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Abstainers are not all the same: A Latent Class Analysis of Heterogeneity in the British Electorate in 2005

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Introduction

A plethora of theories has been put forward to explain why individuals vote in elections. Two approaches to the problem have dominated the literature. On the one hand, *sociological* models focus on social context and social psychological factors to explain the individual's decision (e.g. exemplified by Campbell et al, 1964; Butler and Stokes, 1969) on the other hand, *rational choice* models emerged from economic theory and focus on the effect of individual, reasoned self-interest (exemplified by Downs, 1957; Riker & Ordeshook, 1968). In practice, hybrid models that use variables associated with both (and other) traditions tend to be the most predictive, for example combining demographic predictors, social context and attitudes or evaluations (Clarke, Sanders, Stewart, & Whiteley, 2004; Denver & Hands, 1997; Pattie & Johnston, 1998).

Very often, such models are based on a restrictive assumption that factors affecting abstention operate in a uniform way across electorates. In reality electors are heterogeneous, placing different weights on different considerations and arriving at decisions via different routes (Bartle, 2005) or as one observer very succinctly put it '*people make up their minds in different ways*' (Sniderman et al, 1991, p8). For example it has been widely argued that relatively sophisticated voters differ in how they reach their decisions compared to less sophisticated voters. In regard to abstention, this means very simply, different people have different reasons for not voting. Despite this fact there have been relatively few attempts to describe the heterogeneous nature of non-voters (exceptions include Ragsdale and Rusk, 1993; Pattie and Johnston, 1998), and where this has been attempted, non-voters have been treated as a discrete subset of the electorate. Here we regard non-voting as a possible outcome as part of the voting decision, and all individuals will display a propensity to vote or not depending on their disposition towards political objects at various different structural levels.

We argue that it is possible to objectively identify different types of elector according to this underlying disposition and that this helps understand the causes and consequences of non-voting. We undertake a latent class analysis using data from the 2005 British Election Survey (BES) in order to identify different types of elector and show how

different factors affect their propensity to vote, distinguishing between voluntary and involuntary abstention (Pattie and Johnston, 1998, 2005).

This paper is organised as follows: first we discuss the dominant theoretical frameworks and key principles by which voting (and non-voting) has come to be understood; second, we review the analytical background that these approaches have largely been built upon, and propose a more flexible framework based upon latent class factor analysis; third, we detail the conceptual framework, drawn from the first section, that we use to operationalise the analysis suggested in the second. Finally, modelling results are presented and discussed.

The nature of voters and non-voters

Sociological models

Sociological models of voting revolve around social characteristics, social psychology and social context (see Dalton and Wattenberg, 1993; Clarke et al, 2005). Whilst there is an array of different theories within the sociological framework, what distinguishes them is that political attachments are shaped by a voter's social characteristics, belonging to a specific social group or social class and by the social context in which an individual lives and works. Influential accounts have, for example, explained participation by reference to perceptions of equity or fairness (e.g. Runciman, 1966); social capital (e.g. Putman, 2000) and civic voluntarism with an emphasis on 'resources' (Verba and Nie, 1972). In social-psychological approaches the importance of social group membership is reinforced by early socialisation experiences which foster the development of partisan attachments or party identification associated with social class membership (Campbell et al, 1964). In turn these influence the propensity to vote as well as party choice. Thus, in the sociological framework, the act of voting is an act of allegiance, and therefore a potential explanation for abstention is a lack of such group attachment.

Choice based models

Whilst sociological models focus on group attachments as the motivation behind voting, instrumental or choice based models focus on the individual benefits accrued from

voting. The cognitive mobilisation model links political participation with political satisfaction or dissatisfaction which is shaped by the level of interest and knowledge of electors. In turn this is linked with levels of education and exposure to information (e.g. Dalton, 1988). Classic rational choice theories explain non-voting as the rational course of action when the benefits of voting are expected to be outweighed by the costs (e.g. Downs, 1957; Riker and Ordeshook, 1968). Although the costs of voting are usually minor they are often considered to exceed the expected benefits due to the extremely low probability that any one individual's vote will be decisive¹. Notwithstanding the perceived chance of casting a decisive vote, the expected utility from voting is a function of the relative difference between the utility of a vote cast for one party instead of another. Without a preference for one party over the other(s) there can be no relative utility differences and non-voting may occur because of *indifference*.

Even if the elector is not indifferent, spatial theories of voting (e.g. Merrill & Grofman, 1999) predict that abstention may occur through *alienation*. Alienation results from electors perceiving too great a 'distance' between their own values and interests and even the most preferred of the parties on offer. At the level of the wider democratic system, rather than the party, people may feel alienated from politics as a whole if they feel that the political system is not serving their interests or is not aligned with their values. Previous research has shown that both indifference and alienation play a role, and also that each is more or less likely to be a feature of different segments of the electorate (Brody and Page, 1973; Adams and Merrill, 2003)

In summary, both sociological and rational choice theories predict multiple causes for non-voting. Both traditions predict a lack of a clear partisan preference as perhaps the most straightforward factor underlying non-voting. However, if this is accompanied by a feeling of positive utility or attachment towards the wider political system (often be referred to as civic duty in the sociological framework, and voting as consumption or expressive benefits in the rational choice framework), then voting may still occur.

