**ESRC Research Methods Programme**
**Working Paper No15**

# *Political Sophistication and Issue Voting: An Intra-Individual Level Analysis*

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Much attention in political science has been devoted to an explication of how voters make use of issues to guide political preferences. The extant literature suggests that, while sophisticated voters make greater use of issue proximity in their electoral calculus, issues remain important to even the least politically knowledgeable of citizens. The empirical investigations on which this conclusion is based have relied on analysis of cross-sectional data. In this paper we use repeated measures data to investigate how intra-individual change in measures of issue proximity is related to intra-individual change in party evaluations. Individual change in the distance respondents place themselves from a party is shown to be strongly associated with change in evaluations of the party over the same time period but this relationship is moderated by existing levels of political awareness. For less sophisticated voters, neither a directional nor a spatial model of issue proximity appears to apply.

Common sense, political theory and empirical research all tell us that issues are important in determining electoral outcomes. Since Downs' formal operationalisation of party competition as occurring within a multi-dimensional issue space, a plethora of studies have lent support to the idea that voters evaluate parties on the basis of proximity on important policy domains (Himmelweit, Humphreys, and Jaeger 1985; Hinich and Enelow 1984; Lewis and King 2000; Merrill 1993; Rabinowitz, MacDonald, and Listhaug 1989). From a normative perspective this has been comforting; issue voting is 'rational' in a way that appeals to loyalty, identity and image are not. As Carmines and Stimson put it, "the policy-oriented vote is a defining characteristic of that mythical specimen, the classic democratic citizen" (Carmines and Stimson 1980 p.79). Until the mid-1980s, perhaps as a consequence, much of the debate around issue voting focused on the question of whether its prevalence had been increasing over time (Brody and Page 1972; Heath et al. 1991; Himmelweit, Humphreys, and Jaeger 1985; Kessel 1988; Respass 1971; Rose and McAllister 1986; Rose and McAllister 1990). Perhaps the Michigan School's pessimistic account of mass political behaviour was of limited

historical generality. Were voters becoming more rational in their electoral choices as a result of higher levels of education, more fluid class structures and a more pervasive and sophisticated mass media? While scholars remained divided on the answer to this question, few seriously queried the axiomatic premise of rational choice models of electoral behaviour – that voters uniformly take account of party and candidate issue stands when casting their vote.

From the late 1980s, research moved away from considerations of temporal variation in the extent of issue voting, with the debate shifting to an, at times, arcane analysis of the cognitive calculus voters employ in responding to issue preference questions in surveys. Do voters conceptualise policy alternatives as continua or dichotomies? In an extensive series of articles, McDonald, Rabanowitz and Listhaug have argued vociferously in favour of the latter alternative (MacDonald, Rabinowitz, and Listhaug 1991; MacDonald, Rabinowitz, and Listhaug 1993; MacDonald, Rabinowitz, and Listhaug 1998; Rabinowitz, MacDonald, and Listhaug 1989). Overturning the conventional wisdom of Downsian spatial models of party competition and voter choice, these authors have delineated an alternative model based on location within a binary policy space, the so-called 'directional' model of issue voting. Unlike the spatial model, which predicts that the most successful parties will be those that converge on median voter preferences, the directional account contends that the greatest electoral rewards will accrue to parties who campaign with the greatest intensity on the side of a binary policy alternative which attracts the support of the majority of voters. The logic of the directional model up to this point implies, however, that the most extreme parties will be the most successful at elections. History, of course, tells us that this is not so.

McDonald *et al* therefore incorporate the notion of a 'penalty', which is applied to parties that take a position outside a notional 'region of acceptability'. Voters are wary of the likely 'reasonableness' in office of parties which adopt very extreme positions and penalise their evaluations of them as a consequence.

While the evidence McDonald and colleagues present for the superiority of the directional account over the spatial model is certainly impressive, their conclusions have not gone uncontested. Some have argued that the apparent superiority of the directional model is simply an artefact of measurement and analysis choices (Westholm 1997), while others have contended that the data commonly employed in these studies do not give sufficient leverage to identify an outright winner (Lewis and King 2000). While the questions at the heart of these exchanges are substantively and methodologically important, they have often generated more heat than light, with a concomitant over-emphasis on the differences as opposed to the similarities between the competing perspectives. For, while they diverge in their accounts of how voters perceive issues and respond to survey questions, they are united in seeing citizens' appraisals of their position relative to parties and candidates on personally important policy issues, as key to our understanding of electoral dynamics.

An equally voluminous tradition of empirical research within political science, however, calls into question the entire notion that most citizens are sufficiently knowledgeable about and interested in politics to make such rational choices. The earliest surveys of political preferences in the United States soon established that the average citizen had, at best, a shallow grasp of matters politic (Berelson, Lazarsfeld, and McPhee 1954; Hyman and Sheatsley 1947), a picture which remains largely unchanged

to this day (Baker et al. 1996; Bartle 2000; Bennett 1988; Converse 1964; Delli-Carpini and Keeter 1996; Kinder and Sears 1985; Neuman 1986). The image of the disinterested and politically ignorant citizen, then, sits uneasily alongside that of the issue voter, whether they be of the directional or spatial variety. For knowledge of candidates, parties and issues is precisely what the large body of research on political sophistication has repeatedly shown a substantial proportion of the public to lack. In their exhaustive analysis of the distribution, causes and consequences of political knowledge in the U.S., Delli Carpini and Keeter illustrate the point with a poll conducted at the University of Massachusetts, which found that,

> *"86 percent of a random sample of likely voters knew that the Bush's family dog was named Millie and 89 percent knew that Murphy Brown was the television character criticized by Dan Quayle, but only 15 percent knew that both candidates favoured the death penalty and only 5 percent knew that both had proposed cuts in the capital gains tax"*
>
> (Delli-Carpini and Keeter 1996 p.63)

If citizens are unaware of where parties stand on the salient issues of the day – uncertain, perhaps, even of their own position – how can their evaluations of parties be derived from any measure of issue proximity? Scholars who have investigated the relationship between political sophistication and issue voting have, indeed, found a strong positive correlation; the predictive power of measures of issue proximity on vote choice and party/candidate evaluations increases substantially with higher levels of knowledge and cognitive ability (Delli-Carpini and Keeter 1996; Moon 1990; Neuman

1986; Palfrey and Poole 1987; Sniderman, Brady, and Tetlock 1991). However, while such studies would seem to demonstrate fairly conclusively that sophisticated voters rely more heavily on issue proximity in making political evaluations, they have also concluded that unsophisticated voters still make use of issues, but to a lesser extent. In the most detailed investigation of the question to date, McDonald, Rabionwitz and Listhaug, for example, conclude that "at all levels of sophistication, voters appear to follow the directional model" (MacDonald, Rabinowitz, and Listhaug 1995 p.472) . Similarly, Delli Carpini and Keeter (1996) find small but statistically significant effects of domestic issues on vote amongst the least informed quartile of the American public[1] and Palfrey and Poole (1987) find that distance-utility measures are weaker but still significant predictors of vote amongst the less well informed.

