Heterogeneity and Homogeneity in Opinion-Policy Dynamics

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Abstract

This paper examines homogeneity and heterogeneity in preferences for public policy, across income and education levels, and party identification, and across policy domains in the US, UK and Canada. Do preferences differ across segments of the public at particular points in time? What about over time – do we observe a uniform swing across different groups (parallel publics), or does the flow of opinion differ across party, income, and education? Our data on public preferences for government spending show systematic cross-sectional differences across sub-aggregates, but a fair degree of homogeneity in trends over time. Some longitudinal heterogeneity does exist, however, and we exploit these differences in dynamic models of the effects of public preferences – across income levels – on government spending in the US and Canada. Results point to some interesting, seemingly important differences in the representation of income groups across policy domains and countries. Perhaps most importantly, in contrast with the existing literature, we find that policymakers do not consistently follow the preferences of wealthiest citizens. If anything, the preferences of the middle class matter most, though there are differences across policy domains.

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There is a large and growing body of empirical work on the correspondence between public opinion and policy behaviour. This literature is for the most part premised on the notion that a correspondence between public preferences and public policy is a critical feature of representative democratic government. This view has certainly been supported by the theoretical literature on democracy and representation (e.g., Dahl 1971; Pitken 1967; Birch 1971); it is similarly evident in 'functional' theories of democracy (Easton 1965; Deutsch 1963).

Each of these literatures emphasizes the importance of "popular control" of policymaking institutions. And a good deal of evidence has accumulated in the US and elsewhere suggesting that policy can be responsive, albeit to varying degrees, across both policy domains and political institutions. [1] Nevertheless, recent events – particularly recent political events in the US – have shifted the focus somewhat. While it is well-established that policy can be responsive to preferences, researchers are now giving increasing attention to whether policy is consistently *more* responsive to *certain* preferences.

Alongside concerns about the representation critical to modern democracy, then, there is an increasing focus on the equality of that representation – equality not in the "one man, one vote" sense, but rather a "procedural equality" in which "the political preferences expressed by each citizen should receive equal weight in the decision-making process" (Beitz 1990; see also Rees 1972). That this version of equality is critical to most modern democratic thinking requires little discussion here.[2] Whether procedural equality actually exists is of course another matter entirely.

This matter has been the focus of a growing body of empirical work on public opinion and policy, the most prominent of which have been from Bartels (2005), Gilens (2005) and Jacobs and Page (2005). Each of these is discussed in more detail in the following sections. For the time being, suffice it to say there is accumulating evidence that policy in the US is related principally to the preferences of wealthy citizens – that is, that US politics is characterized by a lack of equality. We address this issue below, extending our work to Canada and UK, and relying on directly comparable models of political representation across issues and over an extended period of time. In each country, we separate preferences by income, education and party ID. Our first analytical section simply describes trends in the separate opinion series, exploring the homogeneity and heterogeneity in these series, both cross-sectionally and over time. We then use the US and Canadian data in a more sophisticated modelling of the preferences-policy relationship, allowing for preferences of different income groups to have independent effects on budgetary policy outcomes.

Our results confirm – in some policy domains – the large cross-sectional differences across income groups found in past US work. Indeed, we also find these differences in Canada and the UK. At the same time, however, we find that trends in the separate series are largely parallel over time, and where differences do exist it does not appear as though policy change is driven

[1] The US literature is vast, but see, 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 1996; Wood and Hinton-Anderson 1998; Hill and Hurley 1998; Smith 1999; Sharpe 1999; Erikson, MacKuen, and Stimson 2002; Soroka 2003; Wlezien, 2004. See also Weakliem's 2002 excellent review and assessment of the literature. For work on other countries, see, e.g., Petry 1999; Soroka and Wlezien 2004, 2005; Stimson (2005).

[2] Bartel's (2006) note on inequality in American democracy provides a clear statement on the commonly-held belief that equality is central to responsive and representative government.

consistently – that is, across all policy domains – by the preferences of the wealthiest citizens. Sometimes policy actually most closely follows the preferences of low income citizens. Most often, policymakers seem to pay closest attention to individuals with middling incomes, much as median voter theories would imply. These results shed some light, we hope, on the extent and nature of inequality in these three democracies. Before examining the data in more detail, the following section outlines a general model of political representation and an extension that allows for differences in the effect of preferences across different sub-aggregates, such as income brackets.

Political Representation

Representation can occur in one of two familiar ways. The first way is indirect, through elections, where the public selects like-minded politicians who then deliver what it wants in policy. This is the more traditional pathway to representation and is deeply rooted in the literature on responsible parties. In effect, the public chooses among alternative policy visions and then the winning parties put their programs into place after the election. The second way to representation is direct, where sitting politicians literally respond to what the public wants. This pathway reflects a more active political class, one that may fit neatly with the increasing careerism of politicians through the 20th century. Here, politicians endeavour to stay attuned to the ebb and flow of public opinion and adjust policy accordingly.

The two ways to representation are in a broad sense related. That is, the first way implies the second, at least assuming incumbent politicians are interested in remaining in office: elected officials are expected to respond to public preferences, even between elections, because of the threat of electoral sanction. We thus expect representative democracy to provide dynamic responsiveness. That is, responsive politicians should follow preferences as they change, and—in theory—policy change should be the result. We can formally express these expectations. If policymakers are responsive to public preferences, *changes* in policy (ΔP) in year t will be associated with lagged (year t-1) *levels* of the public's relative preference (R), and the lagged partisanship of government (G). Policy will thus be a positive function of preferences (direct representation) and partisanship (indirect representation), as follows:

$$\Delta P_t = \alpha + \beta_1 R_{t-1} + \beta_2 G_{t-1} + \varepsilon_t \qquad (1)$$

where α and ε represent the intercept and the error term, respectively. The coefficient β_1 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.[3] Note that the change in expenditure for fiscal year t is modelled as a function of preferences and partisanship 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.

[Figure 1 about here]

[3] 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 public's relative preference (R) is itself a summary of individual preferences for policy, or rather, a summary of individual preferences for policy change. Consider the public as a collection of individuals distributed along a dimension of preference for policy activity, say, spending on defence. One hypothetical distribution is shown in Figure 1, depicted as a normal curve, following convention. The depiction is not meant to imply that individuals actually have specific preferred levels of policy in mind, which presumably is untrue in except for a small number of people in particular policy areas. Rather, it is intended to reflect the fact that people's underlying preferences do differ, where some people want more than others. In this figure, those off to the right want more and those to the left less. Each individual's (i) relative preference for policy change at time t is thus the difference between the current level of policy (P) and their preferred level of policy (P*), more formally,

$$R_{it} = P_{it}^{*} - P_{t} \qquad (2)$$

The 'public preference' is typically conceived as some summary of the overall distribution of preferences. It is difficult to perfectly summarize a distribution, of course, but we can fairly easily describe the central tendency. That is, we can represent the public preference as the mean or median preference – a certain "ideal" level of policy:

$$R_{t} = \overline{R}_{it} \qquad , \qquad (3)$$

R_t is of course only a summary of individual preferences, and in one sense already implies a certain inequality in preference representation. Consider the difference between using the mean or the median as a summary, for instance. Changes in a single preference at one end of the distribution will not affect the median, but will affect the mean. Representation of the mean preference thus has a certain kind of built-in inequality – depending on their place in the overall distribution, marginal changes in each R_{it} will affect R_t to a varying degree. Representation of the median preference implies a different kind of inequality – in this case, it is marginal changes in the middle of the distribution that matter. (Note that Dahl's (1956) discussion of "Equality, Diversity and Intensity" reflects similar concerns with how to summarize preferences in an equitable way.) Representation of virtually any summary of individual preferences implies some kind of inequality in the effect that individual preferences can have on policy.

The inequality we are interested in here, however, is one based on politically-relevant sub-aggregates –specifically, income, education and party ID. That is, we are concerned with the possibility that representation will be driven more by the preferences of wealthy citizens, for instance, than by the preferences of poor citizens. Representing this formally requires a relatively simple adjustment to model 1:

$$\Delta P_{t} = \rho + \gamma_{1} R_{t-1}^{L} + \gamma_{2} R_{t-1}^{M} + \gamma_{3} R_{t-1}^{H} + \gamma_{4} G_{t-1} + \mu_{t} \qquad (4)$$

where γ_1 through γ_3 indicate the effect on policy of each sub-aggregate relative preference R^L, R^M, and R^H; where R^L is a summary of relative preferences for those in the lowest income tercile, R^M for the middle tercile, and R^H for the highest tercile.[4] Similar models can of course be estimated for other sub-aggregates, such as education or gender or party ID.