¹ This is the 'paradox of voting' – rational, self-interested actors should not vote, yet people do vote in their millions. There is no paradox if voting is considered as an act of consumption ('expression') rather than one of investment, however, because the benefit is not discounted, although some commentators suggest that non-probabilistic consumptive benefits are not really part of a rational choice theory (e.g. Ordeshook & Zeng, 1997)

Not surprisingly, a hybrid view of the stereotypical non-voter has emerged which concatenates many of the factors discussed. For example, Pattie and Johnston (1998) describe it thus:

“From past research, the archetypal abstainer is a socially isolated, working class, private tenant who lives in a safe seat, is not a member of local or national organisations, and who has few distinctive political views beyond doubt over their own (and the system’s) political efficacy.” (p. 266).

Given the many different causal processes outlined above, this presents a plausible but too homogenous a view which plays down the diversity of non-voters. We believe this stereotype stems in part from the use of analytical techniques not well suited to identifying groups of people who share attitudes and/or attributes related to their voting behaviour. We aim to present an analysis of British Election Survey data that is more suitable to the goal of describing the heterogeneity amongst voters and non-voters.

Methodological influences on non-voting research

The stereotypical portrait of the non-voter is based to a substantial degree on results obtained from logit regression and similar analyses. There are several shortcomings in making this characterisation from such results.

First, predictor variables are assumed to be exogenous with only the voting behaviour dependent variable being endogenous to the model. This may be plausible for some variables, for instance demographic characteristics such as age and sex. It is less plausible for others, such as political attitudes and knowledge, which may share a common cause with voting behaviour. Second, logistic regression analysis, like other observed-variable regression methods, assumes that the predictors are measured without error. Again, this may be plausible for some variables, e.g. demographics, but it is highly unlikely to be the case with, say, attitudes or recollection-based data. Ignoring covariate measurement error is a serious threat to statistical inference (Bentler, 1980). Third, in such models correlations among predictors are treated as a nuisance to be controlled-for. If the

correlations are too strong then inference is again biased (by so-called variance inflation) and variables may have to be omitted from the analysis to avoid the effects of such colinearity. For the purposes of quantitative prediction this does no harm as redundant information is unnecessary. For the purposes of obtaining a valid description this will curtail the picture that emerges from the analysis, however, because even if variables are highly correlated this does not mean that they are the “same thing”². Fourth, not all relevant predictor variables can be measured in any given study, and models often fail to account for the effects of the resulting unmeasured heterogeneity. Such unobserved heterogeneity can bias fixed effects estimates, and when it is addressed (e.g. through the use of random effects) it is again often treated as a nuisance rather than as a source of information on the structure of the sample.

These methodological issues can be addressed within a common statistical framework that focuses on characterising groups of similar individuals in a sample. Paul Lazarsfeld was among the first researchers in political science who sought to typify individuals by means of the pattern of their opinions and behaviours (e.g. Berelson, et al 1954; Lazarsfeld et al, 1944). Based on data from pioneering panel studies into political attitude formation and change, Berelson, Lazarsfeld and McPhee (1954) classified three varieties of American elector: the ideological, the political and the sociable. Similarly, Verba and Nye (1972) identified six different types of citizen, based on their type and level of participation in politics, though these groups reflected a wide range of political activities, and did not specifically discriminate between voters and non-voters.

A more recent study was conducted by Ragsdale and Rusk (1993), who considered different types of non-voters in mid-term elections to the US Senate in 1990. They used measures of electors’ knowledge and interest in the campaign, as well as more general political interest and demographic measures, as indicators in a cluster analysis. They found five types of non-voter which they labelled the ‘politically ignorant’, the ‘indifferent’, the ‘dissatisfied’, the ‘selectively aware’ and the ‘conditionally inactive’.

² For example, thunder and lightning are exceedingly well correlated (through common cause) but they are clearly distinct phenomena.

These studies used different approaches to identify their respective typologies. Lazarsfeld's work formed an early part of his wider programme aimed at explaining the relationships among a set of observed measures by means of discrete but unobserved (i.e. latent) groups, termed latent structure analysis. The three-part scheme given above was not based on a formal statistical model, however. Latent structure analysis was not formulated rigorously until later work by Gibson (1959) and Lazarsfeld and Henry (1968), and has since become known as latent class analysis (LCA) (Vermunt & Magidson, 2002). In contrast, Ragsdale and Rusk (1993) used a variety of the general approach called Cluster Analysis (CA). The distinctions between LCA and CA are fundamental and have significant consequences for the practical task of clustering cases into meaningful groups.