A common feature of all these analyses is that their conclusions are based on *between person* analyses of cross-sectional data. The intuitive interpretation of such inter-individual effects is that, as a particular voter moves closer to a party on an issue (or set of issues) over time, their utility for that party increases and so, therefore, does their probability of voting for that party. Such inferences are not, however, warranted by the parameters yielded from a cross-sectional analysis. All we are able to infer from a cross-sectional regression of party evaluation on some measure of issue proximity is that, at the time of measurement, voters who are closer to a party on the issue(s) tend also to provide more positive evaluations of the party. Any desire to infer a causal relationship from a cross-sectional parameter is limited, in particular, by the possibility of (1)

[1] Though note that the Delli Carpini and Keeter analysis does not explicitly include terms for candidate positions as is standard in tests of directional/proximity models.

unobserved variable bias (Duncan 1972; Holland 1986), (2) endogeneity bias (Berry 1984; Finkel 1995; Hausman 1978) and (3) indeterminacy of the duration and sequencing of the causal mechanism.

Point (3) is a less frequently discussed problem of causal inference from cross-sectional data but one that is particularly germane to the question of issue voting; even if we were somehow able to discount problems (1) and (2), we would still have no information about the temporal dimension of the relationship. We can infer nothing about how *intra-individual change* over time on issue proximity relates to *intra-individual change over the same time period* in candidate and party evaluations. The implicit assumption of spatial models of voter choice, however, is that issue proximity will influence party evaluations over the course of an electoral cycle, particularly during a campaign when parties most clearly articulate their positions on the most important issues (Kinder and Sears 1985; Lazarsfeld, Berelson, and Guadet 1948). It is entirely plausible, though, that any cross-sectional relationship we observe may not follow such an electoral-cyclical pattern at all. The relationship may have arisen at some earlier, perhaps brief and distant, point in time.

In his trenchant critique of the directional model of issue voting, Westholm recognises this limitation, arguing that "predictions should be tested…by means of comparisons *within rather than across individuals*" (1997; p.879 emphasis added). Westholm's subsequent analysis, however, does not follow his own prescription, he merely changes the dependent variable from a rating to a ranking of parties in a further between person analysis of cross-sectional data.

In this paper we use Latent Growth Curve Models (Browne and Du Toit 1991; McArdle 1988; Meredith and Tisak 1990) on repeated measures data to provide the first true intra-individual level analysis of the relationship between issue proximity and party evaluation. In addition, we examine how this relationship is moderated by political sophistication, using a measure based on correct party placements on issue scales. The primary working hypothesis in the analyses that follow is that *intra-individual change in issue proximity is uncorrelated with intra-individual change in party evaluation for less politically sophisticated members of the public*. We begin by describing the data we have used for these analyses and how we have operationalised our key concepts empirically. We then move on to a presentation of the results of our analyses, for the sample as a whole and stratified by political knowledge. We conclude by discussing the implications of our results for our understanding of how citizens use issues in deciding political preferences and for rational choice models of electoral behaviour more generally.

## Data

Our data for these analyses come from the British Election Panel Study of 1997-2001. The study followed respondents to the 1997 British General Election Study and re-interviewed them at regular intervals until the 2001 election. The study employs a stratified, multi-stage probability design, using the Post Office Address File as the sampling frame. One adult aged 18 or over was selected at random from each selected household. Interviews at wave 1 were conducted face-to-face via Computer Assisted Personal Interview (CAPI). Further face-to-face rounds took place each spring/summer after the local and/or European elections, with the final wave coming after the 2001

general election. Three telephone/postal waves were conducted in autumn 1997, autumn 2000 and in May 2001, though we do not use them in this analysis as they did not contain the necessary variables. The response rate at wave 1 was 61%, yielding a sample size of 3615. We use a complete case analysis, taking only those respondents who participated in all remaining five waves for the 1997-2001 panel, yielding an analytical sample size of 2034. Analyses are weighted to correct for unequal selection probabilities at wave 1 and for differential attrition across the duration of the panel[2].

**Measures**

Our aim in this analysis is to assess how intra-individual change in multivariate proximity between a party and voter is related to intra-individual change in evaluation of the party over the same time period and whether this is moderated by level of political knowledge. We therefore needed to make use of, or derive, individual level measures of (1) proximity to parties across policy issues, (2) evaluations of the main parties and (3) political knowledge, at all five waves of the panel.

*Issue Proximity Measures*

Four issue placement questions were administered at all five waves of the 1997-2001 BEPS. These addressed: European integration, income redistribution, taxation and

[2] Though note that nonresponse analysis revealed nonresponse at later waves to be largely unrelated to fixed characteristics measured at wave 1.

spending, and unemployment and inflation. For each issue, respondents were presented with a 11-point scale with contrasting statements anchoring each pole (for example, 1 reading "cut taxes and spend less" and 11 reading "increase taxes and spend more") and asked to locate first themselves, then the three main parties on each dimension. The questions read as follows:

**European Integration**

> "Some people feel that Britain should do all it can to unite fully with the European Union. These people would put themselves in Box 1. Other people feel that Britain should do all it can to protect its independence from the European Union. These people would put themselves in Box 11. And other people have views somewhere in-between."

**Income redistribution**

> "Some people fell that government should make much greater efforts to make people's incomes more equal. These people would put themselves in Box 1. Other people feel that government should be much less concerned about how equal people's incomes are. These people would put themselves in Box 11. And other people have views somewhere in-between."

**Taxation and spending**

> "Some people feel that the government should put up taxes a lot and spend much more on health and social services. These people would put themselves in Box 1. Other people feel that the government should cut taxes a lot and spend much less on health and social services. These people would put themselves in Box 11. And other people have views somewhere in-between."

**Unemployment and Inflation**

> Some people feel that getting people back to work should be the government's top priority. These people would put themselves in Box 1. Other people feel that keeping prices down should be the government's top priority. These people would put themselves in Box 11. And other people have views somewhere in-between.

Although our primary intention in this analysis is not to determine which of the spatial and directional models performs best in an intra-individual analysis, it was nonetheless important to assess both types of measure, as relying on only one of these alternatives would have left open the possibility that the other might have produced contradictory results. This, however, is not a straightforward matter, as each has been operationalised in a number of different ways in the extant literature (Lewis and King 2000). So as not to stack the dice in favour of confirming our working hypothesis, we produced measures for both the directional and spatial scores that would maximise the chances of their being related to change in party evaluations. For the directional measure, this meant taking the mean across the four issues of the scalar product of proximity between each respondent's self placement and the mean placement of the party in the sample on each issue (MacDonald, Rabinowitz, and Listhaug 1998). As our analysis focused only on the main parties in the UK, we do not incorporate any penalty measure for the directional scores. For the proximity measure, we take the mean of the city block (absolute) distance between each respondent's self placement and the respondent's placement of the party across all 4 issues (Westholm 1997). We also produced equivalent scores based on the

respondent's (rather than the mean) placement of the party for the directional model and the mean (rather than the respondent's) placement of the party for the proximity model[3].

