the same public response, by definition.²⁰

Table 2B. Basic Models of Net Support, by Domain, UK

Independent Variables	Dependent Variable: Net Preferences _t				
	Defense	Health	Education	Roads ^a	
Functional Spending (billions 87£) _t	-15.020*** (1.760)	-16.235*** (1.570)	-3.965*** (.527)	-5.556*** (.903)	-3.302* (1.764)
Net US Dislike of Russia _t	.156 (.126)	.307*** (.053)	—	—	—
Misery Index _t	—	—	-.107 (.254)	1.094*** (.296)	.919 (.584)
Counter	-1.146 (.871)	—	4.078*** (.376)	4.058*** (.358)	-.096 (.404)
Constant	-11.450 (8.986)	-23.325*** (1.949)	41.286*** (3.236)	34.809*** (3.106)	13.860*** (3.809)
Observations	18	18	18	18	18
R ²	.893	.880	.955	.943	.863
Adjusted R ²	.864	.864	.945	.931	.820
DW	2.004	1.944	1.726	2.663	-.335 ^b

Cells contain regression coefficients, with standard errors in parentheses; All independent variables are mean-centered.

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

^b As the model contains a lagged dependent variable, the statistic is durbin's h.

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

²⁰ The fact that preferences are largely parallel is strongly suggestive about the (global) focus of public responsiveness in many domains. This is the subject of further analysis below.

Table 2C. Basic Models of Net Support, by Domain, Canada

Independent Variables	<i>Dependent Variable: Net Preferences_t^a</i>						
	Defense ^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	.513** (.187)	.095 (.107)	—	—	—	—	—
Counter	3.263** (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.

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

^a Model includes a lagged dependent variable.

^b Includes a dummy variable for the post-9.11 period.

^c Federal spending for defense, and consolidated spending otherwise.

There also is a positive trend in the domestic domains, especially the social ones—welfare, health and education. This tells us that the underlying preferred levels of spending tend to increase over time, i.e., that Net Support itself will increase over time unless spending also increases at a sufficient rate.²¹ Presumably, this reflects ‘wealth effects’ or the equivalent (Wlezien, 1995).

The thermostatic model works even better in the UK. The results for defense in the first column of Table 2B parallel what we observe in the US. Specifically, defense spending preferences do not appear to follow the flow of US-Soviet relations, at least not very reliably. This result is deceiving, the seeming consequence of basic multicollinearity between net dislike and the linear trend variable. (The joint $F_{2,11}$ for the variables is 12.00, which denotes a p of .0017.). Excluding the trend variable, the coefficient for which actually is negative in column 1, reveals that UK defense spending preferences closely follow the measure of US net dislike of Russia. This is clear in the second column of Table 2B, where the coefficient for net dislike is highly reliable and the reduction in explained variance from the model including the counter variable trivial. The pattern indicates that the net dislike measure captures the actual variation in the Soviet threat over the period or else that public perceptions of that threat in the UK and US were essentially parallel. Either way, the British public’s underlying preferred levels of defense spending appear to change in understandable ways. They just do not trend upward over time, in contrast with the US.

Results in Table 2B also show that the UK public adjusts its preferences for more (less) defense spending in response to spending itself. A one billion (1987) pound (or 4%) increase in spending leads to a 15-point decline in net support. The estimated effect easily exceeds conventional levels of statistical significance. As in the US, the UK public notices and responds to what policymakers do with respect to defense.

Much the same is true for the domestic domains (columns 3-5 of Table 2B). As for the US, preferences for spending in these areas are largely unrelated to economic security, at

²¹ The trend coefficients combined with the feedback coefficients give us very specific estimates of these increases, which differ substantially across domains.

least as captured by the misery index. The economy only matters for education. To be absolutely clear, when the misery index increases, the UK public favors more spending.²² The result implies that the public's preferred levels of domestic spending reflect economic insecurity, at least in this one domain. There is a hint of such a relationship in preferences for spending on transport, though it is not highly significant. As indicated by the coefficients for the counter variable, UK spending preferences also trend upward over time for the two social domains—health and education. This is as we saw in the US, and tells us that underlying preferred levels of social spending increase over time.

The British public also adjusts its spending preferences in the different domestic domains in response to spending. As for defense, the public responds in thermostatic fashion over time, by adjusting its relative preferences downward as spending increases. The estimated responsiveness in each domain is approximately the same though the reliability differs, being much more pronounced for health, to a lesser extent for education, and much less so for roads. The pattern suggests that the information the public acquires about spending in the UK is remarkably accurate, perhaps even more so than in the US.²³

Results for Canada in Table 2C are less satisfying. The results in the first column of the table indicate that defense spending preferences in Canada closely follow the measures of net dislike of Russia in the US. The coefficient actually is larger than what we observe in the US and twice the estimated effect in the UK. It thus appears that the public's underlying preferred levels of defense spending in Canada, as in the US and UK, appear to change in understandable ways.²⁴ In direct contrast with what we see in the US and 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

²² Separate diagnostic analyses reveal that the effects of the two components of misery – unemployment and inflation – are virtually identical.

²³ Responsiveness in the UK appears to be greater than in the US even when the relative size and variance of spending is taken into account.

²⁴ Note also that preferences for more defense spending increased sharply after September 11th.

correlations are .73 and .83. Excluding the counter variable, the significant positive coefficient for which makes little sense without negative feedback, shifts things substantially.²⁵ As can be seen in the second column, the coefficient for spending now is 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 defense spending domain is only of modest importance to the Canadian public.²⁶

Results for the other domains show a bit more structure. In Table 2C, we can see that the economy has some effects on the ebb and flow of preferences for spending in Canada. The coefficient is negative in each of the domains, reliable only for health and the environment. Thus, when the misery index increases, the public favors less spending. This is in direct contrast to what we observe in the UK. It suggests that different publics can react in quite different—indeed, opposite—ways to economic change over time.²⁷ Most importantly for our analysis, there is only spotty evidence of thermostatic public responsiveness. The coefficient is appropriately negative in each of the domestic domains, but is significant only for welfare and the environment. These results contrast clearly with what we observe in the US and especially the UK, where public responsiveness is more extensive and intensive both. The countries clearly differ, and in meaningful ways. The differences also are as we expected.