This model asserts that differences in representation will be evidenced by variation in the relationship between policy change and different sub-aggregates' preferences for policy change,

[4] This extension of our model is very similar to Bartels' (2005) model of the effects of low, middle and high-income constituents on US Senators' roll-call votes.

over time. Note that this is a different specification than has appeared in most recent work on the differential representation of sub-aggregates. Bartels (2005) relates average scores on the National Election Study (NES) ideology question, by income tercile, to US Senators' roll call votes.[5] In doing so, he finds that Senators' roll-call voting records are better accounted for by variation in the ideological and policy preferences of upper-income citizens (across states) than by the ideological or policy preferences of middle- or lower-income citizens. Gilens (2005) examines the association between levels of public support for policy change – imputed for different income categories – and (binary) policy change (or stasis) within the following four years. His results are similar to Bartels': policy change is better explained by variation in higher-income citizens' support for policy change than by variation in support from lower-income citizens. These results clearly are provocative and important. Both studies indicate a substantial bias in the representation connection across states and policy domains. They do not, however, tell us much about the relationships between preferences and policy over time. What happens when preferences *change*? Do policymakers follow the preferences of the well-heeled? Do they respond to the preferences of the poor? Or do they respond to those with middling incomes?

Jacobs and Page's recent (2005) research takes a step in this direction. They do not look specifically at the effects of public preferences across income categories, but examine the varying associations between US foreign policy officials and those of business leaders, experts, labour, or the general public. They do explicitly examine opinion change, however. They find that one-period change in policy support found amongst US foreign policy officials most closely matches one-period change in the preferences of business leaders and experts. This provides further – albeit more indirect – evidence of a representational bias towards upper-income citizens.[6] It implies that policymakers are more responsive to higher income citizens across *both* place and time.

Although their research is of obvious significance, Jacobs and Page do not examine the representation of public preferences across income levels. They also do not examine dynamics across policy domains. This is where our work picks up. We extend Jacobs and Page in four ways. First, we study policy itself, specifically, spending decisions. Second, we assess public preferences in different income categories. Third, we analyze time series of preferences and policy. Fourth, we examine patterns in both the US and Canada, and to a lesser extent the UK. Thus, our research explicitly tests income inequality in policy responsiveness across both policy domains and countries. The working hypothesis, given past work, is that governments will be more responsive to the changing preferences of upper-income citizens; that is, that changes in policy support among upper-income citizens will have a greater impact on policy than changes in policy support among middle- or lower-income citizens. Subsequent sections test exactly this possibility.

Public Preferences

The dataset used here includes comparable measures of public preferences for spending in various policy domains over time, in Canada, the UK and US. Our work elsewhere has examined a 'thermostatic' model of opinion-policy dynamics (Soroka and Wlezien 2004, 2005; Wlezien

[5] To be precise: Bartels looks at Senators' W-NOMINATE ideological scores, as determined by their roll-call votes, as well as a number of specific roll call votes.

[6] Note that this analysis of one-period change is just one of Jacobs and Page's analyses. They also examine opinion-policy relationships in levels, first excluding and then including one-period-lagged opinion and policy.

1995, 2004), where policy responds to preferences, and where preferences react to policy change. Here, as in the preceding theoretical section, we focus just on the effect of preferences on policy.

Our measures of public preferences rely on a common question, asked relatively consistently in all three countries. The question is as follows: "Do you think the government is spending too much, too little or about the right amount on [healthcare]?" The question thus asks about general preferences for government spending, not preferences for spending at particular levels of government per se.[7] Respondents are asked about spending in various categories besides healthcare – 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 19 times (depending on the spending domain) from 1984 to 2005, and some missing years can be filled in using similar data from Pollara;[8] in the UK, Gallup asked the question 19 times in 13 different years between 1978 and 1995 and not at all since;[9] in the US, the GSS includes these questions almost every year from 1973 to 1994, and then every other year until 2004.

Although respondents are asked about a wide variety of differing domains, we focus on just a few domains for which data are available all three countries: defense, health, and education. In addition, we look at results for welfare in the US and Canada. Since numbers are missing in some years, the data do not provide perfectly clean annual time series of preferences. Even so, using these data we can create effective time series for our analyses, at least in the US and Canada, as we will see. For the UK, our data are more limited. While we have aggregate poll results at a reasonable frequently, the availability of individual-level survey files with which to determine preferences by sub-aggregates is quite limited. We accordingly show UK data for our preliminary analyses in this section, but drop the UK for the more demanding regression analyses below.

Where we do have data, the public's preference for policy change – its relative preference (R_t) – is the percentage of people who think we are spending "too much" minus the percentage of people who think we are spending "too little" in each domain. The measure thus captures the degree to which the public wants "more" or "less" spending over time – indeed, it captures both the direction and magnitude of the public preference for policy change. For our work here, we calculate R_t separately for sub-aggregates based on income, education and party ID. For income, we separate respondents into income terciles, where terciles are defined not by the survey dataset but by census data in the relevant period.[10] This was possible in the US and Canada but not the

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[7] In Canada, people actually are asked about the 'federal' government, which is of some relevance and presumed benefit, given the theoretical discussion above; that is, it would appear possible to assess the explicitly national-level responsiveness of both the public and government. Ironically, it is difficult to fully disentangle national and provincial spending in many Canadian domains, especially the highly decentralized ones (see Soroka and Wlezien 2004).

[8] 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 2004.)

[9] 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.

[10] To determine preferences by income tercile, we begin with preferences aggregated by whatever income response categories exist in the individual-level survey file. We then collapse these into income terciles. When survey

UK, as income data were note available from the surveys. The surveys did classify respondents as either 'manual' or 'nonmanual' labor, however, and we use these two categories – essentially blue collar versus white collar – as coarse proxies. For education, we divide respondents into three categories: (1) did not finish high school, (2) did finish high school, and (3) had some education beyond high school. In each country, this threefold scheme divides survey samples into three relatively equal groups.[11] For party identification, we rely on the standard 7-point party ID question in the US, and R_t is calculated for Democrats, Republicans, and Independents. Party ID questions are not regularly part of omnibus surveys in either Canada or the UK but vote intentions are always included, and we use these items to separate respondents into three partisan groups in each of these countries: In the UK, Labour, Liberal Democrat, and Conservative; in Canada, the New Democrats (NDP), Liberals, and Conservatives.[12]

Table 1 provides descriptive statistics by policy domain and country. Columns 3-8 of the table show the mean and standard deviation for each individual preferences series, across the three income, education and party ID categories in each country. The last two columns show two measures of the relationship between the three sub-aggregate series. The first is the 'mean difference': we calculate the percentage-point gap between the highest and lowest net preferences value for each year, and then take the average of this difference over the entire time period. The measure thus gives us a general sense for how far apart in levels the three sub-aggregate series are. The second is the alpha, a standard summary measure of bivariate correlations between the three sub-aggregate series. This measure gives us a sense for how closely each set of three series moves together over time. The series also are plotted by country and domain in Figures 2 through 7.

[Table 1 and Figures 2-7 about here]

Let us first consider differences in levels. Dividing respondents by party ID usually generates the greatest gap across sub-aggregates. This is true in all cases except defense and welfare in the US, where education and income, respectively, produce the greatest mean differences. (Note that in both cases party ID is a close second.) The strength of party ID is to be expected given its close connection to issue opinions. What about income and education? Table 1 shows that education produces greater differences in both education and health spending preferences, while income predictably generates greater differences in preferences for welfare. Thinking about differences across policy domains, greater division exists for defense and welfare than for education and health. This is true across all three countries. Mean differences across countries also seem relatively similar in magnitude – that is, no one country stands out as more divided than the others here. At the same time, differences within countries are by no means slight. For both defense and welfare, the gap is wide enough in relation to the mean that sub-aggregates will be split across the boundary between "more" and "less" spending (see Figures 2, 4 and 6).

Differences are much less evident when we look at the relationship between sub-aggregates over time. In every case the alpha coefficient is rather high – only six of 33 are below .9 and even

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response categories overlap the divide between two income terciles, respondents in this category are sorted into the two income terciles proportionally, based on where the tercile division lies in the response category.

[11] There are some predictable exceptions. The sizes of the education groups do change over time, for instance, and in predictable ways: the percentage of people not finishing high school declines and the percentage of people have some college increases.

[12] In Canada, 'Conservatives' includes Progressive Conservatives, as well as – from 1992 – Reform and then Canadian Alliance voters.

these six are above .8, all but one above .86. The figures clearly demonstrate the pattern: even when the sub-aggregate series differ substantively in levels, the series move in parallel over time. Welfare preferences in the US are a good example, clearly varying in levels across all sub-aggregates but shifting largely in sync over time (see Figure 2). Much the same is true for the other series in the US and in Canada and the UK.

There are some notable exceptions to this apparent homogeneity over time. In Figure 2 we can see that defense preferences in the US converge during a period of very high salience (1980) and then separate thereafter, particularly across categories of education and party ID. Other series exhibit what would seem significant, if less pronounced differences. Most of the series show only small degrees of independence over time, however. These differences are of course critical to our attempt to distinguish whose preferences governments follow most closely, the subject of the sections that follow.