Using the sample mean rather than respondent party placements has been argued to remove the endogenous influence of evaluation on party placement (MacDonald, Rabinowitz, and Listhaug 1995; Rabinowitz, MacDonald, and Listhaug 1989). Taking the respondent's own placement of the party opens the measure up to 'projection' bias – the tendency for party placements to be influenced by evaluations of the party rather than *vice versa* (Markus and Converse 1979; Merrill and Grofman 1997). Others, however, prefer the respondent's own placement of the party on the basis that it is "their personal beliefs, whether right or wrong, that will guide preference formation" (1997; p.870) and because of the plausibility of parties presenting different images to different sections of the electorate (Granberg and Holmberg 1988; Powell 1989). Restricted variance in measures employing mean party preference has also been argued to bias estimates in favour of the directional model (Johnston, Fournier, and Jenkins 2000; Lewis and King 2000). We do not seek to resolve these questions here but, for the sake of completeness, provide estimates using both approaches. Where the mean placement of the party in the sample was used, we take the mean placement from the cross-sectional data for the

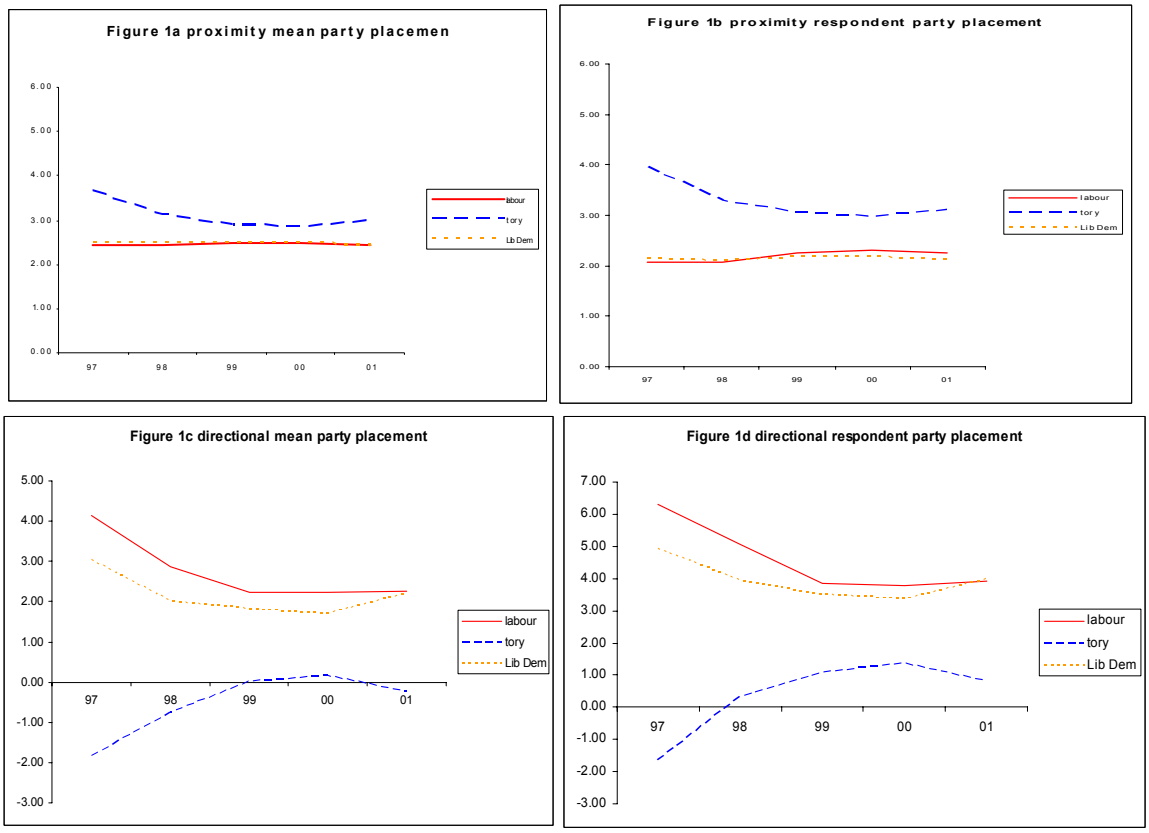
[3] Lewis and King (2000) propose a general model which affords a 'head to head' comparison of the two models in a single estimation. However, whether the directional or proximity model fares better under this formulation still depends on untestable assumptions regarding the appropriate measure of party location (Johnston, Fournier, and Jenkins 2000; Lewis and King 2000).

wave in question. That is, we allowed the mean placement of the party to be different in different waves. So, in total, we produced 4 measures of issue proximity:

1. Directional score with mean party placement
2. Directional score with respondent party placement
3. Spatial score with mean party placement
4. Spatial score with respondent party placement

Formulae for the derivation of these variables are provided in the appendix. Item missing data on the scales ranged from 0% to 6.2% across all items. Listwise deletion of cases with missing data was used for all analyses as it was not thought appropriate to impute values to legitimate 'don't know' responses (King et al. 2001). The sample average trajectories for these measures are plotted in Figures 1a-d. For the spatial measures, higher scores indicate greater distance from the party, for the directional scores the opposite is the case. The main things to note about figures 1a-d are that on all 4 measures, for the population as a whole, the Conservative party were furthest away from mean voter preferences across the four issues in question throughout the period 1997-2001. For the Conservatives, distance declined after the 1997 election but showed an upturn by the time of the 2001 election. The opposite was the case for Labour and the Liberal Democrats, with distance reaching its maximum in the middle of the electoral cycle.

**Figures 1a-d Spatial and Directional Scores 1997-2001**




On all 4 measures, there is not much difference between the scores of the Labour Party and the Liberal Democrats. There is, however, more variation in the average distance between the public and the Labour party over time, than is evident for the Liberal Democrats. In fact, the trajectories for the Liberal Democrats on the proximity measures show no real development, an impression confirmed by parametric analyses conducted by not reported here. [4] For this reason, we present results in later sections for the Labour and Conservative parties only. Note, also, the more accentuated curves

[4] Because of the flat trajectory, many of the models fitted for the Liberal Democrats had irresolvable identification and convergence problems.

exhibited by the directional scores for both the mean and respondent placement variables - the directional transformation is clearly more sensitive to variation in the raw scores on the placement variables over time.