Latent Class Analysis vs. Cluster Analysis

Both LCA and CA are designed to categorise cases into a smaller number of relatively homogeneous clusters based upon a set of measured characteristics. This process is often conducted in exploratory fashion, with the number of clusters and their composition to be determined in the course of the analysis. Broadly, CA methods comprise two steps: first, a matrix of similarities or distances among cases is constructed according to some metric (e.g. Euclidean, city block) defined for the measured characteristics; second, an algorithm is chosen to cluster the cases (e.g. Ward's, *k*-means) based upon the similarity metric.

There are a number of problems in using this approach to determine meaningful clusters. There is a huge range of proximity metrics that could be used in the first step of the process, and the wrong choice can distort the cluster structure because of 'filtering' the data through an inappropriate spatial model (Arabie & Hubert, 1994). A commonly chosen metric is some variation on the Euclidean distance, but this metric is highly sensitive to the variances of the predictor variables. A common approach to ameliorating these problems is to standardise the variables before analysis, but this gives artificial equality to the relative importance of the variables in defining the clusters. Correlation between the variables also introduces problems because of the non-independence of the

variances of the variables. Failing to take such factors into account can result in spurious cluster solutions, typically by specifying too many clusters.

Similarly, there is a large number of clustering algorithms to choose from in the second step. The choice is again important because most clustering algorithms make implicit assumptions about the type of cluster structure present in the data (e.g. cluster shape) and are likely to produce spurious results if these assumptions are not met (Sugar & James, 2003).

Finally, determining the adequacy of the obtained CA solution is highly subjective. Dendrograms, in which the tree structure of the cluster solution is presented graphically, are influenced by the proximity measure and clustering algorithm used and do not necessarily recover genuinely distinct clusters (Moustaki & Papageorgiou, 2004). Slope-discontinuity methods (similar to Eigen or scree-plots in exploratory factor analysis) can be unreliable and show marked changes even with un-clustered data (Sugar & James, 2003). Common methods that purport to offer statistical significance testing of cluster separation (e.g. F-ratios based upon between- vs. within-cluster variance of the observed measures) are not valid because the properties of the data that are used to test cluster separation are the same ones used to identify the clusters in the first place³.

In contrast to the case of CA, in LCA the classes (clusters) are constructed based upon a specified probability model. There is no requirement to arbitrarily choose a similarity metric or clustering algorithm as in CA, clustering is accomplished by maximising the probability of observing cases with specific patterns of characteristics, given the particular model. Specifically, it is assumed that the distribution of cases is generated by a mixture of probability distributions in the population from which the sample of cases was drawn, one distribution corresponding to each class.

The appropriateness of an LCA model can therefore be assessed on a principled (statistical) basis by comparing the characteristics of the observed data with those that

³ Analogously: imagine ranking the world's nations by wealth (e.g. GDP per capita) and then testing whether the top ten nations were 'significantly' richer than the bottom ten. They would be, but tautologically so by virtue of the procedure used to construct the ranking.

would have been observed based upon the specified probabilistic model (Lazarsfeld and Henry, 1968). In terms of recovering the valid number of clusters from data with a known composition LCA has been found to outperform k-means CA across a range of scenarios (Magidson & Vermunt, 2002).

In summary, LCA describes the unobserved heterogeneity of a sample. It accommodates interactions of observed variables because different clusters can be similar with respect to certain variables but different with respect to others.

Latent class factor analysis (factor mixture models).

Latent class analysis is useful for modelling unobserved heterogeneity, i.e. when there exist different sub-groups within a population that are not defined by simple functions of their measured characteristics, e.g. by age or sex. In a standard latent class analysis the observed class indicators are assumed to be conditionally independent (i.e. uncorrelated) given the latent class variable. The presence of correlations between the indicators that are not accounted for by the latent class variable can lead to models with spurious additional classes.

The conditional independence assumption can be relaxed in several ways (Vermunt & Magidson, 2002). For instance, Lubke and Muthén (2005) describe a latent class factor analysis (or factor mixture) model in which dependence among indicators is structured within classes by a common factor model. In this case the factor structure is specified in advance based upon prior theory, i.e. a confirmatory factor analysis. An advantage of this approach is that the raw scores on the observed questionnaire items, tainted as they are by measurement error, are used to construct latent factors that represent ‘pure’ manifestations of the constructs underlying the observed responses, free from random measurement error (Bentler, 1980).

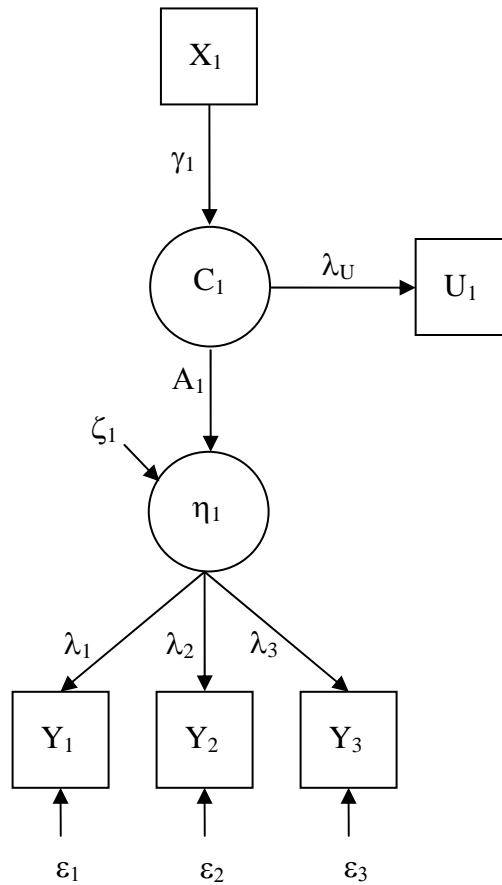
Figure 1: Path diagram for the proposed latent-class factor-analysis model