Public Preferences and Budgetary Policy

Although the questions used to construct the measures of net support ask about spending, political actors have little direct control over spending *per se*. That is, what governments spend reflects things that elected politicians cannot anticipate or manage. It is possible to more directly measure budgetary policy in the US, which records decisions on appropriations of budget authority. Highly reliable appropriations data is available since 1976, with the functional classification stipulated in the Budget Act of 1974. The data are drawn from the *Historical Tables* in the 2005 Budget, and the specific definitions used are described in Wlezien (2004).

Canadian governments do not provide appropriations data. All that is available are expenditures (outlays). These functional spending figures are drawn from various Statistics Canada CANSIM matrices; details on these data are available in Soroka and Wlezien (2004). Note that using expenditures biases analyses against finding opinion representation (see Wlezien 1996; Wlezien and Soroka 2003), but this cannot be avoided in the Canadian case; indeed, there are very few countries outside the US that provide readily-available information on appropriations. That said, the Canadian spending data present an additional, particular problem: health, education and welfare are in large part funded through large federal-provincial block transfers that are not allocated to any one domain until they reach the provinces (and provinces have considerable discretion). The result is that it is impossible to measure "federal" spending in each of these individual domains. We accordingly rely on consolidated (federal and provincial) spending for individual domains in Canada. These consolidated data account for expenditures through block transfers *after* they have been allocated by provinces, and thus can be linked to specific domains.

Following the theoretical models outlined above, the dependent variables are the first *differences* of real dollar-valued appropriations and spending (in billions of 2000 US or Canadian dollars) for each of the four spending categories.[13] These changes are expected to be positively related to the *levels* of public support for spending change, which capture the public's relative preferences. Politicians are expected to respond currently. In the budgetary context, this means that change in the budget 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.

[13] US constant dollars are calculated using the general deflator in the Historical Tables of the 2005 budget; Canadian constant dollars are calculated using the monthly CPI deflator, collapsed by fiscal year, available from CANSIM.

Our independent variables are the time series of net support across the different income sub-aggregates. Recall that we really don't have clean time series, as data are missing in some years. One solution is to use listwise deletion, i.e., to drop cases where data are missing. Given that data are seemingly missing at random, this should lead to unbiased parameter estimates. It does substantially limit our potential samples and precludes full time series analysis. There are approaches that allow us to use the full range of data, however. That is, we can impute the missing values. The technology for doing so and the use of the technology has expanded greatly of late (King, Honaker, Joseph, and Scheve, 2001). For our purposes, given the short lengths of our series, simple approaches are recommended. One is linear interpolation. This approach requires relatively few assumptions but it does make one about the movement of the variable, namely, that it moved in the same direction between year 1 and year 2 as it did between year 1 and year 3. Since this is most often true, the assumption seems reasonable. Another approach is to carry forward previous values. This makes fewer assumptions than linear interpolation. By ignoring likely movement in the variable, however, there is reason to suppose that it biases the parameters toward 0. For this reason we rely primarily on measures using linear interpolation but re-estimate all of our results using the measures that carry forward lagged values. The different measures produce similar results, though linear interpolation does tend to produce slightly larger coefficients throughout, as we would expect.

Now we want to know whose preferences policymakers follow. We have seen that preferences across income categories generally move together over time; at the same, we have seen that these preferences do vary somewhat independently. What we want to determine is whether policymakers are more likely to follow the preference drift of one segment more than the others. When the preferences of the rich drift independently of those with middle and lower incomes, are policymakers more likely to follow the preferences of the well-to-do, as many political scientists argue (Gilens 2005; Bartels 2005)? Or do they go with the median voter, as much rational choice theory would imply? Or does the pattern vary across domains, perhaps reflecting the salience weights different "classes" attach to different issues? These questions can be directly tested using our data; we focus on the most salient set of sub-aggregates, income terciles, below.

A Bivariate Analysis

To begin with, consider basic correlations. Table 2 reports the correlations between preferences for the different income terciles and spending in the four domains: defense, welfare, health, and education. Results for the US are in the top half of the table. Notice that all of the correlations are appropriately positively-signed and all but one are significantly different from 0. The figures do vary across domains, being largest for defense and health. Within domains, however, the correlations vary only slightly and not significantly. That is, spending is not clearly more responsive to opinion in any particular income "class" than in another. Interestingly, the correlations are highest for people with middling incomes in three of the four domains—welfare, health, and education. The correlations for high income citizens are a bit lower and for low income people lower still. In defense, spending change correlates best with high income opinion and then that of middle and low income people. This implies a possible bias in policy responsiveness toward the preferences of high income citizens. The bias is very small, however, and not even close to being statistically significant. We just cannot credit the difference. And even to the extent that we can, it is isolated to the one domain. In the other three domains, policy is most responsive to those with average incomes.

[Table 2 about here]

Results for Canada are fairly similar. The correlations are lower than what we see in the US, which is not surprising—see Soroka and Wlezien (2004). Like the US, the correlations are highest for defense and health; unlike the US, none of the correlations are significant in the welfare and education domains. Nevertheless, within domestic domains the patterns are much as we observed in the US. First, the relationship between opinion and spending does not differ meaningfully across income terciles. Second, the estimated correlations are highest for middle income opinion in the three domestic domains. (Though notice also that the differences across terciles are more pronounced, and the ordering differs, with high income opinion having the second highest correlation in two domains and third highest, after low income, in health). In the defense domain things are not exactly as we saw in the US. Instead the correlation is highest for low income opinion and lowest for high income opinion; still, as in the US, and indeed as in the other Canadian domains, the differences here are not statistically significant. Based on our bivariate analysis, there simply is little difference in the responsiveness to opinion across our three income classes.

Multivariate Analyses

In order to assess responsiveness to spending preferences, it is necessary to specify a more complete model of spending behavior. It is most important to account for the indirect representation of public preferences that results from elections. To do so, we include measures of party control. In Canada, a single dichotomous variable is used, taking the value "0" under Liberal governments and "1" under Conservatives.[14] In the US, two variables are used, one for the party of the president and another for the party composition of Congress. The former variable takes the value "1" under Democratic presidents and "0" under Republican presidents, and the latter variable represents the average percentage of Democrats in the House and Senate. As for opinion, these variables are measured in year t-1.[15]

The US

Tables 3-6 show results for the US. Each table contains a series of seven regressions for a particular domain. In the first three regressions the opinion measure for each tercile is included separately, initially low income and then middle income and finally high income. The next three regressions include each pair of opinion measures, first low and high income and then low and middle income and then middle and high income. The final regression includes all three measures simultaneously.

[Table 3 about here]

Defense

Results for defense are in Table 3. Across the regressions we can see that the political variables both are positive and significant, indicating the Republican control of the White House and Congress led to higher levels of defense appropriations, as has been known for some time (Wlezien 1996). Of more pressing interest here are the effects of the three opinion variables, and

[14] 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 1996; 2004). It also is supported by separate diagnostic analyses.

[15] Also, in models of welfare appropriations, a control for the Carter transition in fiscal year 1977 is used. The variable captures his substantial supplemental appropriations to Ford's last budget (see Wlezien 1993); in effect, the impact of this change in the party of the president was felt immediately, in the current fiscal year.

it is clear in the first three columns that each variable separately predicts appropriations change. The coefficients all are positive and easily exceed even stringent levels of significance—*p*-values are all less than .001—which suggests that policymakers actually respond to changes in defense opinion.[16] Based on Models 1-3 in Table 3, a one-point increase in preferences in year *t-1* leads to just less than a one billion dollar increase in US defense expenditures in year *t*. Note that the size of the opinion coefficients does differ slightly across models, if not significantly, declining as the income level increases (moving from Model 1 to Model 3). This is to be expected because the variances of preferences increases as income increases, i.e., a one-point change in preferences is more meaningful (less common) among those with low incomes. However, the effect of these preferences is slightly less reliable than the effect of those with middle incomes, which in turn is slightly more reliable than the effect of high-income opinion. These differences also are evident in the *R*-squareds. The differences are small and unreliable, however.

Columns 4-6 in Table 3 present the results of taking the three preference series pairwise, thus offering a more direct, if still partial test of differential responsiveness. Model 4 pits preferences among low income citizens against those of high income citizens. The estimated coefficients both are positive but much lower than what we observed when the variables were entered individually, in Models 1 and 3. The coefficient for high income opinion is larger, by about three times, than the coefficient for the low income opinion. This might be taken to mean that policymakers are more responsive to the preferences of the former than the latter. We cannot make too much of this, however; strictly speaking, neither coefficient is distinguishable from 0.[17] The problem of course is that the two variables are very similar, as we saw earlier in Table 1 and Figure 2. Consider the standard errors of the coefficients, which are four times what we get when the variables are entered individually. The preference variables evidently are so similar that the residual differences are just too small to matter. Even to the extent policymakers do try to follow the opinions of the upper tercile, for example, it is very diffficult to tell. To a large extent, representing the rich or the poor on defense over time means doing the same thing.