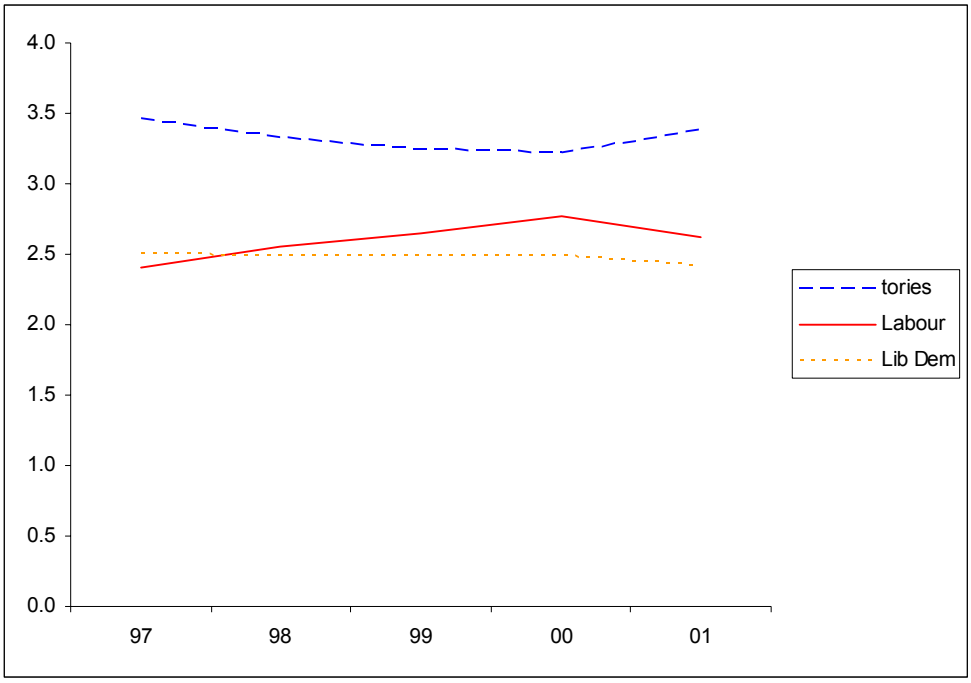
*Party evaluation*

Individual evaluations of the main parties were measured using five point scales ranging from (1) Strongly in Favour to (5) Strongly Against. Respondents were asked to "choose a phrase from this scale to say how you feel about the Labour/Conservative/Liberal Democrat party". We use evaluation scores as opposed to reported vote because this has been the preferred choice in most extant tests of issue voting (Westholm 1997; McDonald Rabinowitz and Listhaug 1995; (Johnston, Fournier, and Jenkins 2000))[5]. Figure 2 plots the sample average trajectories of evaluation for the three main parties over the five waves of the panel[6].

[5] Theoretical and empirical reasons for preferring evaluation scores over vote choice are that they have superior measurement properties, provide information about preference ordering rather than peak preferences, are less sensitive to tactical voting and are thought, substantively, to mediate utility and vote (Johnston, Fournier, and Jenkins 2000; Westholm 1997).

[6] The peak in respondents obtaining a score of thirty appears to be related to the tendency of this group to place Labour and the Liberal Democrats as tied on the same issues. It is not related to item non-response on the party placement scales.

**Figure 2 Party Evaluations 1997-2001**



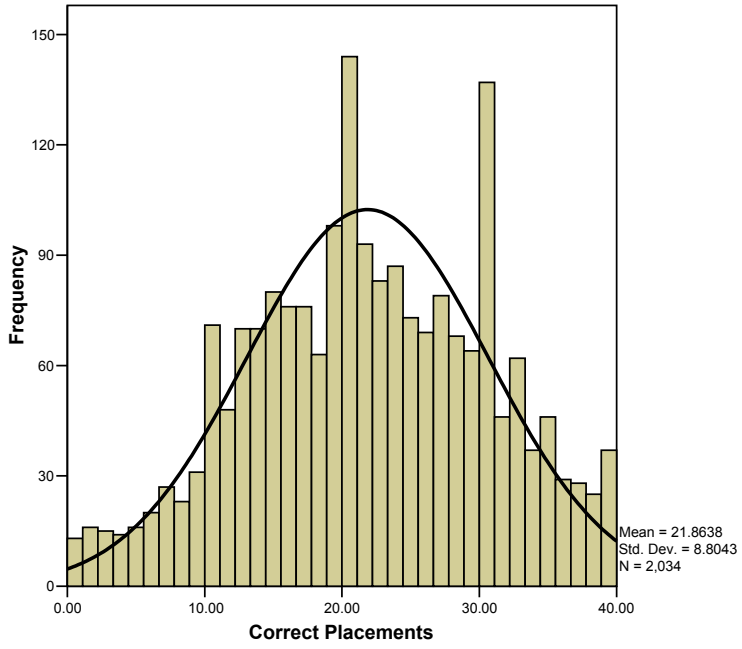

Generally, these mirror the trends apparent in the proximity scores of figures 1a-d; the Conservatives were the least popular party throughout, though with a slight improvement in evaluations between elections. Labour and the Liberal Democrats had very similar mean evaluation scores to each other at all five waves, though the Labour party show a more pronounced mid-term dip in popularity, the inverse of the Conservative party trend. From these population average plots, then, there would seem to be some *prima facie* evidence of a relationship between party evaluation and proximity to voters on the four issues in question.

*Political Knowledge*

Our measure of political knowledge is based on an individual's ability to correctly rank the three main parties on these four issues. 'Correct' placements on these dimensions are taken from expert surveys and published manifesto analyses(Bara and Budge 2001). For each issue there are, potentially, three rankings that respondents can get either right or wrong: Conservative v Labour; Conservative v Liberal Democrat; and Labour v Liberal Democrat. On two of the issues – EU integration and taxation and spending – the relative locations of the three parties were clear and uncontroversial; the Conservatives were to the right of Labour and Labour to the right of the Liberal Democrats on both issues between 1997 and 2001. Each scale, therefore, yields three binary variables, with '1' indicating a correct placement and '0' indicating an incorrect placement. On 'income redistribution' and 'unemployment versus inflation', the ordering of the parties was less clear, particularly for the Liberal Democrats with respect to the other two parties. For this reason, the Liberal Democrat comparisons were not used, yielding a single binary variable for each of the two issues, indicating whether the respondent had correctly placed the Conservatives to the right of Labour. For all four issues, 'Don't know's and responses that placed two parties at the same point on the scale were treated as incorrect and coded zero[7].

[7] This strategy may introduce a degree of bias into our measure of political knowledge because guessing propensity is conditioned by personality. However, when knowledge is used as an independent variable, this effect leads to biases in a more conservative direction, making it harder to detect differences as a function of knowledge (Mondak 2000)

**Figure 3 Histogram of Longitudinal Political Knowledge Index**




At each wave, therefore, we produced a knowledge of party location index ranging from a minimum of zero to a maximum of eight. As there is undoubtedly a good deal of measurement error in the score for any individual at a particular wave, we summed the scores across waves to produce a longitudinal measure, ranging from zero to forty. This measure has a Pearson correlation of .52 ($p<0.001$) with the more traditional 'civics' based quiz which was administered at wave 1 of the panel (see Martin et al (1993) for a detailed description of this measure). Figure 3 shows a histogram of our longitudinal knowledge measure, indicating that it is approximately normally distributed with a mean score of 22, or 55% correct. Given the relative ease of these questions for anyone even vaguely familiar with contemporary British politics, this

cannot be considered a sterling performance, particularly when a random guessing strategy yields an expectation of 13 correct answers, or 33% of items correct [8].

For later analyses we wished to divide the sample up so as to form high and low knowledge strata. The cut-off criteria when forming discrete classes from an underlying continuous variable are always, to a degree, arbitrary. In the current instance, following MacDonald, Rabinowitz, and Listhaug (1995) and (Delli Carpini and Keeter 1996), we formed the 'low' and 'high' knowledge' groups by taking the top (n=579) and bottom (n=513) quartiles on the knowledge index. Other, slightly more conservative or liberal cut-off criteria, however, produced the same pattern of results reported here.