Figure 1 shows the elements of the latent class factor model (from Lubke and Muthén, 2005). The Y s are continuous observed variables that act as indicators of the latent factor η . The latent factor is specified as normally distributed, and represents the unobserved cause of the correlations among the observed Y variables. Only a proportion of the variance of the Y s is shared in this way, the remainder (error variance and variance unique to each Y variable) is represented by the ε s. The factor thus represents a pure measure of the construct underlying the observed measures, separated from the error variance.

The unmeasured heterogeneity in the sample is represented by the C variable. It too is a latent variable, but unlike the factor variable it has a discrete distribution, one class for each sub-group of the sample. The continuous factor η is an indicator of the latent class variable C , different classes having different mean values of η , with residual factor variance not accounted for by the class variable represented by ζ . Other variables can act as indicators of the latent class variable C . For example, in Figure 1 an observed binary categorical variable, U , is also an indicator of the discrete latent class variable. Because U is categorical, the path λ_U from C to U represents a non-linear regression relationship, whereas the other paths λ and A represent linear regressions.

Thus far all of the variables have been endogenous to the latent class variable C , but exogenous variables can also be included. X is an exogenous predictor of the latent class variable C . Again, because C is discrete the path γ is also a non-linear regression, here multinomial logistic regression to accommodate two or more latent classes.

Although only one each of η , U and X is shown in Figure 1 the model can include multiple instances of each.

Conceptual framework and measurement

As noted above, what we wish to test is whether or not there is significant heterogeneity in the electorate with regard to dispositions toward voting in particular and toward (conventional) politics more generally, at different structural levels of the political hierarchy. We might label this ‘electoral disposition’. We hypothesise that there are a number of different underlying latent dimensions to electoral disposition, corresponding to the latent factor indicators in Figure 1, and that discrete groups of voters are identifiable according to their position on these dimensions, i.e. the groups represented by the classes of C in Figure 1. In turn these groups will have significantly different tendencies to vote, and in particular voluntary and involuntary abstention will vary between these groups. (Binary voting/abstention outcomes correspond to the U variables in the factor mixture model in Figure 1.) It is important to note that we regard non-voting

as a possible outcome as part of the voting decision, and all individuals will display a propensity to vote or not depending on their underlying electoral disposition.

We hypothesise that electoral disposition should capture elements of support for and engagement with the conventional political system, both in relation to support for authorities and for regimes or systems (cf. Easton, 1965; Norris, 1999). It should also take into account both affective and evaluative sources of political support (Almond and Verba, 1963; Dalton, 2004). The former involve an acceptance or attachment to an object, in this case the political regime or political authorities, and are associated with sociological models of voting and participation. The latter implies some judgment or preference for one object over another and are important in choice based models of voting. These can be likened to Easton's notions of diffuse support (a deep-seated attitude towards politics) and specific support (which is linked to evaluation of specific actions of authorities) (Easton, 1975; Dalton, 2004).

In the sociological framework the act of voting is an expression of allegiance, and so the natural explanation for abstention is a lack of group attachment. The notion of different levels of the political system is useful here, as attachment may operate at any or all of them. Although many levels may be identified (Norris, 1999), as already indicated we make a distinction between (a) the political system or regime and (b) the political authorities or more specifically parties⁴. This is important as people may feel attachment towards a particular political party and at the same time allegiance might be felt to broader political constructs, e.g. society, democracy, government. Of course, an individual does not necessarily have to hold attachments simultaneously at all levels. For instance an individual with no party identification might still turn out to vote because of a desire to support the democratic process. Evidence suggests people differentiate between these different objects of support (e.g. see Norris, 1999, Klingemann et al, 1994) and therefore when people vote they may be influenced not only by their support for parties/candidates but by support for other aspects of political system. In choice based

⁴ Whilst Easton's highest level, the political community might theoretically be linked to the voting decision, the link between affiliation to political community and voting is not central to most theories of participation, and there are no suitable questions in the BES to operationalise this.

approaches citizens may gain ‘system benefits’ from supporting the democratic system by voting, and individual or group benefits from voting for a preferred party or candidate (e.g. see Clarke et al, 2004). In addition we expect electors to vary according to their capacity for, or inclination towards, involvement in politics. They include political interest and political knowledge which are key variables in the cognitive-mobilisation model of participation.