The Focus Of Public Responsiveness

Thus far, we have assumed that public responsiveness is specific to domains. That is, the public responds to spending within particular areas. It may be, however, that the public's

²⁵ Positive trend without negative feedback would imply that preferences for *more* spending keep increasing over time, which is impossible.

²⁶ This is consistent with some previous research (Nevitte and Gibbins 1986).

²⁷ Separate diagnostic analyses reveal that estimating the separate effects of the two components of misery – unemployment and inflation – offers little additional information.

response is more collective, to spending across the various related domains. We have already seen that preferences for spending and actual spending in the different domestic programs move together over time. Perhaps the two are neatly connected, and the public notices only the common or ‘global’ movement in spending and not the specific movement unique to the different domains. (Perhaps policymakers likewise only notice the changes in preferences for the different programs taken together and not those that are particular to each domain, which will be explicitly addressed later in the paper.) It is important to consider this possibility (also see Wlezien, 2004).

To do so, we need to separate out the specific component of spending in the different areas from the global component that is shared across these domains. The most direct measure of the common variance is the factor relating spending in the domestic domains (see Table 1B). Since we want to identify the common component in domestic spending, we rely on the set of non-defense domains in the first spending factor in each country. We also exclude ‘big cities’ from the US analysis and ‘transport’ from the Canadian analysis because spending on these programs is strongly negatively correlated with other domestic spending, and thus not characteristically global. To enhance comparability with the results in Tables 2A-C – that is, to create a common metric – the variable used in the analysis represents the predicted values from the regression of spending on the underlying factor score, by domain and country. The regressions are not pooled across countries or across domains within countries, the latter of which because of huge differences in the variances of spending in the domains. That is, the underlying trend line differs considerably, partly due to the levels of spending themselves. The domain-specific components are simply the residuals from this regression, i.e., the difference between measured spending in each domain and the global component. By substituting the ‘global’ and ‘specific’ components of spending into the models of preferences, we can directly assess the focus of public responsiveness. If the public is responding to spending in particular domains, preferences will be about equally related to both components of net support; if the public is responding to global spending, preferences only will be related to the global component. This clearly is a conservative test, however. As the predicted common components are based on factor analysis and regressions that include spending in each domain, there is a bias against specific public responsiveness. The results of

estimating the models for each of the domestic domains in the three countries are presented in Tables 3A-C.

Table 3A. Assessing the Focus of Responsiveness, by Domain, US

	<i>Dependent Variable: Net Preferences_t^a</i>			
	Welfare	Health	Education	Environment
Global Spending _t	-.908*** (.263)	-.143* (.062)	-1.654*** (.368)	-9.593* (.5151)
Specific Spending _t	-.696** ^b (.247)	-.149 ^c (.132)	.569 (.392)	.804 (1.724)
Misery Index _t	.411 (.718)	.342 (.305)	.245 (.172)	.223 (.462)
Linear Trend	3.952*** (1.243)	1.175*** (.422)	1.813*** (.376)	1.877* (1.078)
Constant	15.850 (13.781)	18.891** (7.311)	24.066*** (5.131)	12.815*** (21.676)
Observations	26	26	26	26
Rsqr	.736	.824	.962	.768
Adj Rsqr	.670	.780	.953	.710
Durbin's h	.542	.051	.162	-.458

Cells contain regression coefficients, with standard errors in parentheses; results are from OLS regressions.

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

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

^b Coefficients for domestic and specific components are significantly different ($F_{1,20} = 1.58, p=.23$).

^c Coefficients for domestic and specific components are not significantly different ($F_{1,20} = .00, p=.95$).

The results differ quite a lot across countries. For the US, in Table 3A, the effect of global spending is negative and highly reliable in all domestic domains but big cities (which is not shown here). As in the domain-specific analysis, the coefficients for the global component differ across domains due to the differences in the variance of spending. These coefficients serve as the baseline against which the effects of residual net support in each domain can be compared. Now, the relative effects of the specific components differ substantially across domains. For welfare, the coefficient is negative and significantly

different from 0 and not significantly different from the coefficient for global spending ($F_{1,20} = 1.58$, $p=.23$). The result is of obvious importance, and tells us that the public responds directly to spending on welfare, not to general tendencies in spending on the various social programs.

Table 3B. Assessing the Focus of Responsiveness, by Domain, UK

Independent Variables	Dependent Variable: Net Preferences _t		
	Health	Education	Roads
Global Spending (billions £1987) _t	-4.01*** (.787)	-5.650*** (.898)	-8.800*** (2.674)
Specific Spending (billions £1987) _t	-3.834*** ^a (1.722)	-4.171*** ^b (1.579)	-.908 ^c (4.697)
Misery Index _t	-.108 (.264)	1.182*** (.304)	1.648 (.950)
Counter	4.061*** (.444)	4.152*** (.364)	2.946* (1.350)
Constant	33.830*** (5.636)	35.578*** (8.781)	19.253 (11.638)
Observations	18	18	18
R ²	.955	.948	.610
Adjusted R ²	.941	.932	.490
DW	1.710	2.729	1.291

Cells contain regression coefficients, with standard errors in parentheses; results are from OLS regressions.

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

^a Coefficients for domestic and specific components are not significantly different ($F_{1,13} = .01$, $p=.94$)

^b Coefficients for domestic and specific components are not significantly different ($F_{1,13} = 1.27$, $p=.28$)

^c Coefficients for domestic and specific components are significantly different ($F_{1,13} = 3.32$, $p=.09$)

The same is not true in the other domains. For health, the coefficient for specific net support actually is virtually the same as that for the global component. Indeed, the coefficients are indistinguishable ($F_{1,20} = .00$, $p=.95$). The problem is that it also is indistinguishable from 0. This partly reflects the fact that health spending loads highest on the global spending factor, with a correlation of .98. There simply is little left in the residual.

Indeed, much of what is there is sampling error and taking this into account does substantially increase statistical significance. There thus is a very strong scent of specific responsiveness in the health domain. As we turn to expenditures on education and the environment, the effect of specific net support disappears; indeed, it turns positive. Public responsiveness in these domains is global.²⁸ The focus of US public responsiveness clearly varies substantially across domains.