**Analysis**

To examine the relationship between intra-individual change in issue proximity and party evaluation, we use a Latent Growth Curve (LGC) modelling approach (McArdle 1988; McArdle and Nesselroade 1994; Meredith and Tisak 1990; Muthén 2000). Such models are part of the general family of 'random effects' models (Laird and Ware 1982) and are equivalent, in many instances, to Hierarchical Linear Models (Raudenbush 1995; Raudenbush 2001), multi-level models (Goldstein 1995) and a number of other names by which this general class of approaches to panel data have rather confusingly become known (Raudenbush 2001). The main distinction of the LGC approach is that it is a simple extension of the more general Structural Equation Modelling framework (Willett

[8] There are three possible substantive placement orders for each pairwise comparison, only one of which is correct.

and Sayer 1994), allowing growth parameters to be specified as latent variables, which can then be modelled via regressions between the latent intercepts and slopes and fixed and time varying covariates.

The basic approach involves specifying a model for a developmental process which captures individual change over time and variation in individual change over time, the so-called level 1 model. Starting first with individual linear trajectories in party evaluation over the five waves of the panel, we specify that each individual's status with respect to party evaluation, *y*, changes at a constant rate but that these rates vary over the population of individuals, such that:

$$y_{it} = \alpha_i + \beta_i \alpha_t + \varepsilon_{it} \quad (1)$$

, where $y_{it}$ is respondent *i*'s evaluation of the party at time *t* (*t* = 1, 2, …5), $\alpha_i$ is the true intercept of the growth trajectory for case *i* , $\beta$ is the true slope of the growth trajectory for case *i*, $\alpha_t$ represents the value of time at time point *t* and $\varepsilon_{it}$ is the time specific residual for case *i* at time *t*. There are a number of different ways to parameterize time via $\alpha_i$ , to represent linear and nonlinear growth, though space precludes a detailed discussion here (but see McArdle and Nesselroade (2003) for a thorough treatment). Our strategy for selecting the appropriate growth function for each trajectory was to inspect the empirical growth record for the sample as a whole and for each knowledge sub-group on the variable in question. Where a curvilinear trajectory was apparent, a quadratic parameter is added to equation (1), such that:

$$y_{it} = \alpha_i + \beta_{1i}\alpha_t + \beta_{2i}\alpha_t^2 + \varepsilon_{it} \quad (2)$$

, where the quadratic parameter $\alpha_t^2$ permits the trajectory to be curvilinear. All models set $\alpha_t = 0$ for t = 1, so that E($\alpha_t$) represents the mean of the trajectory at the first wave of the panel.

The subscripting of the growth parameters $\alpha$ and $\beta$ in equations (1) and (2) indicate that each case, *i*, can have different intercept, slope and curvature parameters for evaluation of the party over time. This can also be seen in the following equations for the mean intercept, slope and quadratic across all cases in the level 2 model:

$$\alpha_i = \mu_\alpha + \zeta_{\alpha i} \quad (3)$$

$$\beta_{1i} = \mu_{\beta 1} + \zeta_{\beta 1 i} \quad (4)$$

$$\beta_{2i} = \mu_{\beta 2} + \zeta_{\beta 2 i} \quad (5)$$

, where $\mu_\alpha$, $\mu_{\beta 1}$, $\mu_{\beta 2}$ are the mean intercept, slope and curvature across all cases and $\zeta_{\alpha i}$, $\zeta_{\beta 1 i}$, $\zeta_{\beta 2 i}$ are disturbances with zero means and zero correlation with $\varepsilon_{it}$. By substitution we can incorporate the level 2 model (equations 3, 4 and 5) into the level 1 model (equation 1):

$$y_{it} = (\mu_\alpha + \alpha_t\mu_{\beta_1} + \alpha_t\mu_{\beta_2}) + (\zeta_{\alpha i} + \alpha_t\zeta_{\beta 1 i} + \alpha_t\zeta_{\beta 2 i} + \varepsilon_{it}) \quad (6)$$

This is an unconditional LGC model, as it includes no predictors to account for variation in the growth parameters (Bryk and Raudenbush 1987). Conditional models, which

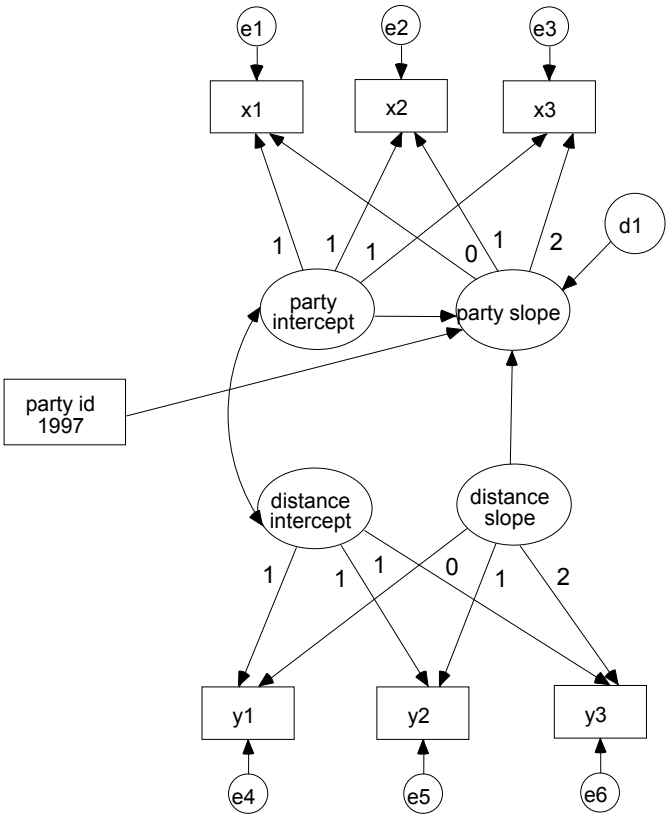
incorporate fixed predictors of growth parameters can be estimated by expanding equations (3) and (4). In the current instance we use party identity at time point 1 to predict variation in random slope of evaluation such that:

$$\beta_i = \mu_\beta + \gamma_1 x_{1i} + \zeta_{\beta i} \quad (8)$$

, where $x_{1i}$ is party identity of respondent $i$ in 1997 and $\gamma_1$ is the regression of evaluation slope on party identity. Our final models involve the simultaneous estimation of two growth trajectories: one for party evaluation and one for a single measure of issue distance from the party in question. In all models, the random slope for party evaluation is regressed onto the random intercept for party evaluation[9], the random slope for the issue distance measure, and party identity measured at the first wave of the panel in 1997. A schematic path diagram for this model is shown in Figure 4. Note that, for the sake of parsimony, figure 4 denotes linear growth for only 3 of the 5 waves of measurement. All models are estimated via Maximum Likelihood in Mplus 2.14 (Muthén and Muthén 2003).

[9] Regressing the slope parameter on to its intercept essentially controls for the regression to the mean effect commonly found in repeated measures data (Campbell and Kenny 1999).