We therefore hypothesise that electors will be characterised by differing positions on four latent or underlying dimensions of electoral disposition. These are:

System orientation

This hypothesised dimension of electoral disposition captures support for the political system centred on the sense of duty associated with the psychological attachment of the citizen to the democratic system and acceptance of the social norms which reinforce participation. Electors may not have strong partisan preferences, but may wish to cast their vote to express their support for the democratic system, or believe that it is their duty to vote. We therefore expect one aspect of system orientation to reflect civic duty and social obligation as measured by indicators including the sense of duty to vote, neglect of duty associated with abstention, and the view that democracy requires people to vote. This in turn will in part reflect electors’ affective attachment to the democratic ideal, as measured by feelings of guilt associated with non-voting and the sense of satisfaction from voting. Another component of system orientation is electors’ views about the responsiveness of the democratic system to the views of voters. It is expected that participation should be linked with electors’ own sense of personal political efficacy – that is if one believes that participation in politics is effective, one is more likely to take part. This is captured by indicators including the view that democracy works well in Britain, voting can change Britain and the individuals’ perceived degree of influence on public affairs.

Political support

The second hypothesised dimension of electoral disposition concerns political support at Easton's (1965) level of 'political authorities'. As noted above political support can be either specific or diffuse as described. According to Easton diffuse support is comprised of sense of trust (towards the regime, institutions or the authorities) and legitimacy (Easton, 1975). Unfortunately our data does not allow us to directly measure legitimacy; there are however a number of indicators available which measure trust (trust in institutions, politicians and leaders).

Whereas diffuse political support taps 'generalised attachment to political objects' (Easton, 1975, p444), specific political support taps evaluations of the performance of the authorities. We can measure this by reference to a number of indicators in the BES including the sense of equity and fairness ('government treats people like me fairly'); belief that one's representative works hard, the notion that the government is both responsible for economic performance and does a good job (measured by the interaction of two variables measuring government responsibility for the economy and an evaluation of economic performance) and the degree of affinity or alienation from the major political parties (measured by the maximum 'liking' rating given to any party). We also hypothesise that satisfaction with how democracy works in this country (as used in 'system orientation') will also be an indicator of specific political support since in Easton's terms it is a measure of how democracy is put into action by authorities ('what it does') rather than a judgment on democratic principles more generally ('what it represents').

Party orientation.

Also measured at the level of the political authorities is the important dimension of party orientation. Some (arguably all) electors are likely to be motivated by the desire to see one or other of the parties/candidates win. This may be an instrumental, rational decision or might reflect a more affective motivation to express support for one's preferred party. Thus one hypothesised dimension of electoral disposition is party orientation as measured by levels of partisanship, party alienation and indifference. The key to this dimension is

that it is outcome- rather than process - related insofar as it relates to the extent to which the elector has a strong preference for one outcome or another. Proposed indicators are 'party alienation' (equal to the highest rating given to any of the parties, as was used as a measure of specific political support); indifference (equal to the variance of the three party 'feelings' ratings); and partisanship (strength of party identification).

Cognitive engagement

The cognitive mobilisation thesis suggests there has been an expansion of political information (e.g. Dalton, 1988). It has also been argued that those who are more politically informed or aware, or are simply more interested or engaged in politics and political affairs, may be more or less likely to participate in conventional politics. Whilst many have argued increasing access to information should increase participation (e.g. Teixeira, 1992), others have suggested that the most informed electors are more likely to be dissatisfied with the performance of political authorities because of the inability to meet conflicting demands, and will therefore reject partisan politics in favour of non-conventional politics (e.g. Dalton, 1988). Furthermore, as argued above, we might expect more informed or sophisticated voters to make their decisions as to whether or not to vote based upon different criteria to less informed voters (Sniderman et al, 1991). We hypothesise a further dimension of electoral disposition which differentiates electors in terms of their underlying level of engagement with politics at a cognitive level. This may be measured by levels of knowledge (measured by a political quiz), interest in politics, and the extent to which the respondent discusses politics.

Results

The existence of these underlying dimensions is tested with a confirmatory factor analysis of the proposed model (see Table 1). Indicators of model fit showed that the hypothesised factor structure provides an adequate representation of the data⁵. Table 1 shows the unstandardised factor loadings for the analysis. The four factor solution was

⁵ Comparative Fit Index (CFI) & Non-Normed Fit Index (NNFI), both > .90. Root Mean Square Error of Approximation (RMSEA), < 0.06. Standardized Root Mean Square Residual (SRMSR) < .07. All indices at least 'adequate', see e.g. Bentler, 1990, for details.

determined theoretically as described above, the loadings (the λ paths in Figure 1) indicate the relative extent to which each indicator is correlated with the underlying factor (the first loading being constrained to one as standard practice to identify the model). In brief the system orientation factor is best represented by the variables measuring feelings of civic duty and guilt associated with not voting. The least satisfactory predictor of this factor proved to be satisfaction with how democracy works, which actually proves to be better correlated with the political support factor. We also found that party identification strength was significantly correlated with this factor and model fit was improved by adding this as an indicator. Political support is best measured by the questions on diffuse support, namely trust in politicians, leaders and parliament; and by the interaction between economic evaluations and government responsibility. Other measures of specific support including party alienation also represent good indicators of this factor.