Table 3C. Assessing the Focus of Responsiveness, by Domain, Canada

Independent Variables	<i>Dependent Variable: Net Preferences_t</i>			
	Welfare	Health	Education	Environment ^a
Global Spending (billions \$1992) _t	-2.345** (.964)	-2.071** (1.018)	-2.548** (1.082)	-19.107*** (5.606)
Specific Spending (billions \$1992) _t	-1.778* ^b (1.932)	1.606 (1.138)	.618 (1.734)	-1.301 (5.556)
Misery Index _t	1.855 (1.604)	-2.114 (1.941)	1.663 (1.734)	-2.269 (1.736)
Counter	2.548** (1.193)	4.324** (1.772)	3.896*** (1.133)	1.238 (.894)
Constant	-19.700* (7.035)	-23.737 (26.528)	33.169 (19.478)	35.468** (10.801)
Observations	14	14	14	14
R ²	.813	.926	.808	.934
Adj R ²	.730	.893	.723	.893
DW	1.609	2.449	1.458	-.430 ^b

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

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

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

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

^c As the model contains a lagged dependent variable, the statistic is durbin's h.

²⁸ Recall that big cities is not included because spending is negatively correlated with spending in the other domestic domains. See Table 1B.

In the UK, things are slightly more consistent. As can be seen in Table 3B, the coefficient for global spending is negative and highly reliable in each domain. The coefficient for specific spending is negative and significantly different from 0 in both the health and education domains. The coefficients for the global and specific components are indistinguishable in each of these domains ($p = .94$ and $.28$, respectively). This pattern implies that the British public notices and responds to spending on health and education *per se*, rather than just social spending in general. We cannot quite say the same about transport. Here the coefficient for specific spending is not significantly different from 0 and is significantly different from the coefficient for the global component. It nevertheless is clear from the health and education results that the British public is much more informed about policy behavior than what we see in the US. This is as we expect with unitary government.

In contrast, public responsiveness in Canada appears to be largely global. In Table 3C, the global coefficient is negative and significantly different from 0 in each domain. This is true even for health and education, where we did not see responsiveness in the preceding analysis.²⁹ Thus the public is much more responsive than analysis using by-domain measures would lead us to believe. The coefficients do differ somewhat, and especially in the case of the environment, and 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 as a change in spending on the ‘environment.’ That preferences in the various domains are largely parallel over time further implies that responsiveness in the environmental domain is substantially global.

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

²⁹ This helps make more understandable the fairly strict parallelism of preferences over time.

specific components are positive. In the environment domain, the coefficient is appropriately negative but highly unreliable.³⁰ With the important exception of welfare, the public in Canada appears to notice only very general patterns of social spending, more so than in the US. This is as we might expect with highly federalized government.

AN ANALYSIS OF OPINION REPRESENTATION

Thus far, we have seen that the public responds to spending in the different countries, and that this responsiveness varies in significant ways. Most importantly, the observed pattern of responsiveness across countries is exactly as we would expect given differences in federalism—namely, publics in more federal countries appear to be less responsiveness to policy. (The pattern also implies that the horizontal separation of powers has no real effect.) In this section, we address the other side of the thermostatic model: policy representation—whether and to what extent politicians represent these preferences in spending policy itself. Recall that the analyses of public responsiveness set significant upper bound parameters on representation; that is, rational politicians should not be, and perhaps could not be, any more responsive than the public. Also recall that we expect governments to differ, even given the evident patterns of public responsiveness. Specifically, presidential governments are expected to be more responsive to public preferences than parliamentary ones.

For this analysis, we build directly on recent ‘political’ models of policy change (Stimson, MacKuen, and Erikson 1995; Wlezien 1996a, 2004; Smith 1999), which include measures of public preferences and party control of government. Following equation 3, the dependent variables used in the analyses represent the first *differences* of spending (in constant dollars/pounds) for each of the 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 currently. In the

³⁰ Recall that transport is not included because spending is negatively correlated with spending in the other domestic domains. See Table 1B.

budgetary context, this means that 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 Democrat/Labour/Liberal governments and '0' under Republican/Conservative governments. The measure of party control 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 actually is theoretically implied (Wlezien 1996a; 2004). It also is supported by separate diagnostic analyses.

In addition to preferences and party control, the model includes a measure of public debt (in constant dollars/pounds). This is included based on the expectation that governments will tend to reduce spending in reaction to a looming debt, following Blais, Blake, and Dion (1996). 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. Including other 'baseline' variables does not meaningfully alter the results presented below. Thus, the analysis that follows relies on a simple model that includes measures of public preferences for spending, the party control of government, and the level of public debt.³¹

Parameters of Policy Responsiveness

To begin, the model is estimated for each spending domain using the separate measures of net support. Such an analysis offers a very general characterization of politicians' responsiveness across domains. Following from analyses of public responsiveness, we might

³¹ The US defense spending models include a control for the Iraq-Kuwaiti war in 1991 and the US environmental spending model includes controls for program growth beginning in FY1977. The Canadian welfare spending model includes a control for the unemployment rate, as it was not possible to isolate and subtract out entitlement funding, in contrast with the US.

expect policy representation in all of the domains except perhaps transport in Canada and big cities in the US. Of course, this presumes that the countries and their institutions don't matter. And as noted earlier, there is reason to think that they do. Indeed, we expect representation to vary with the horizontal division of powers as well—to be most evident in the US and less evident in Canada and the UK.

Results for the US are shown in Table 4A. In the first column, we see that changes in appropriations do not closely follow public preferences for defense spending over time, in seeming contrast with previous research (Wlezien 1996a). This partly reflects the focus on outlays instead of appropriations, which better capture budgetary policy *per se*. As can be seen in Appendix Table A3, defense spending preferences have a very significant, positive effect on appropriations change. Even there, however, things are not entirely as we would expect. Specifically, the party of the president has a much lesser effect and the Congressional composition a much greater effect compared with previous research. In Table 4A, the coefficient for the party of the president actually is incorrectly positively signed, indicating that Democratic presidents spend more than Republicans, *ceteris paribus*. As we will see, these patterns partly reflect the strong collinearity between the party control variables and debt, e.g., the former explain over 50 percent of the variance in the latter. The connections are not mere coincidence, as the spending and tax decisions of governments influence the deficit and, by definition, the debt over time. The consequences for our analysis are rather substantial.

In the other domains, public preferences matter reliably only for welfare, health, and environmental spending. The coefficient is positive in the other two domains but not significant. The party control coefficients all are appropriately signed. Only the effects of Congressional control are reliable, however, and only for welfare and education. Least satisfying is the influence of public debt, the estimate of which is positive in each of the domestic domains. This clearly contrasts with our theoretical expectation and there is no other basis for seriously crediting such an effect. Given this, and the very high (and understandable) collinearity between debt and the party variables noted above, it seems most

appropriate to simply exclude the variable from the model. As can be seen in Table 4B, this has noticeable effects.