Model 5 in Table 3 races lower income preferences against middle income preferences. Whereas there is no discernible difference in the responsiveness to upper and lower income preferences on defense, here we can see fairly clear differences. The coefficient for middle income preferences is positive and (barely) significant while the low income coefficient is negative. This pattern implies that policymakers actually follow the preferences of middle income citizens *per se*, at least by comparison with the preferences of people in the lower tercile. This is interesting and important. Because preferences in the two terciles are so similar over time, the consequences for policy are relatively small. Consider the tiny difference in *R*-squareds in Models 1 and 2. There is some suggestion in Model 6 that policy also is more responsive to middle income opinion than upper income opinion, as the coefficients differ substantially. Again, as the difference is not significant, we cannot credit the effect. All we can conclude is that preferences in the two terciles are essentially the same.

Model 7 in Table 3 includes all three opinion variables. The results here largely summarize what we have already seen. The middle income coefficient is much greater than the upper income coefficient, which is slightly greater than the low income coefficient. When included simultaneously, none of the coefficients are independently significant. (They are of course

[16] This also has been known for some time (Wlezien 1996).
[17] They are jointly significant, of course.

jointly significant.) Based on these results and the ones in Models 1-6, we can conclude that defense spending decisions in the US are not clearly more responsive to upper income citizens than to middle or lower income citizens. If anything, policymakers are more responsive to the opinion of people in the middle. Even to the extent this is true, it matters relatively little: preferences in the three terciles are so similar over time that representing opinion in one tercile is essentially the same as representing opinion in either of the others.

[Tables 4-6 about here]

Domestic Domains

Table 4 presents results for the welfare domain in the US. Here there is slightly stronger evidence of differential responsiveness. To begin with, the coefficient for bottom tercile preferences in Model 1 is much smaller and less significant than the coefficients for middle and upper tercile preferences in Models 2 and 3. Directly pitting preferences between the bottom tercile and the other two terciles indicates that the differences in responsiveness are significant. This is clear in Models 4 and 5, where the middle and upper income coefficients are positive and significantly different from 0 and the lower income coefficients are less than 0. The differences thus are more pronounced than for defense. Much like defense, however, there is some suggestion in Model 6 that policymakers follow middle income preferences more than upper income preferences. Again the difference is not highly reliable, but this also is clear in Model 7, which includes all three measures. The results there generally summarize the pattern in Models 1-6, though the differences are (predictably) less striking. Policymakers are more responsive to middle income preference than to lower income preferences but they are not clearly more responsive to upper income preferences than lower income preferences. There evidently are some differences in the flow of preferences in the upper two terciles, and they evidently matter, if only a little. After all, the estimated responsiveness to middle income preferences, while larger, is not significantly different from the responsiveness to upper income preferences.

Results for health in Table 5 almost perfectly parallel those for defense. The size of the opinion coefficients in Models 1-3 decline as the income level increases while the significance peaks for middle income preferences (also see the *R*-squareds). Taking the variables pairwise, in Models 4-6, reveals that policymakers may follow the middle income more than the lower income but little else. It is clear that policy is *not* more responsive to upper income preferences. If anything, it is more responsive to the opinions of middle income citizens and perhaps even those with lower incomes. This can be seen in Model 7. As for defense, however, the differences are small and insignificant and do not really matter very much for health spending. Again, because preferences in the three terciles are so similar over time, representing the opinions in one tercile is essentially the same as representing either of the others.

Results for education are shown in Table 6. These are quite a bit different to what we have seen in the other domains. Much like defense and health, the coefficients of the opinion variables decline as income increases in Models 1-3. The effect of opinion is significant only for the bottom tercile, however. This suggests that policymakers not only do not follow the opinions of high income citizens in the education domain, but that they also do not follow the opinions of people in the middle. This is very different to the patterns in defense, health and especially welfare. The differences are not large and also not very reliable, as can be seen in Models 4-7. While the coefficients for bottom tercile opinion always are larger than the coefficients for the other two terciles, the differences are not significant. The main finding of the education results is

that representation of public preferences is weak, regardless of income level. Policymakers are far less responsive here than they are in defense, welfare and health.

Canada

The findings from the US are interesting and important, at least to us. But are they unique to the US? Or do they generalize? Here we consider whether similar patterns obtain in Canada. Recall that we conduct a parallel analysis using identical measures of opinion in the same four spending domains. Tables 7-10 present the results.

[Tables 7-10 about here]

The results differ from what we see in the US. To begin, there is less policy representation generally in Canada than in the US (Soroka and Wlezien 2004). This is especially true in defense, where the coefficients of representation (see Models 1-3 of Table 7) are about 1% of those in the US.[18] The patterns of representation in defense also differ. Whereas US policymakers are more reliably responsive to the opinion of middle and upper income preferences, Canadian policymakers are most reliably responsive to the opinions of people with low income and least responsive to those with high income. This difference just misses statistical significance. All that we can clearly conclude is that the responsiveness to defense opinion in Canada is relatively weak across income classes.

Results for welfare in Table 8 reveal more pattern, and clearly display a bias toward middle and upper class opinion, even more than in the US.[19] There is a hint in the *R*-squareds in Models 1-3, which clearly are largest for Model 2. The result is clearest in Models 4-5, where the effects of upper and middle income preferences are positive and significant and the estimates for low-income preferences are negative. Middle-income preferences also appear to matter more than high-income opinion, though the difference is not quite significant in Model 7. The difference between middle and low income preferences is robust, however. As in the US, the preferences of those who are most affected by welfare spending – those in the bottom tercile – matter the least. In both the US and Canada, both middle- and, to a lesser extent, upper-tercile preferences matter more than lower. Indeed, the disparity seems more pronounced in Canada.

Tables 9 and 10 show results for health and education in Canada. In neither domain does one tercile emerge as having a significantly greater effect on policy. For health (Table 9), Models 2 and 7 suggest a middle-tercile bias, but bottom-tercile preferences are important here as well, perhaps a bit more than high-income preferences. For education (Table 10), middle-tercile preferences are in fact the least powerful. Education spending seems to be driven by some combination of upper- and lower-tercile preferences, though these tendencies are not very reliable. That said, representation in this domain is of a much lower magnitude than in the other social domains in Canada, just as in the US, and here, as in the other domains, the difference in preferences across terciles is relatively small.

Conclusions

Our investigation into heterogeneity and homogeneity in opinion-policy dynamics reveals systematic cross-sectional differences in policy preferences across sub-aggregates, but a very

[18] The differences are even greater when taking account of the exchange rate over the period.

[19] These welfare models also include current levels of unemployment, which are a significant predictor (Soroka and Wlezien 2004). This is exactly as we expect given the automatic nature of many welfare entitlements. It also was not possible to neatly isolate and subtract out entitlement funding, in contrast with the US.

high degree of homogeneity in trends over time. This is true across sub-aggregates based on income, education and party ID, in the US, Canada and the UK. This coexistence of cross-sectional heterogeneity and temporal homogeneity is perfectly consistent with what Page and Shapiro (1992) showed in *The Rational Public*. It suggests that people hold different interests but respond to new information in similar ways. There still are some differences in the flow of preferences across cohorts, which indicates that they do not respond identically. This allows for the possibility of differential representation, which we explored in the US and Canada, focusing on differences across income levels.

The lessons from our analysis of policy responsiveness are threefold:

1. policymakers are not more responsive to changes in the preferences of high-income citizens than changes in the preferences of others;
2. they may be most responsive to shifts in the preferences of people with middling incomes (particularly in the US); and,
3. even to the extent there is differential responsiveness, it typically matters little for spending decisions.

These findings clearly contrast with the conclusions of other recent research. Why would previous work find evidence of an upper-income bias, while we find no such evidence? The difference may, at least in part, be a function of focus: past work deals with cross-sectional variation in levels of policy support, while our analyses deal with the effects of changing preferences over time. Work by Bartels and Gilens suggests that at any given time the potential for policy change (in the form of individual roll call votes or aggregate legislative outcomes) relates most strongly to levels of support (or opposition) among upper-income citizens. We find, in contrast, that actual policy change over time is not clearly dominated by changes in upper-income preferences.

There are numerous differences in approach, and so there are a number of suspects for the differences in the results. It may be, for instance, that examining policy instead of legislative behavior matters. It may also be the types of policy domains we consider. It is tempting to think that the time-serial focus is yet another possibility, though this cannot be quite right. That is, the cross-sectional pattern presupposes a time-serial one: if policymakers really do represent the preferences of upper-income citizens, then they would follow these preferences when they drift independently. For the countries and policy domains examined here, however, this just is not the case. That we do not find evidence of this raises doubts about income inequality in representation. It appears instead that politicians tend to move alongside median income voters.