As hypothesised, the third factor, party orientation is described by party alienation and indifference, with party identification strength making for a slightly weaker indicator of this factor. This suggests that the factor tends to reflect an instrumental rather than affective judgment of the parties. The cognitive engagement factor is captured primarily by the political discussion indicator and to a lesser extent the political knowledge score and interest indicators. There is some correlation between factors, the largest being between cognitive engagement and party orientation (0.48) and between cognitive engagement and system orientation (0.34). These correlations suggest that there is a link between the level of engagements and interest on the one hand (the converse of which might be labelled alienation) and the degree to which electors are indifferent or not to the choice of parties. All other inter-factor correlations are less than 0.1.

Table 1. Unstandardised Factor Loadings

	Estimate	Standard
SYSTEM ORIENTATION		Error
V_DUTY	1.000	0.000
V_NEG	1.214	0.024
V_NEED	0.644	0.022
V_GUILT	1.294	0.030
V_SAT	0.914	0.026
DEMSAT	0.106	0.018
DEMINF	1.062	0.055
V_CHA	0.741	0.026
PIDS	0.414	0.028
POLITICAL SUPPORT		
GOVFAIR	1.000	0.000
MPWORK	0.665	0.036
LMAX	2.182	0.081
ECON_X	3.505	0.147
T_POL	3.424	0.108
T_PARL	3.607	0.115
T_LEAD	2.684	0.099
DEMSAT	0.573	0.027
PARTY ORIENTATION		
LMAX	1.000	0.000
LVAR	0.974	0.039
PIDS	0.335	0.017
COGNITIVE ENGAGEMENT		
DISCUSS	1.000	0.000
POLINT	0.342	0.013
PK	0.385	0.021

Building upon this model, we introduce a discrete latent variable where scores on these factors are predicted by latent class membership. Voting is also included in the model as the propensity to vote is regarded as part of the underlying electoral disposition, and is widely (though not unanimously) assumed to signify support for the political system and political authorities (see Dalton, 2004). Voting has a special status in these models as not only can it be regarded as part of the underlying trait we are trying to measure, but is a key outcome. A good test of our approach is the extent to which the latent classes we

identify are effective at discriminating between voters and non-voters (see below). We decomposed self-reported voting in the 2005 general election into three categories: a vote was cast; a vote was not cast and the abstainer reported having the desire to vote but did not do so because of other circumstances (e.g. illness, busy with other activities); a vote was not cast and the abstainer did not have the desire to vote (e.g. couldn't be bothered, didn't think it would matter) (Pattie & Johnston, 2005). These three categories were operationalised as two dummy variables, involuntary abstention (ABIV) and voluntary abstention (ABV), compared to the reference category of voting. These two variables were used as categorical latent class-indicators (the Us in Figure 1).

Our hypothesis is that electors may have different dispositions towards electoral politics: e.g. they are not interested or have no knowledge of political system or authorities, or they are indifferent about or alienated from choices on offer. In turn this provides a propensity to vote which may translate into behaviour depending on the specific electoral circumstances. Some types of voter might (for example) be more or less likely to be influenced by the attempts of parties to mobilise their vote. We argue that it is possible to classify different types of elector according to this underlying disposition and that this helps understand the causes and consequences of non-voting.

Individual characteristics which influence non-voting will inevitably be related to electoral disposition and also shape whether this pre-disposition is converted into behaviour. These are regarded as exogenous influences and not part of this underlying disposition, which are treated as covariates in the model. It is useful to include covariates in the latent class analysis because the hypothesised relationship between classes and covariates can be used to substantiate the obtained class solution. This is a similar model specification to a Multiple Indicators, Multiple Causes model (MIMIC) (Jöreskog & Goldberger, 1975), where the continuous latent factors are regressed upon covariates. In our case the latent classes, rather than the factors themselves, are regressed on covariates⁶. Covariates are selected from variables which have been shown to be

⁶ As mentioned earlier simple linear regression cannot be used in this case because the dependent variable in the relationship, the latent class variable, is discrete instead of continuous. Instead the covariates are used

associated with voting according to other research. These include age, sex, ethnic minority status, education, social class, home ownership, marital status, and religion. We also control for whether or not the respondent reported being contacted by a political party attempting to persuade them to vote. If such mobilisation techniques are effective or are well targeted by parties, we would expect that the more engaged and party oriented electors would be more likely to report such contact.