Table 4A. Policy Representation, by Domain, US (Billions of 1996 Dollars)

	<i>Dependent Variable: Δ Spending (billions) _t</i>					
	Defense ^a	Welfare	Health	Education ^b	Env'ment ^c	Cities
Net Functional Preferences _{t-1}	.086 (.120)	.337** (.164)	.440** (.195)	.138 (.212)	.082** (.036)	.048 (.071)
Party of President _{t-1}	3.605 (4.555)	5.616 (4.183)	.141 (2.063)	1.421 (2.284)	.108 (.807)	.759 (.725)
Party in Government _{t-1}	-1.879*** (.364)	.804*** (.291)	.139 (.164)	.353*** (.118)	.007 (.038)	.088 (.064)
Public Debt (Billions 96\$) _{t-1}	-.0098*** (.0021)	.0012*** (.0012)	.0008 (.0012)	.0001 (.0014)	.0003 (.0003)	.0001 (.0005)
Constant	63.514*** (21.524)	63.514*** (21.524)	-25.983 (16.040)	-16.067 (9.357)	2.724 (4.149)	-3.952 (4.461)
Observations	25	25	25	25	25	25
Rsqr	.864	.309	.636	.415	.571	.357
Adj Rsqr	.819	.170	.564	.254	.589	.188
DW(original)	1.998	2.327	1.369	.001 ^d	1.913	2.349

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

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

^a Includes a control for the Iraq-Kuwait war in 1991.

^b Includes a lagged dependent variable.

^c Includes controls for program growth beginning in FY1977.

^d As the model contains a lagged dependent variable, the statistic is durbin's h.

Results in Table 4B are much more in line with prior research (Wlezien 2004). The estimated effects of presidential party are more as we would expect and significant in the defense and welfare domains. Understandably, the direction of the party effect on defense spending is the opposite of what is found for welfare. For defense, the annual change in expenditures is about 12 billion (1996) dollars lower under Democratic presidents than under Republican presidents, given public preferences; for welfare, the annual change is about 7.5

billion (1996) dollars higher.³² The Congressional composition also powerfully structures spending on these programs. Defense and welfare is where the partisan action is.

Table 4B. Policy Representation, by Domain, US, excluding Public Debt (Billions of 1996 Dollars)

	<i>Dependent Variable: Δ Spending (billions) $_t$</i>					
	Defense ^a	Welfare	Health	Education ^b	Env'ment ^c	Cities
Net Functional Preferences $_{t-1}$.472*** (.112)	.382** (.157)	.553*** (.094)	.165** (.073)	.116*** (.021)	.047 (.034)
Party of President $_{t-1}$	-12.224*** (4.423)	7.549* (3.745)	1.205 (1.299)	1.699 (1.084)	.906** (.386)	.648 (.546)
Party in Government $_{t-1}$	-.679* (.363)	.679*** (.265)	.061 (.114)	.350*** (.113)	-.008 (.036)	.108* (.051)
Constant	63.514*** (21.524)	63.514*** (21.524)	-26.287 (15.980)	-16.628* (8.885)	4.946 (4.593)	-2.832 (4.965)
Observations	25	25	25	25	25	25
Rsqr	.698	.272	.628	.415	.645	.213
Adj Rsqr	.619	.168	.575	.292	.583	.100
DW	1.511	2.159	1.475	-.033 ^d	1.853	1.490

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

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

^a Includes a control for the Iraq-Kuwait war in 1991.

^b Includes a lagged dependent variable.

^c Includes controls for program growth beginning in FY1977.

^d As the model contains a lagged dependent variable, the statistic is durbin's h.

Most importantly, the effect of preferences is positive in all domains and significant in all but big cities. The general pattern is largely symmetrical to what we observed in our analyses of public responsiveness to spending in Table 2A and 3A: Where the public notices and responds to spending, policymakers appear to notice and respond to the public's preferences. This responsiveness does vary across domains, however. It is larger for health

³² Note that the patterned effect of presidential party helps account for the cyclicalities of defense and social spending. Given feedback, the patterned difference in presidential party effects on defense and welfare appropriations also partially accounts for the strong, negative relationship between preferences for defense and social spending over time.

and defense and welfare, smaller for education and the environment, and virtually zero for big cities.³³ This is as we expect.

Table 4C. Policy Representation, by Domain, UK (Billions of 1987 Pounds)

Independent Variables	<i>Dependent Variable: Changes in Spending (billions 87£) _t</i>			
	<i>Defense^a</i>	<i>Health</i>	<i>Education</i>	<i>Transport^a</i>
Net Functional Preferences _{t-1}	.029*** (.010)	.036** (.016)	.031 (.019)	.011 (.013)
Party in Government _{t-1}	.525 (.489)	.974* (.475)	.675 (.591)	.340 (.442)
Public Debt (billions 87£) _{t-1}	-.003 (.006)	-.012* (.006)	-.006 (.006)	-.017** (.007)
Constant	-5.602** (2.403)	-2.134 (1.264)	-1.903 (1.403)	-.435 (.455)
Observations	18	18	18	18
R ²	.514	.434	.217	.387
Adjusted R ²	.364	.314	.049	.255
DW	-.091 ^b	2.147	1.724	-.082

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

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

^a Results based on an estimated model that includes the lagged level of spending.

^b As the model contains a lagged dependent variable, the statistic is durbin's h.

Results for the UK are shown in Table 4C. In the first column we can see that changes in defense spending do follow public preferences over time. This is satisfying given our analysis of public preferences: Where the public notices and responds to spending, policymakers appear to notice and respond to the public's preferences. A one standard deviation (or 22.0 point) increase in net support leads to a .6 billion (1987) pound increase in

³³ The differences across domains are somewhat deceiving. That is, they partially reflect the size of the programs themselves, i.e., the larger the program, the larger the estimated responsiveness. Even when adjusted for program size, however, there are meaningful differences across domains and the statistical significance of the effects differs similarly, if less dramatically. See Wlezien (2004).

spending. This is small by comparison with what we see in the US, where a similar shift in preferences (both in absolute and relative terms) produces a much larger, 8.9 billion (1996) dollar increase. When taking into account the size of the defense budgets in the two countries, however, the effects are quite similar: 3.6 and 3.1 percent of the mean budget, respectively.