**Figure 4 Schematic path diagram of Latent Growth Curve Models**




**Results**

We begin by examining the cross-sectional effect of each of the four measures of issue distance on party evaluations for Labour and the Conservatives, for the sample as a whole and stratified by political knowledge. Table 1 shows standardised coefficients for the regression of party evaluation in 1997 on the 4 proximity measures, controlling for age, sex, highest qualification and social class[10]. All estimates are significant at the $p<0.05$ level or below.

[10] To save space we present only the main parameter of interest from each model in table 1. Estimates for the full models, including covariates, are available from corresponding author upon request.

**Table 1 1997 Cross-Sectional Beta coefficients of party evaluation on proximity by Knowledge Group**

| *Sample* | *Party* | *spatial (mean)* | *spatial (personal )* | *direction (mean)* | *direction (personal)* |
|---|---|---|---|---|---|
| full sample | Conservative | 0.35* | 0.53* | -0.46* | -0.48* |
| n=2034 | Labour | 0.27* | 0.42* | -0.39* | -0.43* |
| low knowledge | Conservative | 0.16* | 0.36* | -0.25* | -0.32* |
| n=513 | Labour | 0.11* | 0.24* | -0.21* | -0.27* |
| high knowledge | Conservative | 0.54* | 0.69* | -0.64* | -0.64* |
| n=579 | Labour | 0.46* | 0.58* | -0.58* | -0.57* |

*=significant at 95% confidence level. All models control for age(years), sex, highest qualification and social class.

There is a clear gradient in the magnitude of effects across political knowledge groups, with substantially larger coefficients in the high knowledge group on all four measures. However, while the estimates are smaller for the low knowledge group, they are still quite powerful and significant predictors of party evaluation. When the mean placement of the party in the sample is used to calculate proximity, the directional model has the stronger effect on party evaluations. However, when the respondent's own party placement is used, the magnitude of the coefficients increases for the spatial measure, to be of an equal magnitude as the directional score. Using respondent party placements has no real impact on the magnitude of the directional coefficients. In this inter-individual level analysis, our results broadly replicate the findings of extant research reported earlier; more sophisticated individuals make greater use of issues in evaluating parties but issues are nonetheless important in guiding electoral preferences amongst the least sophisticated stratum of the electorate.

We now turn our attention to an examination of the same question via an intra-individual level analysis. Table 2 shows the parameter estimates for unconditional LGC

models of evaluations of the Labour and Conservative parties for the sample as a whole and for the low and high knowledge groups. All models specify a curvilinear trajectory and fit the data well by conventional standards, with CFI >.95 and RMSEA < 0.06 (Hu and Bentler 1999).

**Table 2 Unconditional LGC Models for Party Evaluation 97-01**

| | **Conservative Evaluation** | | | **Labour Evaluation** | | |
|---|---|---|---|---|---|---|
| *parameter* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* |
| $\mu_\alpha$ | 3.48* | 3.73* | 3.20* | 2.38* | 2.34* | 2.52* |
| $\zeta_{\alpha i}$ | 1.04* | 1.10* | 0.86* | 0.68* | 0.73* | 0.63* |
| $\mu_{\beta_1}$ | -0.22* | -0.21* | -0.19* | 0.20* | 0.18* | 0.23* |
| $\zeta_{\beta_1}$ | 0.11* | 0.11* | 0.06 | 0.08* | 0.05* | 0.11* |
| $\mu_{\beta_2}$ | 0.05* | 0.04* | 0.04* | -0.03* | -0.02* | -0.04* |
| $\zeta_{\beta_2}$ | 0.005* | 0.005* | 0.003 | 0.004* | 0.004* | 0.005* |

*=significant at 95% confidence level; All models fit the data well on adjusted fit indices (CFI > .95 and RMSEA < 0.6). The table shows mean and variance estimates for the latent growth parameters of the unconditional LGC models of evaluations of Labour and the Conservatives.

The mean and variance of the intercept ($\mu_\alpha$ and $\zeta_{\alpha i}$) are statistically significant in all models, denoting systematic variation in the starting evaluation of the parties within each sub-group and the sample as a whole. The means of the slope parameters ($\mu_{\beta_1}$) are also significant in all six models, showing the Conservatives becoming more popular and Labour less popular over time. There is significant individual heterogeneity in the slope parameter ($\zeta_{\beta_1}$) for five of the six models – only for the slope of evaluation of the Conservatives within the low knowledge group does the 95% confidence interval cross

zero. The significant fixed effects for all six quadratic terms ($\mu_{\beta_2}$) indicates that Conservative evaluations worsened and Labour evaluations improved at the end points of the panel – the General Elections in 1992 and 1997. This curvilinear effect also showed significant intra-individual variation, as denoted by the $\zeta_{\beta_2}$ in Table 2, for all but the low knowledge groups' evaluations of the Conservative party. These unconditional models, then, indicate that there is significant change over time in evaluations of the two main parties and that the initial status and rate of change in these variables differed systematically across individuals in all three groups.

Tables A1-A4 in the appendix show the parameter estimates for the conditional LGC models using each of the four issue proximity scores described on page 11.[11] Table 3 summarises the parameters of primary interest from tables A1-A4 for the main hypothesis of this paper, $\lambda_1\mu_{\beta_1}$, the regression of the random slope of party evaluation on the random slope of distance from the party.

[11] For reasons of space and presentational simplicity, we do not repeat the growth parameters for party evaluation in tables A1-A4 in the appendix.

**Table 3 Beta coefficients of party evaluation slope on proximity slope from Conditional LGC models by Knowledge Group**

| Sample | Party | spatial (mean) | spatial (personal ) | direction (mean) | direction (personal) |
|---|---|---|---|---|---|
| full sample | Conservative | -1.72 | 0.65* | -0.56* | -0.65* |
| n=2034 | Labour | 0.66* | 0.60* | -2.05* | -1.03* |
| low knowledge | Conservative | -0.45 | -0.009 | -0.16 | -0.29 |
| n=513 | Labour | 1.34 | 0.176 | 0.22 | -1.04 |
| high knowledge | Conservative | -4.06 | 0.79* | -0.81* | -0.77* |
| n=579 | Labour | 0.86* | 0.83* | -1.30* | -1.08* |

*=significant at 95% level. The table shows the standardised regression parameters of the random slope of party evaluation on the random slope of issue distance, $\lambda_1 \mu_{\beta_1}$ , from the 24 conditional LGC models in tables A1-A4 in the appendix.

For the population as a whole, all but one of the estimates – the spatial score with mean party placement - are significant predictors of change in party evaluation at the 5% level of confidence. When the mean party placement is used to derive proximity, the directional measure performs better than the spatial score in terms of statistical significance and magnitude of effect. When the respondent's own placement of the party is used to derive proximity, there is less to distinguish between the two measures, although the directional score has a stronger effect than the proximity measure on the slope of Labour evaluation. For the high knowledge group, the pattern is the same, although the magnitude of the effects is consistently greater, showing further evidence of an interaction between political sophistication and the importance of issues in determining electoral preferences.