The results of the latent class analysis are shown in Table 2 and in Figure 2 to 5. The number of latent classes (as opposed to the number of factors) is determined from the data rather than being specified in advance. A modified EM algorithm was used to estimate the optimal number of classes (see L.K. Muthén & B.O. Muthén, 2005). It is possible that the algorithm can converge on values of the likelihood function that are not the best but instead represent only local maxima, the largest in a limited region of the parameter space. To avoid this problem the estimation algorithm was run 20 times for each model using randomly perturbed starting values, and the model with the largest likelihood value is reported. In latent class analysis (as opposed to cluster analysis) statistical criteria of the fit between model and data can be used to assess model fit and parsimony. The standard likelihood-ratio χ^2 statistic is not appropriate for comparing models with different numbers of latent classes because of violations of the assumptions of the test. Instead, an adjusted Likelihood Ratio Test (aLRT) (Lo, Mendell & Rubin, 2001; Lubke & Muthén, 2005) was used to compare models with different numbers of latent classes. We found that a five class solution out-performs a four class model, but there is no statistically significant improvement from extending the number of classes to six⁷. Overall the class discrimination is adequate, i.e. the average a posteriori probability of class membership is high (>.7) for those individuals assigned to each class (based upon their highest probability for class membership)⁸.

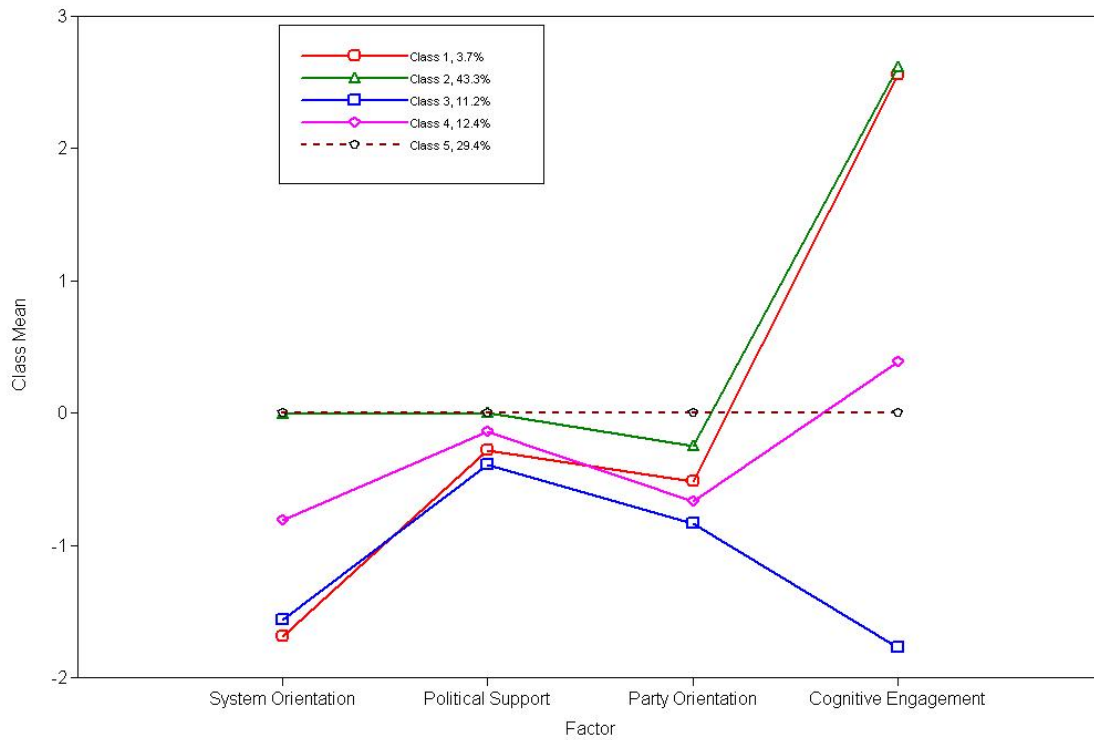
to predict class membership by the use of multinomial regression analysis, where one class is chosen as the reference and the log-odds of membership of the other classes is obtained conditional upon the covariate.

⁷ Lo-Mendell-Rubin Adjusted Likelihood Ratio Test For 4 Versus 5 Classes: 2 Times the Loglikelihood Difference = 256.620, Difference in the Number of Parameters =19, P-Value = 0.0177

⁸ This is not a tautology; the probability for class membership potentially need only be higher than 20% in a 5-class solution to be the highest latent class probability.

Figure 2 shows the mean factor scores on each of the four dimensions of electoral disposition described above, compared to class 5, for which factor means were set to zero to ensure model identification. This describes the characteristics of each of the classes in relation to class five, which represents a class of electors who score relatively highly on system orientation, political support and party orientation and are average in relation to electoral disposition (see below). Table 2b shows the threshold estimates for voluntary and involuntary abstention. The threshold is the hurdle that must be breached to give a positive response, so low threshold represents a high response probability, and vice versa⁹. Figure 4 (below) shows the voting and abstention results expressed in a more familiar, probabilistic, format.