Table 4D. Policy Representation, by Domain, Canada (Billions of 1992 Dollars)

Independent Variables	<i>Dependent Variable: Changes in Spending^a (billions \$1992)_t</i>					
	Defense	Welfare ^b	Health	Education	Environment	Transport
Net Functional Preferences _{t-1}	.026 (.015)	.348*** (.077)	.080*** (.022)	.029 (.038)	.007 (.008)	-.021 (.049)
Party in Government _{t-1}	-.681 (.670)	2.642 (2.304)	-.244 (1.575)	1.092 (1.427)	-.052 (.380)	2.421 (1.575)
Public Debt (billions \$1992) ^c _{t-1}	.003 (.003)	-.018* (.009)	-.004 (.007)	-.014** (.006)	-.001 (.001)	-.013 (.009)
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.

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

^a Federal spending for defense, and Consolidated spending otherwise.

^b Includes the mean annual unemployment rate.

^c Federal debt for defense, and consolidated debt otherwise.

This pattern does not hold in the domestic domains, however. Although the coefficients for net support all are positive and quite sizable—given the estimate for defense—only the effect of health preferences is significant. Despite the British public's very pronounced responsiveness to spending in the different domains, UK policymakers remain only selectively responsive to public preferences. While inconsistent with public responsiveness, the pattern is perfectly consistent with our expectations about the mediating effect of

government institutions, at least the separation of powers. Indeed, it is precisely what we would expect in a majoritarian Westminster parliamentary system.³⁴

The effect of party control in the British domestic domains is pretty much as for preferences. The coefficients all are appropriately positively-signed but Labour government control only reliably matters for spending on health. Based on this analysis, politics appear to have little to do with spending on the non-health domestic programs. All that seems to matter is the level of public debt.

The Canadian results in Table 4D fall somewhere in between what we see in the US and UK. In the first column notice that the link between defense 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 defense spending domain.³⁵ Although this in clear contrast with the US and 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 would expect.

The effect of opinion varies across the other Canadian domains. The coefficient is positive in every case except transport; it is significant only for welfare and health spending. This is not exactly as we would expect based on the analysis of public preferences. We saw evidence of public responsiveness to spending on welfare, but also spending on the environment and not health. We did see evidence of global public responsiveness to spending on health but also education. However one slices it, the patterns of representation and feedback just don't match. Why do policymakers reflect preferences on health but not the environment? And what about education? There may be a simple solution to all of this. That

³⁴ Note that this pattern is completely contrary to what we would expect were federalism a powerful mitigator of representation—while federalism seems fundamental to public responsiveness, the horizontal division of powers appears to matter most for policy responsiveness.

³⁵ And note that even minimal adjustment for sampling error boosts significance across the threshold.

is, it may be that Canadian policymakers respond mostly to global spending preferences, much as the public responds primarily to global spending. Then again, it may be that Canadian policymakers behave much like their counterparts in the UK. This too would be understandable: After all, both are majoritarian parliamentary systems.

The Focus Of Representation

We have considered the possibility that the public responds only to general domestic spending over time. Now, let us see whether policymakers respond to the common or global movement in preferences and not the specific movement unique to the different domains. To do so, we derive the ‘global’ and ‘specific’ components of domestic by-domain preferences using the same method described above for the spending series. That is, we generate the factor relating preferences in the domestic domains and then generate a predicted domestic spending preference in each country. In contrast with the spending series, we pool across domains within each country to predict the global preference.³⁶ Thus, this component is identical in the different domains, and its effects more comparable across the domains. The specific component in each domain is simply the series of residuals, i.e., the difference between measured preferences in each domain and the global component. As above, by substituting the ‘global’ and ‘specific’ components of preferences into the models of spending, we can directly assess the focus of policymaker responsiveness. If policymakers are responding to preferences in particular domains, spending will be about equally related to both components of preferences; if policymakers are responding to global preferences alone, spending will only be related to the common component. As for the analysis of preferences, these tests are conservative ones, biased against finding specific responsiveness because the predicted common component is based on a factor analysis that includes preferences for spending in each of the domains.

³⁶ We do not pool across countries, however.

The results of this analysis are shown in Tables 5A-C. Consider first the US results in Table 5A. Here we can see that the effects of the underlying global component of preferences are similar to the effects of by-domain preferences in Table 4B, if slightly larger. These coefficients serve as the baseline against which the effects of the domain-specific components of preferences can be compared.

Table 5A . Assessing the Focus of Policy Representation, by Domain, US

	<i>Dependent Variable: Δ Spending (billions) $_t$</i>				
	Welfare	Health	Education ^a	Env'ment ^b	Cities
Global Preferences _{t-1}	.500*** (.181)	.556*** (.094)	.172** (.075)	.138*** (.021)	.060 (.037)
Specific Preferences _{t-1}	.238 ^c (.193)	.276 ^d (.248)	.006 ^e (.238)	.030 ^f (.043)	.043 (.063)
Party of President _{t-1}	6.401* (3.800)	1.988 (1.441)	2.097 (1.235)	.414 (.6413)	.914 (.662)
Party in Government _{t-1}	.688** (.262)	.137 (.129)	.299** (.136)	-.009 (.032)	.085 (.051)
Constant	23.803 (31.883)	-33.749 (20.064)	-15.003 (9.379)	3.226 (4.458)	-2.832 (4.965)
Observations	25	25	24	25	25
Rsq	.325	.653	.431	.729	.358
Adj Rsq	.190	.684	.273	.661	.190
DW(original)	2.313	1.326	-.43 ^g	1.899	2.388

Cells contain OLS regression coefficients, with standard errors in parentheses.

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

^a Includes a lagged dependent variable.

^b Includes controls for program growth beginning in FY1977.

^c Coefficients for domestic and specific components are not significantly different ($F_{1,20} = 1.56, p=.23$).

^d Coefficients for domestic and specific components are not significantly different ($F_{1,20} = 1.44, p=.24$).

^e Coefficients for domestic and specific components are significantly different ($F_{1,19} = .50, p=.49$).

^f Coefficients for domestic and specific components are significantly different ($F_{1,20} = 4.91, p=.04$).

^g As the model contains a lagged dependent variable, the statistic is durbin's h.