This is a rather optimistic conclusion, and some caveats clearly are in order. Regardless of the focus on middle- rather than upper-income preferences, politicians do in some policy domains seem to pay less attention to the opinions of people with low incomes. This is most true – in both the US and Canada – for welfare spending. That the consequences of spending in this domain are greatest precisely for those whose opinions matter least is an irony that isn't easily lost. In the end, inequalities in representation do exist. It's just that they seem to be less dramatic or widespread than was initially anticipated.

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Table 1. Descriptives: Net Preferences, by income, education and party ID

		1st Category		2nd Category		3rd Category		Mean	Alpha
		Mean	SD	Mean	SD	Mean	SD	Difference	
US									
Defense	Income	-18.6	(12.5)	-17.0	(12.6)	-20.3	(12.6)	8.527	.977
	Education	-6.5	(11.2)	-15.6	(12.0)	-36.3	(10.8)	27.544	.966
	Party ID	-24.0	(15.1)	-23.3	(10.5)	-3.2	(12.2)	23.509	.966
Welfare	Income	-7.9	(12.1)	-32.0	(14.2)	-41.2	(15.6)	35.676	.940
	Education	-16.6	(11.6)	-32.2	(12.8)	-29.6	(18.4)	19.756	.941
	Party ID	-14.3	(15.5)	-28.3	(13.7)	-44.8	(12.6)	31.617	.952
Health	Income	61.3	(8.0)	61.2	(7.8)	56.7	(10.3)	7.932	.899
	Education	58.4	(6.3)	61.2	(7.7)	56.7	(11.3)	8.229	.890
	Party ID	68.2	(8.0)	60.6	(5.7)	45.4	(12.3)	22.160	.892
Education	Income	54.0	(8.5)	60.4	(10.1)	61.4	(12.3)	8.797	.943
	Education	48.1	(7.9)	59.3	(9.2)	66.7	(11.3)	15.006	.917
	Party ID	64.4	(9.5)	58.1	(8.2)	50.0	(13.5)	18.028	.958
Canada									
Defense	Income	0.4	(20.5)	-0.9	(24.2)	-1.0	(25.5)	6.145	.992
	Education	4.6	(20.4)	1.7	(21.4)	-8.7	(24.7)	14.563	.986
	Party ID	-9.3	(20.9)	2.9	(23.6)	13.5	(31.5)	24.004	.968
Welfare	Income	5.3	(9.1)	-20.2	(10.5)	-22.6	(11.3)	28.522	.904
	Education	-4.7	(9.8)	-15.1	(9.7)	-15.9	(11.1)	13.119	.913
	Party ID	12.6	(12.4)	-12.7	(9.6)	-20.6	(11.6)	32.566	.865
Health	Income	51.0	(23.1)	54.4	(19.6)	60.9	(14.8)	13.646	.966
	Education	62.9	(17.1)	57.0	(18.1)	47.7	(21.0)	14.270	.989
	Party ID	66.7	(18.2)	56.1	(19.7)	49.6	(22.4)	16.879	.984
Education	Income	61.2	(11.5)	59.7	(9.5)	58.1	(9.4)	5.570	.974
	Education	55.1	(10.1)	61.0	(9.8)	59.6	(8.9)	7.249	.972
	Party ID	67.8	(11.5)	62.0	(10.8)	54.2	(11.1)	13.573	.972
UK									
Defense	Income	-11.2	(40.8)	19.8	(18.1)	---		36.608	.889
	Education	-16.0	(22.7)	-15.4	(35.2)	-11.1	(58.5)	28.127	.924
	Party ID	-23.1	(40.2)	-19.5	(38.4)	3.6	(36.5)	41.376	.973
Health	Income	76.9	(10.5)	73.1	(15.3)	---		5.168	.971
	Education	71.7	(13.3)	73.0	(16.8)	72.4	(24.2)	6.227	.971
	Party ID	86.5	(8.8)	81.0	(19.0)	58.4	(14.9)	23.649	.828
Education	Income	74.6	(7.6)	71.7	(17.3)	---		3.957	.963
	Education	68.7	(10.1)	74.1	(12.1)	80.0	(20.0)	15.432	.943
	Party ID	83.4	(4.3)	80.0	(12.1)	55.3	(22.6)	22.988	.915

All descriptives are based on in-sample values only; using un-interpolated data.
Income: 1st Category = lower tercile; 2nd Category = middle tercile; 3rd Category = upper tercile
Education: 1st Category = Low; 2nd Category = Middle; 3rd Category = Upper
Party ID: 1st Category = Democrat / NDP / Labour; 2nd Category = Independent / Liberal / Liberal Democrat; 3rd Category = Republican / Conservative / Conservative.

Table 2. Correlations, Preferences by Income Tercile and Budgetary Change

US

Preferences $_{t-1}$	Δ Spending $_t$			
	Defense	Welfare	Health	Education
Low Income	.631*	.246	.645*	.319*
Med Income	.682*	.363*	.713*	.337*
High Income	.727*	.351*	.682*	.329*
N	28	28	28	28

Canada

Preferences $_{t-1}$	Δ Spending $_t$			
	Defense	Welfare	Health	Education
Low Income	.413*	.057	.720*	.094
Med Income	.379*	.320	.749*	.164
High Income	.347	.166	.600*	.137
N	20	18	17	17

* $p < .05$, one-tailed

Table 3. Policy representation in the US, defense appropriations, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	1.092***			.228	-.230		-.283
	(.171)			(.640)	(.692)		(.740)
Middle tercile$_{t-1}$		.999***			1.196*	.908	1.071
		(.139)			(.609)	(.677)	(.810)
Upper tercile$_{t-1}$			.858***	.688		.081	.152
			(.126)	(.493)		(.593)	(.632)
Party of the President $_{t-1}$	14.503**	15.111***	12.358**	12.885**	15.109**	14.888**	14.687**
	(5.718)	(5.313)	(5.431)	(5.727)	(5.414)	(5.667)	(5.799)
Party Comp'n of Congress$_{t-1}$	1.904***	1.733***	1.361***	1.475**	1.691***	1.699***	1.618***
	(.485)	(.446)	(.459)	(.566)	(.471)	(.517)	(.568)
Constant	-95.418***	-87.924***	-69.340***	-74.867**	-86.006***	-86.267***	-82.444***
	(22.904)	(21.012)	(21.537)	(26.857)	(22.174)	(24.663)	(27.046)
R^2	.673	.718	.697	.698	.720	.719	.721
Adjusted R^2	.632	.683	.659	.646	.671	.670	.657
Observations	28	28	28	28	28	28	28

Table 4. Policy representation in the US, welfare appropriations, by income tercile [a]

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.591*			-.087	-.082		-.246
	(.292)			(.432)	(.379)		(.432)
Middle tercile$_{t-1}$		.874***			.932**	.647	.711
		(.257)			(.376)	(.445)	(.466)
Upper tercile$_{t-1}$			.627***	.679*		.218	.324
			(.208)	(.334)		(.347)	(.399)
Party of the President $_{t-1}$	-7.123	-12.453**	-8.422	-7.924	-12.131*	-12.348**	-11.327*
	(6.363)	(5.786)	(5.331)	(5.981)	(6.095)	(5.866)	(6.222)
Party Comp'n of Congress$_{t-1}$	-.177	-.472	-.596	-.615	-.473	-.563	-.612
	(.408)	(.379)	(.420)	(.439)	(.388)	(.411)	(.426)
Constant	11.211	27.658	31.226	31.813	27.556	31.799	33.516
	(19.943)	(18.785)	(20.627)	(21.272)	(19.192)	(20.150)	(20.688)
R^2	.209	.380	.333	.334	.382	.391	.400
Adjusted R^2	.071	.273	.217	.183	.241	.253	.229
Observations	28	28	28	28	28	28	28

Cells contain coefficients from a OLS estimation, with standard errors in parentheses. * p < .10; ** p < .05; *** p < .01.

[a] Models also include a dummy variable for the 1977 supplemental appropriations. See note 15.