Table 3 also confirms our primary working hypothesis, none of the coefficients for the low knowledge group reaches statistical significance at the 95% level of

confidence - *for voters who are unable to accurately locate the main parties on prominent issue dimensions, there is no relationship between change in perceived distance from the parties and change in evaluations of the parties over time*. This is not simply because this group exhibited no change on these variables; Table 2 and tables A1-A4 show that at least one of the fixed and/or random effects of the growth parameters were statistically significant in the low knowledge group in every model. Individuals were systematically changing their distances from and evaluations of the parties on these variables over time but the tendency to change on the former was statistically unrelated to change on the latter.

How can this be reconciled with the results of the cross-sectional analyses reported in table 1, which showed significant effects of some magnitude on all four measures for both parties in the low knowledge group? These apparently contradictory findings are fully compatible when it is remembered that the between person analysis contains no time dimension in the parameters, while the within person analysis does. The most plausible explanation of the discrepancy, then, is that the between person associations identified in the cross-sectional models *pre-date* the first wave of the panel. Thus, although uninformed respondents who placed themselves closer to the party on the issue scales were more likely to give more positive evaluations of the party in 1997, there was no evidence of the development of the relationship *within individuals* during the period examined.

**Discussion**

The primary goal of empirical social science is to make data based inferences in order to test theoretical models of observed regularities in the social world. A crucial step in this process is the appropriate matching of theoretical and statistical models. A common deficiency in this matching process is the exclusion of a temporal dimension in parameters estimated to shed light on theoretical models which explicitly and integrally incorporate the notion of individual development over time. Within the discipline of political science, this tendency can largely be attributed to the comparative rarity of repeated measures data of political attitudes and preferences. Yet, even when scholars have collected such data, they have tended to analyse it as if it were cross-sectional, or, at best, a chain of two-wave panels.

Over the past ten to twenty years, however, a set of new and powerful statistical models for the analysis of inter-individual differences in intra-individual change have emerged, which enable a much improved fit between statistical models and the theories they are designed to evaluate. Within the general family of 'random effect' models have emerged a number of related approaches to the analysis of panel data, all of which enable the analyst to model the trajectory of individual development over time (Collins and Horn 1991; McArdle 1988; Muthén 2000; Raudenbush 2001; Willett and Sayer 1994). We anticipate and hope for an increase in the extent to which the political science community makes use of these approaches in the years ahead to expand and improve the range of statistical models that can be used to evaluate old and new substantive questions alike. In this paper we have used a Latent Growth Curve framework (Meredith and Tisak 1990; Willett and Sayer 1994) to examine how individual change in

issue proximity is related to individual change in party evaluation over time and whether this relationship is moderated by political knowledge.

Our analyses show that, for the population as a whole and, in particular, the most politically sophisticated stratum of the public, intra-individual change in proximity to parties on policy dimensions is strongly and consistently associated with intra-individual change in party evaluation over the same time period. This adds an important new dimension to the study of how citizen and party issue positions influence the dynamics of preference formation and electoral dynamics. In making these observations, it is essential to note an important caveat; while our results demonstrate a significant relationship between individual trajectories in proximity and party evaluation over time, these estimates in no way require the relationship to be causal and uni-directional. It is entirely possible that the observed relationships arise as a result of the fact that issue proximity is endogenous to party evaluations, or that some other variable or set of variables are simultaneously and uniquely responsible for over time variation in both variables. There is good evidence to suggest, for instance, that respondents' assessments of proximity to a party are at least partially conditioned by party identity and other forms of evaluation (Brody and Page 1972; Evans and Andersen 2004; Johnston, Fournier, and Jenkins 2000; Merrill and Grofman 1997). The parameter estimates presented here give no leverage on this crucially important question.

However, while correlation is not a sufficient condition for attributions of causality, it is certainly a necessary one. Without the existence of an associational relationship between two variables, it is untenable to argue that they are causally related. Our analyses demonstrate that, for citizens who are unable to correctly locate

the main parties on important policy dimensions at better than chance levels, there is no relationship between intra-individual change on conventional measures of issue proximity and party evaluations over time. This group do not represent some tiny fraction of the electorate, but at least 25% of all adults in Britain[12]. These results have important corollary implications for our understanding of 'rationalisation' and 'projection' biases in studies of issue proximity. The tendency to adjust party locations to coincide with one's own changing position on an issue might reasonably be expected to correlate negatively with political sophistication. Such a relationship might be used to explain the apparently paradoxical findings of research showing that respondents who cannot accurately locate parties on issue dimensions nonetheless appear to use issues in forming party and candidate evaluations. Our findings refute this expectation; if these measures of issue proximity are contaminated by rationalisation and projection, their source would seem to emanate from the more, not the less sophisticated members of the public.

Our findings stand, then, in contrast to previous investigations of the relationship between political sophistication and issue voting, which have generally concluded that issue voting is less pronounced but still prevalent amongst the least informed members of society (MacDonald, Rabinowitz, and Listhaug 1995; Moon 1990; Palfrey and Poole 1987). We believe the discrepancy between our results and those of previous investigations can be attributed to our use of an intra-individual level analysis, where all previous investigations have relied on between-person analyses of cross-

[12] If anything, this is likely to be an underestimate as nonresponse and attrition is highest amongst the least politically engaged and informed (Brehm 1993).

sectional data. Indeed, our own cross-sectional modeling of the data broadly replicated the results of previous inter-individual analyses. We do not seek to make a case, on this basis, that cross-sectional analysis is inherently inferior to analysis of repeated measures data, merely that they each yield different substantive inferences about the temporal dimension of relationships. A cross-sectional association simply tells us that a relationship exists, an intra-individual association enables additional inferences regarding the timing and duration of the (possibly) causal mechanism.

Lastly, it is important to note that the issues we have examined here are what Carmines and Stimson (1980) have characterised as 'easy', in that they are symbolic, focus on ends rather than means, and have been on the political agenda for a long time. As such, evidence of their use in judgement formation about candidates and parties cannot be interpreted as particularly strong evidence of rational or sophisticated political behaviour. Indeed, most theoretical accounts of issue voting in the context of rational choice focus on 'hard' issues, which require factual knowledge about the proposed technical means of achieving consensual goals. Our estimates of the extent of 'non-issue voting' in the UK during the late 1990s are, therefore, likely to represent something of a 'lower bound'.

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**Appendix**

Formulae for the derivation of the proximity and directional scores. For all calculations the issue scales were centred to range from -5 to +5.

Directional score with mean party placement:

$$D_{ij} = \sum_{k=1..n}^{nki} (x_{ik} * \bar{y}_{jk}) / n_{ki} \quad (1)$$

Where $D_{ij}$ is the issue scalar product of distance between respondent *i* and party *j*, $x_{ik}$ is respondent *i*'s position on issue *k*, $\bar{y}_{jk}$ is the sample mean placement of party *j* on issue *k* and $n_{ki}$ is the number of issues over which parties are evaluated.