Table 5B. Assessing the Focus of Policy Representation, by Domain, UK

Independent Variables	Dependent Variable: <i>Changes in Spending (billions 87£) _t</i>		
	<i>Health</i>	<i>Education</i>	<i>Transport^a</i>
Global Preferences _{t-1}	.065* (.033)	.045 (.032)	.037 (.036)
Specific Preferences _{t-1}	.006 (.033)	.008 (.043)	.013 (.013)
Party in Government _{t-1}	1.532* (.727)	.843 (.669)	-.814 (.748)
Public Debt (billions 87£) _{t-1}	-.010 (.007)	-.004 (.007)	-.015* (.007)
Constant	.028 (.841)	-.165 (.746)	-.748 (.845)
Observations	18	18	18
R ²	.476	.237	.415
Adjusted R ²	.315	.003	.235
DW	2.032	1.845	-.355 ^b
Observations	18	18	18

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

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

^a Results based on an estimated model that includes the lagged level of spending.

^b As the model contains a lagged dependent variable, the statistic is durbin's h.

The effects of the specific components differ substantially, and none are statistically significant. For welfare and health, however, the coefficients are about half the size of and not significantly different from the coefficients for the global component (*p*-values are .23 and .24, respectively). This is suggestive about the focus of government responsiveness. More importantly, further analyses reveal significant effects. For instance, removing preferences for welfare and health (with replacement) from the construction of the global component increases the coefficients for the specific components to .305 (s.e.=.157) and .353 (s.e.=.196). Adjusting for sampling error further improves the results. It appears, therefore, that politicians do respond directly to welfare and health preferences, not only to the global component. Representation in these domains is specific. This is as we expect based on the analyses of public preferences. For education, the environment, and big cities, the relative

effect of specific net support is relatively small. Politicians respond solely to the global social spending signal when making spending decisions in these domains, and reliably so only for education and the environment.

Table 5C. Assessing the Focus of Policy Representation, by Domain, Canada

Independent Variables	<i>Dependent Variable: Changes in Spending^a (billions \$1992)_t</i>				
	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}	-.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.

^a Federal spending for defense, and Consolidated spending otherwise.

^b Includes the mean annual unemployment rate.

These results are largely symmetrical to the results of our analyses of public preferences: where the public responds to spending in specific domains, such as defense and welfare and health, policymakers respond to preferences within those domains; where the public only notices spending on social programs taken together, as for education and the environment, policymakers pay attention only to the global signal for social spending; where the public does not reliably respond to spending, as for cities, policymakers do not respond to preferences at any level.

The results for the UK in Table 5B reveal a different pattern. While the coefficients for all of the preference coefficients are positive, only the global preference is a significant determinant, and only for health spending, and barely so at that. The effect of the specific preference does not even approach statistical significance.³⁷ Thus, putting aside defense, there is strikingly little evidence of representation in the UK. Even where we do find it, as in the health domain, it is of a very global variety. These results further support our suspicions about the parliamentary system and the discretion it affords governments, at least under majoritarian rule.

In Table 5C, we can see that Canada again is in between. 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 also is 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 also is consistent with the analysis of public preferences. There is no evidence of representation in the other domains, however. This is in contrast with our analysis of public preferences for education and environmental spending, which revealed strong global public responsiveness. Canadian policymakers thus are dependent on public opinion in some domains and largely independent in others. It is additional evidence for the importance of government institutions.

THE DOMESTIC DOMAINS TAKEN TOGETHER

Thus far, we have assumed that politicians 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 is useful to consider what happens when we aggregate across domains, however. After all, it now is commonplace for scholars to lump programs together, say, social spending.

³⁷ This is true even when adjusting for sampling error.

Aggregating can have very beneficial effects. It may reveal collective representation. That is, it may be that the domestic domains are effectively substitutable to policymakers, and not evident in analyses of particular domains. The same also may be true of the public. To consider these possibilities, we estimate the basic models of preferences and policy using average net support and the sum of spending in the domestic domains in each country. The results are shown in Table 6 and 7.

Table 6. Public Responsiveness, Domestic Functions Combined

	<i>Dependent Variable: Net Domestic Preferences_t</i>		
	US ^a	UK	Canada ^a
Sum of Spending _t	-.219*** (.020)	-2.214*** (.340)	-.327** (.125)
Misery Index _t	.507* (.200)	.972** (.344)	-1.994** (.865)
Counter	2.905*** (.234)	3.622*** (.433)	.427 (.551)
Constant	11.258*** (3.422)	32.390*** (3.751)	26.851*** (5.315)
Observations	26	18	14
Rsqr	.922	.849	.959
Adj Rsqr	.912	.817	.941
DW	1.568	1.575	-.781 ^b

Cells contain regression coefficients, with standard errors in parentheses. US spending figures are in billions of constant 1996 dollars; UK spending figures are in billions of constant 1987 pounds; Canadian spending figures are in billions of constant 1992 dollars.

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

^a Model includes a lagged dependent variable.

^b As the model contains a lagged dependent variable, the statistic is durbin's h.

Table 6 contains the results of public opinion analyses. These results largely summarize the by-domain results in Tables 2A-C. This analysis thus offers little additional information about the nature of policy responsiveness, but is expected. The results do clarify certain things, however. For instance, they make clear just how much less responsive the Canadian

public is by comparison with US and UK. That is, public responsiveness is *far* more reliable in the latter two countries.³⁸

Table 7. Policy Representation, Domestic Functions Combined

	<i>Dependent Variable: Δ Spending (billions) _t</i>		
	US ^a	UK	Canada
Average Domestic Preference _{t-1}	1.395*** (.229)	.133** (.047)	.282** (.100)
Party of President _{t-1}	10.975*** (3.247)	—	—
Party in Government _{t-1}	1.362*** (.287)	2.975** (1.076)	.277 (3.662)
Public Debt _{t-1}	—	-.031** (.011)	-.028 (.019)
Constant	-31.782 (32.690)	-3.059 (3.857)	-.140 (2.321)
Observations	25	18	13
Rsqr	.661	.624	.774
Adj Rsqr	.613	.544	.699
DW	2.017	2.456	2.158

Cells contain regression coefficients, with standard errors in parentheses. US spending figures are in billions of constant 1996 dollars; UK spending figures are in billions of constant 1987 pounds; Canadian spending figures are in billions of constant 1992 dollars.