Table 5. Policy representation in the US, health appropriations, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.694***			.305	.277		.258
	(.185)			(.298)	(.259)		(.295)
Middle tercile$_{t-1}$		.684***			.500**	.498	.461
		(.155)			(.231)	(.346)	(.350)
Upper tercile$_{t-1}$			.591***	.394		.188	.052
			(.145)	(.241)		(.313)	(.351)
Party of the President $_{t-1}$	2.789	1.379	-.337	.622	1.658	.727	1.458
	(2.488)	(2.368)	(2.584)	(2.745)	(2.375)	(2.633)	(2.776)
Party Comp'n of Congress$_{t-1}$	.057	.015	.167	.095	-.018	.046	-.007
	(.231)	(.217)	(.214)	(.225)	(.218)	(.225)	(.234)
Constant	-4.195	-1.494	-7.469	-4.679	-.146	-2.508	-.520
	(10.864)	(10.243)	(10.160)	(10.507)	(10.289)	(10.517)	(10.814)
R^2	.445	.516	.480	.503	.539	.523	.539
Adjusted R^2	.376	.455	.415	.417	.459	.440	.435
Observations	28	28	28	28	28	28	28

Table 6. Policy representation in the US, education appropriations, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.261*			.244	.210		.224
	(.147)			(.248)	(.234)		(.261)
Middle tercile$_{t-1}$		.149			.044	.108	.063
		(.097)			(.152)	(.200)	(.208)
Upper tercile$_{t-1}$			.121	.012		.040	-.026
			(.084)	(.139)		(.172)	(.190)
Party of the President $_{t-1}$	1.049	.934	1.004	1.031	.975	.926	.983
	(1.610)	(1.655)	(1.657)	(1.658)	(1.662)	(1.689)	(1.700)
Party Comp'n of Congress$_{t-1}$	-.218	-.052	-.003	-.208	-.200	-.045	-.215
	(.225)	(.171)	(.157)	(.260)	(.238)	(.177)	(.267)
Constant	9.386	1.850	-.452	8.912	8.604	1.513	9.290
	(10.503)	(8.067)	(7.406)	(12.046)	(11.049)	(8.355)	(12.355)
R^2	.157	.131	.122	.157	.160	.133	.161
Adjusted R^2	.052	.022	.012	.011	.014	-.018	-.030
Observations	28	28	28	28	28	28	28

Cells contain coefficients from a OLS estimation, with standard errors in parentheses. * p < .10; ** p < .05; *** p < .01.

Table 7. Policy representation in Canada, defense expenditures, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.013*			.060	.046		.067
	(.007)			(.039)	(.039)		(.046)
Middle tercile$_{t-1}$		.010*			-.028	.015	-.012
		(.006)			(.033)	(.034)	(.038)
Upper tercile$_{t-1}$			.009	-.038		-.005	-.033
			(.006)	(.032)		(.033)	(.037)
Party of Gov't $_{t-1}$	.247	.239	.273	.129	.262	.221	.153
	(.232)	(.236)	(.239)	(.249)	(.235)	(.272)	(.267)
Constant	-.111	-.108	-.123	-.058	-.118	-.100	-.069
	(.156)	(.159)	(.160)	(.160)	(.157)	(.172)	(.168)
R^2	.222	.192	.183	.288	.256	.193	.293
Adjusted R^2	.131	.097	.087	.154	.116	.042	.104
Observations	20	20	20	20	20	20	20

Table 8. Policy representation in Canada, welfare expenditures, by income tercile [a]

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.064			-.130	-.020		-.079
	(.117)			(.098)	(.071)		(.082)
Middle tercile$_{t-1}$		.279***			.283***	.226**	.208**
		(.054)			(.058)	(.077)	(.079)
Upper tercile$_{t-1}$			.248***	.308***		.080	.130
			(.073)	(.085)		(.081)	(.097)
Party of Gov't $_{t-1}$	5.603**	3.654***	4.388***	4.943***	3.767***	3.574***	3.978***
	(1.853)	(1.038)	(1.285)	(1.316)	(1.156)	(1.043)	(1.126)
Constant	-2.590	-14.905***	-14.258**	-11.993**	-14.236**	-16.674***	-15.099***
	(6.795)	(3.830)	(5.311)	(5.432)	(4.669)	(4.235)	(4.550)
R^2	.594	.870	.787	.816	.871	.880	.890
Adjusted R^2	.492	.837	.733	.749	.824	.837	.836
Observations	17	17	17	17	17	17	17

Cells contain coefficients from a OLS estimation, with standard errors in parentheses. * p < .10; ** p < .05; *** p < .01.

[a] Models also include current levels of unemployment as an control. See note 19.

Table 9. Policy representation in Canada, health expenditures, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.081***			.081**	.036		.041
	(.015)			(.035)	(.048)		(.053)
Middle tercile$_{t-1}$		.094***			.055	.096**	.061
		(.017)			(.055)	(.040)	(.060)
Upper tercile$_{t-1}$			.115***	.001		-.003	-.018
			(.028)	(.056)		(.055)	(.059)
Party of Gov't $_{t-1}$	1.835**	1.559**	2.240**	1.840**	1.731**	1.527*	1.584*
	(.703)	(.660)	(.939)	(.841)	(.711)	(.861)	(.878)
Constant	-.648*	-.550	-.791	-.649	-.611	-.539	-.559
	(.364)	(.350)	(.457)	(.405)	(.366)	(.407)	(.415)
R^2	.676	.686	.545	.676	.699	.686	.701
Adjusted R^2	.630	.641	.480	.601	.629	.614	.602
Observations	17	17	17	17	17	17	17

Table 10. Policy representation in Canada, education expenditures, by income tercile

Independent Variables	*Dependent Variable: Changes in Spending (billions $2000)* $_t$						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Preferences							
Bottom tercile$_{t-1}$	.083**			.052	.139		.106
	(.030)			(.073)	(.080)		(.087)
Middle tercile$_{t-1}$		.076*			-.068	-.044	-.115
		(.037)			(.091)	(.087)	(.103)
Upper tercile$_{t-1}$			.098**	.042		.141	.095
			(.037)	(.088)		(.093)	(.099)
Party of Gov't $_{t-1}$	2.785***	2.096**	2.566***	2.758***	3.096***	2.678***	3.255***
	(.767)	(.713)	(.730)	(.791)	(.884)	(.783)	(.902)
Constant	-.983**	-.740*	-.906**	-.974**	-1.093**	-.945**	-1.149**
	(.389)	(.393)	(.382)	(.400)	(.421)	(.400)	(.427)
R^2	.489	.398	.479	.498	.510	.489	.545
Adjusted R^2	.416	.312	.404	.382	.397	.371	.393
Observations	17	17	17	17	17	17	17

Cells contain coefficients from a OLS estimation, with standard errors in parentheses. * p < .10; ** p < .05; *** p < .01.