Directional score with respondent party placement:

$$D_{ij} = \sum_{k=1..n}^{nki} (x_{ik} * y_{ijk}) / n_{ki} \quad (2)$$

Where $D_{ij}$ is the issue scalar product of distance between respondent *i* and party *j*, $x_{ik}$ is respondent *i*'s position on issue *k*, $y_{ijk}$ is respondent *i*'s placement of party *j* on issue *k* and $n_{ki}$ is the number of issues over which parties are evaluated.

Spatial with mean party placement:

$$P_{ij} = \sum_{k=1..n}^{nki} \left| x_{ik} - \bar{y}_{jk} \right| / n_{ki} \quad (3)$$

Where P*ij* is the city block distance between respondent *i* and party *j*, $x_{ik}$ is respondent *i*'s position on issue *k*, $\bar{y}_{jk}$ is the sample mean placement of party *j* on issue *k* and $n_{ki}$ is the number of issues over which parties are evaluated.

Spatial with respondent party placement:

$$P_{ij} = \sum_{k=1..n}^{nki} \left| x_{ik} - y_{ijk} \right| / n_{ki} \quad (4)$$

Where P*ij* is the city block distance between respondent *i* and party *j*, $x_{ik}$ is respondent *i*'s position on issue *k*, $y_{ijk}$ is the respondent *i*'s placement of party *j* on issue *k* and $n_{ki}$ is the number of issues over which parties are evaluated.

**Table A1 Conditional LGC - Directional with Mean Party Placement Scores**

| | Conservative Evaluation | | | Labour Evaluation | | |
|---|---|---|---|---|---|---|
| *Parameter* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* |
| $\lambda_1\mu_{\beta_1}$ | -0.56* | -0.81* | -0.16 | -2.05* | -1.30* | 0.22 |
| $\mu_\alpha$ | -1.9* | -1.6* | -2.2* | 4.0* | 3.9* | 4.00* |
| $\zeta_{\alpha i}$ | 3.12* | 4.46* | 1.63* | 7.84* | 14.6* | 6.0* |
| $\mu_{\beta_1}$ | 1.46* | 1.31* | 1.49* | -0.90* | -1.2* | -0.9* |
| $\zeta_{\beta_1}$ | 0.68* | 1.03* | 0.26 | 0.15* | 1.01* | 0.50* |
| $\mu_{\beta_2}$ | -0.26* | -0.25* | -0.24* | - | 0.20* | - |
| $\zeta_{\beta_2}$ | 0.02* | 0.04* | 0.003 | - | 0.03* | - |

*=significant at 95% level; All models fit the data well on adjusted fit indices (CFI > .95; RMSEA < 0.6). The table shows mean and variance estimates for the latent growth parameters of the conditional LGC models of directional distance from Labour and the Conservatives using mean party placements and the standardised regression of the slope of party evaluation on the slope of the directional distance measure.

**Table A2 Conditional LGC - Directional with Respondent Party Placement Scores**

| | Conservative Evaluation | | | Labour Evaluation | | |
|---|---|---|---|---|---|---|
| *Parameter* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* |
| $\lambda_1\mu_{\beta_1}$ | -0.65* | -0.77* | -0.29 | -1.03* | -1.08* | -1.04 |
| $\mu_\alpha$ | -1.58* | -4.33* | 1.67* | 6.37* | 4.87* | 7.18* |
| $\zeta_{\alpha i}$ | 38.78* | 40.8* | 46.67* | 29.34* | 28.86* | 27.14* |
| $\mu_{\beta_1}$ | 2.15* | 2.06* | 2.15* | -1.75* | -1.60* | -1.19* |
| $\zeta_{\beta_1}$ | 8.41* | 5.36* | 18.23* | 2.34* | 1.97* | 4.60 |
| $\mu_{\beta_2}$ | -0.39* | -0.42* | -0.38* | 0.28* | 0.27* | 0.15* |
| $\zeta_{\beta_2}$ | 0.33* | 0.25* | 0.67* | 0.13* | 0.08* | 0.33* |

*=significant at 95% level; All models fit the data well on adjusted fit indices (CFI > .95; RMSEA < 0.6). The table shows mean and variance estimates for the latent growth parameters of the conditional LGC models of directional distance from Labour and the Conservatives using respondent party placements and the standardised regression of the slope of party evaluation on the slope of the directional distance measure.

**Table A3 Conditional LGC - Spatial with Mean Party Placement Scores**

| | Conservative Evaluation | | | Labour Evaluation | | |
|---|---|---|---|---|---|---|
| *Parameter* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* |
| $\lambda_1\mu_{\beta_1}$ | -1.72 | -4.06 | -0.45 | 0.66* | 0.86* | 1.34 |
| $\mu_\alpha$ | 3.63* | 3.36* | 3.82* | 2.45* | 2.18* | 2.67* |
| $\zeta_{\alpha i}$ | 0.97* | 1.22* | 0.82* | 0.64* | 0.84* | 0.41* |
| $\mu_{\beta_1}$ | -0.60* | -0.57* | -0.58* | 0.04 | 0.00 | 0.02 |
| $\zeta_{\beta_1}$ | 0.03* | 0.07* | 0.15 | 0.16* | 0.16* | 0.01* |
| $\mu_{\beta_2}$ | 0.11* | 0.11* | 0.10* | -0.01 | 0.00 | - |
| $\zeta_{\beta_2}$ | 0.00* | 0.00* | 0.009 | 0.01* | 0.01* | - |

*=significant at 95% level; All models fit the data well on adjusted fit indices (CFI > .95; RMSEA < 0.6). The table shows mean and variance estimates for the latent growth parameters of the conditional LGC models of spatial distance from Labour and the Conservatives using mean party placements and the standardised regression of the slope of party evaluation on the slope of the spatial distance measure.

**Table A4 Conditional LGC - Spatial with Respondent Party Placement Scores**

| | Conservative | | | Labour | | |
|---|---|---|---|---|---|---|
| *Parameter* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* | *sample (n=2034)* | *high knowledge (n=579)* | *Low knowledge (n=513)* |
| $\lambda_1\mu_{\beta_1}$ | 0.65* | 0.83* | -0.009 | 0.60* | 0.79* | 0.176 |
| $\mu_\alpha$ | 3.93* | 4.57* | 3.12* | 2.05* | 2.06* | 1.90* |
| $\zeta_{\alpha i}$ | 3.31* | 4.09* | 2.96* | 1.10* | 1.51* | 0.44* |
| $\mu_{\beta_1}$ | -0.69* | -0.65* | -0.66* | 0.09* | 0.17* | 0.23* |
| $\zeta_{\beta_1}$ | 0.52* | 0.36* | 1.16* | 0.07* | 0.30* | 0.05 |
| $\mu_{\beta_2}$ | 0.12* | 0.13* | 0.11* | - | -0.03* | - |
| $\zeta_{\beta_2}$ | 0.02* | 0.02* | 0.05* | - | 0.01* | - |

*=significant at 95% level; All models fit the data well on adjusted fit indices (CFI > .95; RMSEA < 0.6). The table shows mean and variance estimates for the latent growth parameters of the conditional LGC models of spatial distance from Labour and the Conservatives using respondent party placements and the standardised regression of the slope of party evaluation on the slope of the spatial distance measure.


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