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

^a Model includes a control for the Carter transition in FY1977.

³⁸ Note also that Table 6 shows that economic security matters for US spending preferences, a finding that did not emerge in Table 2A (and Table 3A) when domains were examined individually. Moreover, the US public reacts to economic security in the same way as the UK public—decreased security leads to increased preferences for spending. This is in contrast to what we find in Canada. The difference may partly be a function of the time period examined for each country. The pattern also may reflect enduring differences in publics' reactions to economic security, which is a topic for future research.

The results of the spending analysis in Table 7 are more revealing. Like the analysis of preferences, they show us some things that we already knew from earlier results. For instance, we can see that public debt is a spending constraint in the UK, as we learned in Table 4C. We also can see that public opinion matters in the US and Canada. The analysis also shows us things we didn't know. Consider the effects of public opinion in the UK. In the aggregate, we can see that public opinion is a powerful determinant of domestic spending in the UK. This was not clear from our preceding analysis. Here, the coefficient (.133) for the average net support for spending is substantially greater than the sum (.078) of the three coefficients for the specific measures of net support in Table 4C. The coefficient also is highly reliable, more so than the in Canada. These results taken together indicate collective representation in the UK. When sensing shifting preferences for domestic programs, policymakers tend to pick and choose, sometimes providing more health and at other times education and at yet other times transport. Perhaps they provide some in combination or a little of all three. This is a very different type of representation to what we observe in the US. It is somewhat different to what we see in Canada as well.

The aggregate-level analyses also allow us to provide broad assessments of efficiency in the three countries. That is, we can assess the net effect of representation and feedback. What happens when preferences increase? Imagine a one-unit shock in the public's underlying preferred level of spending. How quickly does it take for the system to re-equilibrate? That is, how long does it take for spending to adjust? The simplest and best way to capture measure system efficiency is to simply multiply the feedback and representation coefficients in each country. The product tells us how much of the shock is corrected in each year. Consider Table 8A. The first row lists the feedback coefficients from Table 6 and the second row lists the representation coefficients from Table 7. The third row shows the product of the two. Table 8B shows the same results using a common currency and base year, the Canadian dollar in 1992.³⁹ This allows us additional basis for comparison, though it also is somewhat deceiving.

³⁹ Currencies were converted based on mean annual exchange rates during the period 1981-2000, available via the OECD's *Main Economic Indicators* series.

**Table 8A. Net Representation and Feedback,
Domestic Functions Combined**

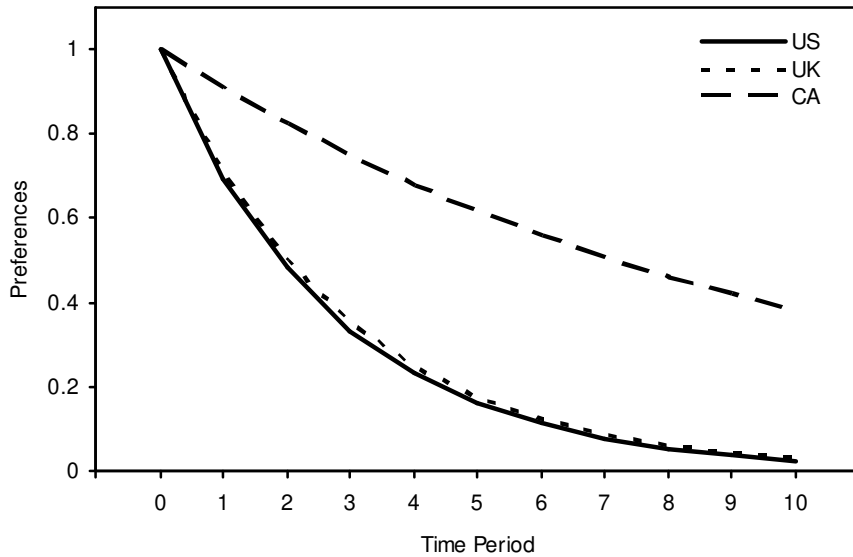
	<i>Efficiency Estimate</i>		
	US	UK	Canada
Feedback Coefficient	-.219	-2.214	-.327
Representation Coefficient	1.395	.133	.282
The Coefficients Multiplied	-.306	-.294	-.092

**Table 8B. Net Representation and Feedback,
Domestic Functions Combined, In 1992 Canadian Dollars**

	<i>Efficiency Estimate</i>		
	US	UK	Canada
Feedback Coefficient	-.183	-.754	-.327
Representation Coefficient	1.664	.391	.282
The Coefficients Multiplied	-.306	-.294	-.092

Take the feedback coefficients in the first row of Table 8B. The coefficient in the UK is more than twice the size of the coefficient in Canada, which in turn is almost twice the size of the coefficient in the US. These are real differences; it just is not clear what explains the differences. Is it that the British public is much more responsive? Or is it that the preference-spending metrics differ across countries? We cannot tell. The same also is true for the representation coefficients. As noted above, we can glean important information from the product of the two coefficients in the third column. That is, we can tell how quickly representation and feedback produce equilibration.

Figure 2. Simulated Effect of a One-Unit Increase in Preferences



Let us simulate the effects of a one-point increase in preferences in year t in each of the three countries. What happens next? Based on the representation coefficient for the US in Table 8B, we would predict that spending would increase by 1.664 billion Canadian dollars in year $t+1$. In turn, based on the feedback coefficient in the table, we would expect the public to adjust downward its preferences for more spending; specifically, we would expect preferences to drop by .306, the simple product of the spending increase (1.664) and the coefficient of feedback (-.183). Carrying this forward through time indicates that the half life of the hypothetical one-unit shock is two years. This can be seen in Figure 2, which plots simulated preferences through time for the US, UK and Canada. Notice that we observe a similar pattern in the UK. In effect, the US and the UK are equally efficient. Canada is much less so. Indeed, based on the results in Table 8B, Canada is about one-third as efficient as the US and UK; the half life of a one-unit shock is seven years. The pattern may be perfectly understandable. While the UK may benefit from being a unitary system and the US from being a presidential one, Canada benefits from neither.

CONCLUSIONS

Whether due to different institutions, policy processes or political culture, the public's reactions to policy and policymakers' responses to preferences vary across countries, and indeed within countries across policy domains (and, presumably, across sub-national governments). The preceding research illustrates this point. Before noting differences, however, it is important to make clear the fundamental similarity: The thermostatic model works in each of the three countries. 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. Democracy works. There nevertheless are important differences in the details. Indeed, it appears that democracy works better in some countries than others. These differences may be understandable given differences in the government institutions, especially the division of powers.