Figure 1. A Hypothetical Distribution of Policy Preferences

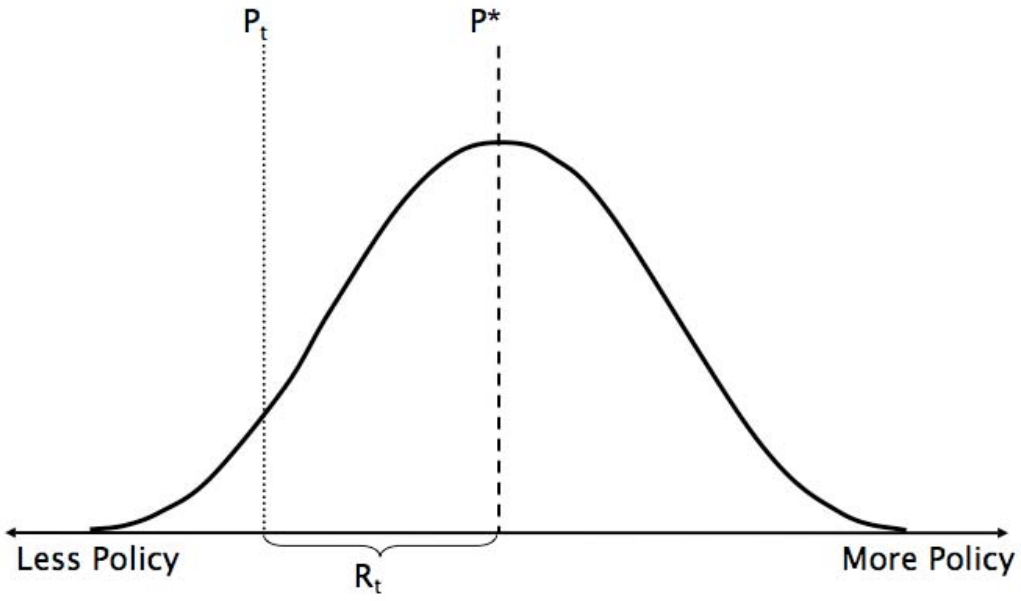

Figure 2. Preferences, US, Defense and Welfare

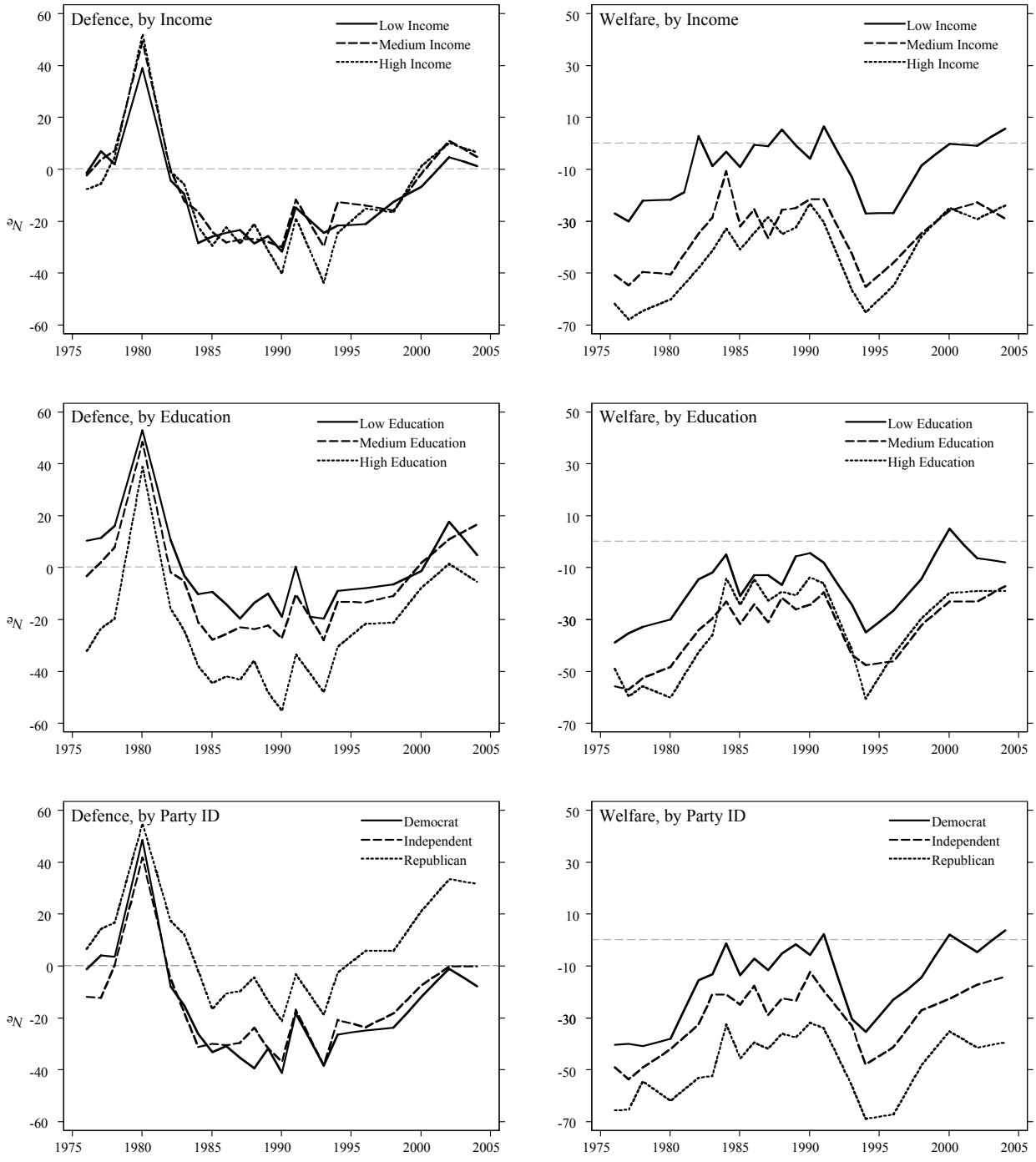

Figure 3. Preferences, US, Education and Health

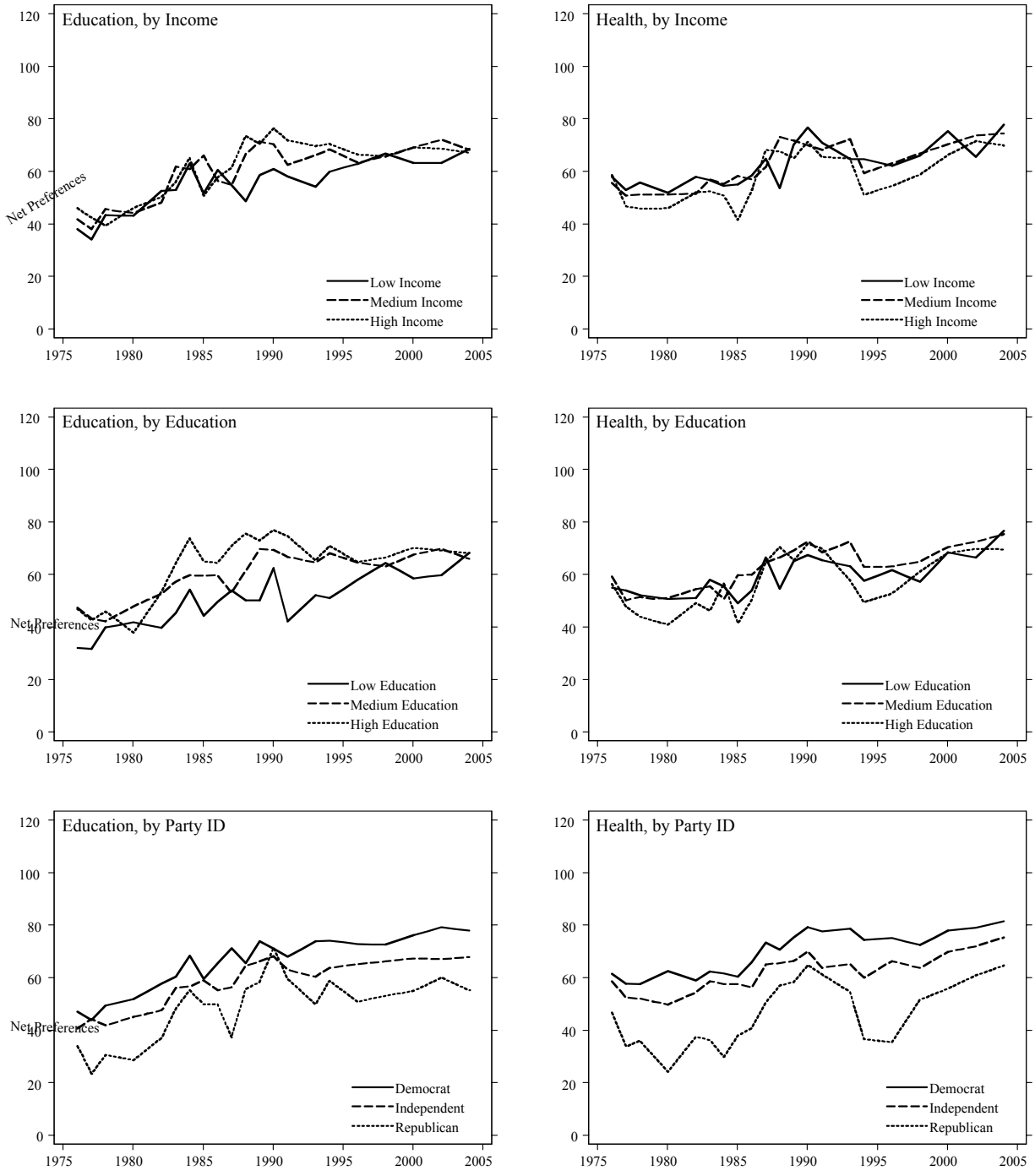

Figure 4. Preferences, Canada, Defense and Welfare

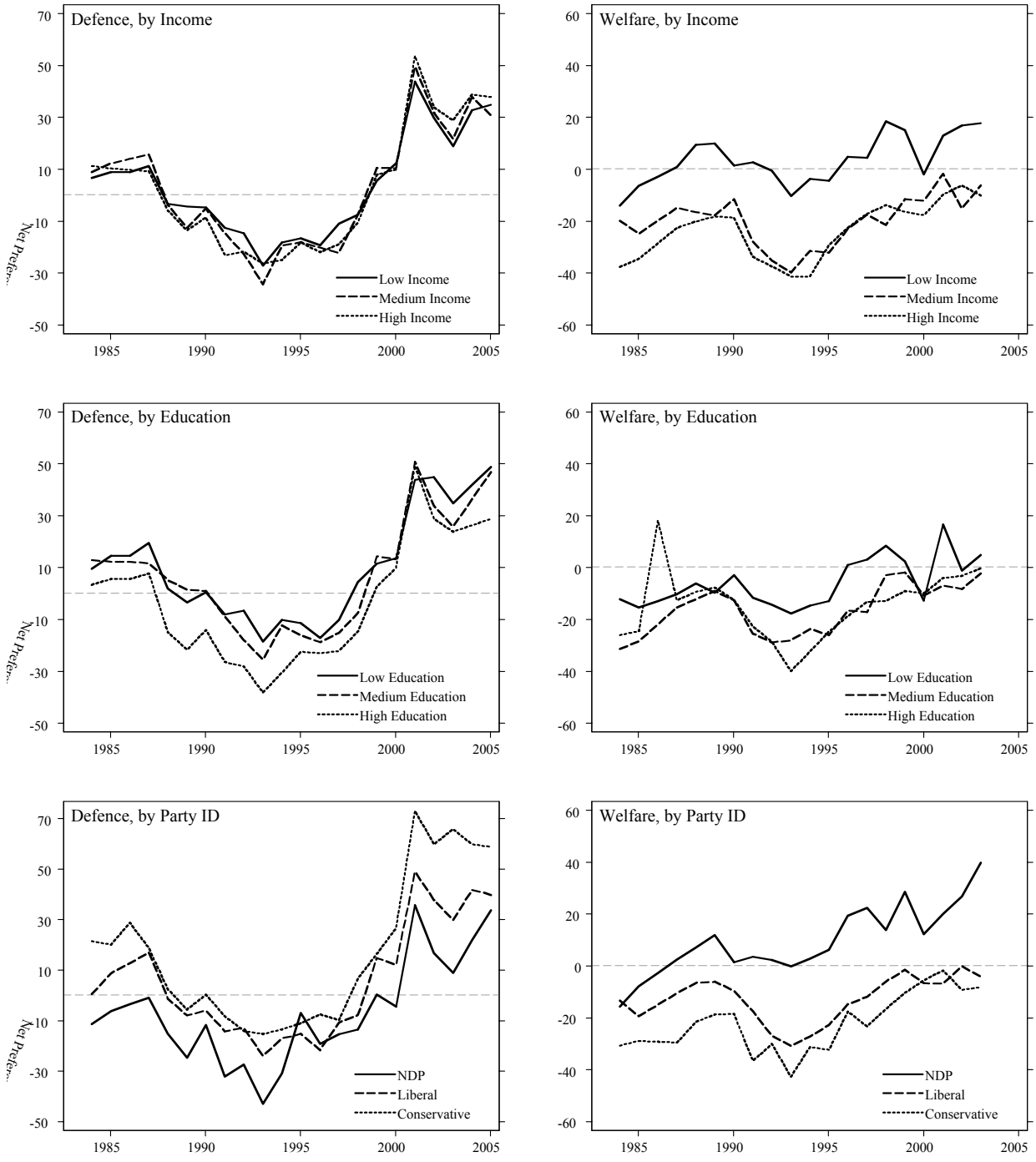

Figure 5. Preferences, Canada, Education and Health

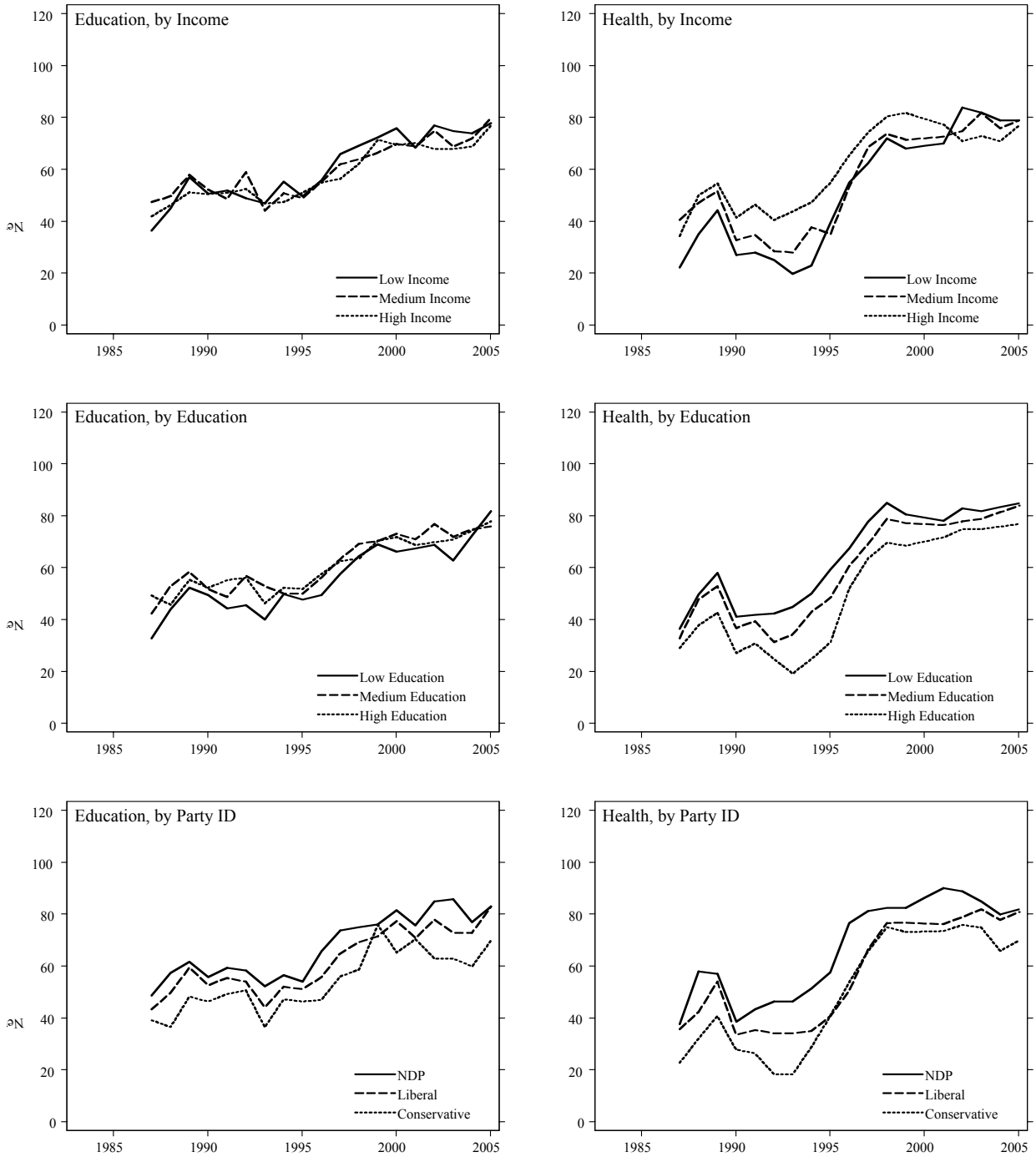

Figure 6. Preferences, UK, Defense

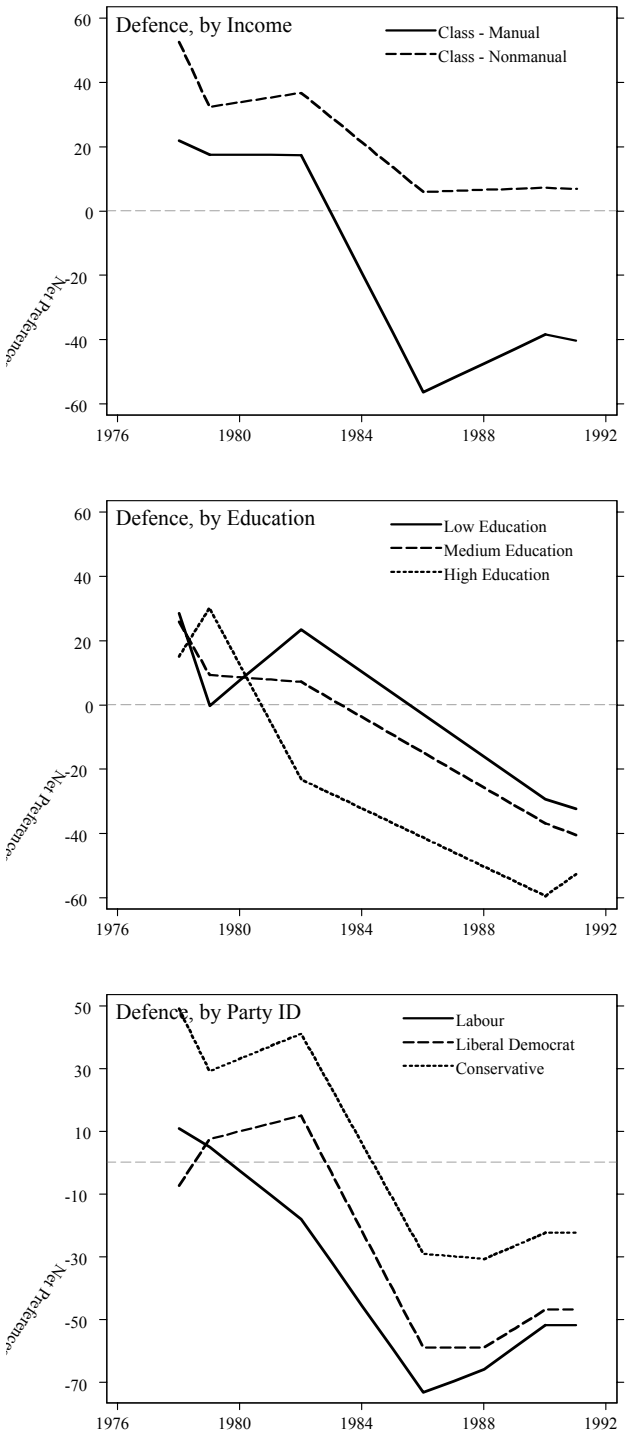

Figure 7. Preferences, UK, Education and Health