First, the degree of public responsiveness varies across both spending domains and countries. Across domains, responsiveness tends to be greater in certain domains, specifically, defense, welfare, and health. Across countries, responsiveness is most pervasive and specific in the UK, less so in the US, and mostly very general in Canada. These differences are as we expected given differences in the vertical division of powers in the different countries. The greater the federalism the weaker the public's responsiveness.

Second, the degree of policy representation also varies across spending domains and countries, though especially the latter. In the US, policymaker responsiveness to preferences is extensive and perfectly symmetrical to public responsiveness to policy itself. In the UK, and despite pervasive and deep public responsiveness, policymaker responsiveness to preferences is apparent only in the defense domain and at the collective, aggregate level in the domestic domains. In Canada, policymaker responsiveness is mixed, specific in the defense and welfare domain and not evident at all in the other domains. These findings are much as we expected given differences in the horizontal division of powers in the different countries. The more powers are concentrated the lesser the policy representation.

The last set of findings deserves further elaboration. In our sole presidential system, the US, we observe not only a high level of policy responsiveness to preferences but actual symmetry with public responsiveness. The pattern implies that the behavior of politicians there reflects the public importance of different policy domains. In our two parliamentary systems, the UK and Canada, we observe lower overall levels of policy responsiveness and little symmetry. Policymakers in these countries do respond to public preferences. In doing so, they exercise substantial discretion, however. This is especially true in the UK.

Finally, the net effect of public and policy responsiveness differs across countries. The product is greatest in the US and UK and much lower in Canada. This is telling about the efficiency of the systems, and also may be understandable: While the UK benefits from being a unitary system and the US from being a presidential one, Canada benefits from neither.

Of course, there are other possible explanations for the patterns we observe. The problem is sorting among them. After all, what we really have provided here is three cases. Only when our analyses encompass a larger and more wide-ranging set of countries can we begin to tell how and why opinion-policy linkages vary. We nevertheless have learned quite a lot. Most fundamentally, we now know that the thermostatic model works in at least three different countries.

Appendix Table A1. Descriptives

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>US Preferences</i> (1976-1999)					
Defense	20	-9.4	21.2	-31.5	45.0
Welfare	21	-31.6	12.4	-48.0	-15.3
Health	21	56.9	7.0	47.0	69.6
Education	21	54.2	9.7	38.0	68.3
Environment	21	48.8	10.9	31.0	68.2
Big Cities	21	29.6	8.7	17.0	42.9
<i>US Spending</i> (1976-1999)					
Defense	24	307.6	52.2	235.1	400.9
Welfare	24	100.7	21.8	71.9	134.0
Health	24	73.0	36.2	36.5	135.8
Education	24	39.0	4.6	31.3	46.7
Environment	24	20.9	3.3	14.6	28.7
Big Cities	24	11.5	4.9	7.7	29.0
<i>UK Preferences</i> (1978-1996)					
Defense	15	-25.0	21.7	-48.0	20.0
Education	15	69.5	10.4	44.0	82.0
Health	15	76.6	9.7	59.0	87.0
Transport	15	44.8	11.4	23.0	57.0
<i>UK Spending</i> (1978-1996)					
Defense	19	16.8	1.5	13.8	19.0
Education	19	20.4	2.2	18.1	23.8
Health	19	21.2	3.8	16.1	28.0
Transport	19	6.5	0.9	5.1	8.3
<i>Canada Preferences</i> (1984-2001)					
Health	15	47.2	18.0	24.0	74.0
Welfare	17	-14.4	9.4	-33.0	0.0
Transport	14	11.0	12.1	-3.0	43.0
Environment	16	43.7	13.6	27.0	70.0
Defense	16	-3.5	18.9	-28.0	46.0
Education	13	53.5	10.4	39.0	70.0
<i>Canada Spending</i> (1984-2001)					
Health	18	49.5	8.0	36.8	65.8
Welfare	14	57.7	4.6	48.4	64.7
Transport	14	17.1	1.5	14.7	19.3
Environment	18	7.1	1.1	5.0	8.3
Defense	18	11.5	1.1	9.6	13.0
Education	18	49.8	4.7	41.5	54.9

US spending figures are in billions of constant 1996 dollars; UK spending figures are in billions of constant 1987 pounds; Canadian spending figures are in billions of constant 1992 dollars.

**Appendix Table A2. Models of Net Support for
Defense Spending in the United States, 1976-2001**

Independent Variables	Dependent Variable: Net Preferences _t ^a		
	With App's	With Outlays	With both A&O
Net Dislike of Russia _t	.401*** (.129)	.223 (.133)	.597*** (.145)
Counter	1.413** (.617)	.866 (.681)	1.906*** (.602)
Appropriations (billions \$1996) _t	-.239*** (.048)	—	-.585*** (.158)
Outlays (billions \$1996) _t	—	-.210*** (.057)	.371** (.163)
Constant	-25.2120** (8.945)	-17.472* (9.857)	-31.351*** (8.570)
Observations	26	26	26
R ²	.822	.759	.860
Adjusted R ²	.777	.699	.816
DW	1.442	1.413	1.744

Cells contain regression coefficients, with standard errors in parentheses; All independent Variables are mean-centered.

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

^a Model includes a lagged dependent variable and a control for the Iraq-Kuwait war in 1991.

Appendix Table A3. Policy Representation, Defense, US

	<i>Dependent Variable: Δ Spending (billions) $_t$</i>	
	Approp's	Outlays
Net Functional Preferences $_{t-1}$.591*** (.168)	.086 (.113)
Party of President $_{t-1}$	-3.492 (6.747)	3.605 (4.555)
Party in Government $_{t-1}$	-1.341** (.533)	-1.879*** (.364)
Public Debt $_{t-1}$	-.0039 (.0031)	-.0098*** (.0021)
Constant	63.514*** (21.524)	76.488*** (25.522)
Observations	25	25
Rsqr	.752	.864
Adj Rsqr	.670	.819
DW	2.306	1.998

Cells contain regression coefficients; standard errors in parentheses. Spending is in billions of constant 1996 dollars.

^a Includes a control for the Iraq-Kuwait war in 1991.

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

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