Figure 2. Means of factors for latent classes

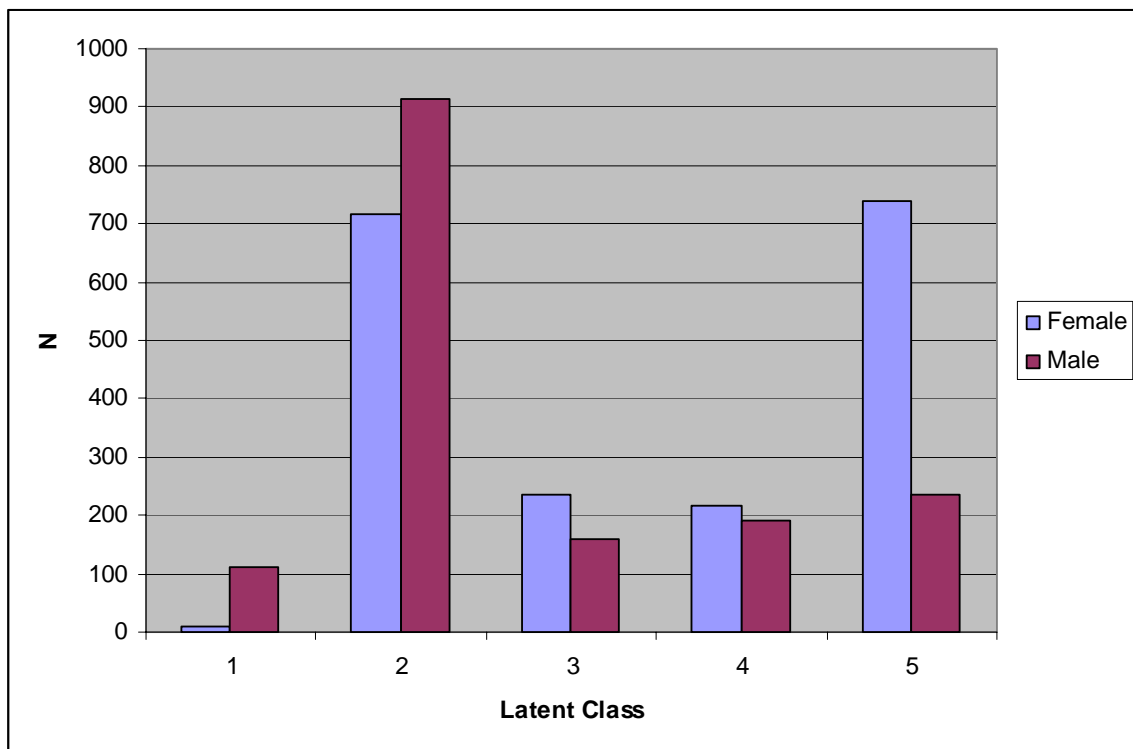


⁹ The thresholds are in log odds ratios. For latent class 1, for example, $\text{Exp}(-0.35)$ is equivalent to an odds ratio of 0.70 for voting compared to abstaining voluntarily (alternatively, $1/0.70$ or an OR of 1.42 of abstaining voluntarily compared to voting).

Class 1: 'Non-conformists' (3.5%)

This is a class of electors who are more highly educated, have lower levels of religiosity and are disproportionately male compared to the reference class (class 5) (Table 2). Indeed looking at the sex distribution of the sample according to most likely class membership (Figure 3) class one is almost exclusively male. Although age is not statistically significant, Figure 4 below shows that probability of belonging to this class does rise steeply with age.

Figure 3. Sex by most probable latent class membership



This group is highly cognitively engaged but are more likely to voluntarily abstain than to vote, and very unlikely to abstain for involuntary reasons (Table 2, Figure 4). Although only a small group (3.5% of the sample) they do not fit the stereotype of alienated or uninformed non-voters. Rather it seems they are well informed, educated non-conformists who are likely to abstain because they do not feel a strong sense of attachment to the political system, have low levels of political support and are not party

oriented. Meanwhile, they score very high on cognitive engagement. In other words they do not abstain because of a lack of interest in politics but because elections do not appear to provide for a satisfactory expression of their political preferences. In many senses they mirror Inglehart’s post-materialists (Inglehart, 1977). Insofar as they are highly unlikely to claim to have been prevented from voting for circumstantial (involuntary) reasons, and they score low on system orientation, it appears they feel no social obligation to vote.

Table 2a. Estimates for covariates predicting latent class, relative to class 5.

Covariate	Class 1	Class 2	Class 3	Class 4
Male	3.52*	1.62*	0.63*	1.11*
Age	0.11	0.04	-0.06	0.00
Age squared	-0.00	0.00	0.00	-0.01
Ethnic minority	0.68	-0.28	-0.40	-0.92
Education ^a				
No qualifications	-0.50	-1.26*	-0.18	-0.51
Qualifications 18+	1.18*	1.05*	-0.66*	-0.14
Social class ^b				
Salaried class	0.50	0.39	-0.34	0.17
Working class	-0.87	-0.73*	-0.18	-0.34
Owner occupier	0.10	0.75*	-0.58*	-0.15
Living alone	0.25	0.06	0.34	0.14
Religious	-1.39*	0.17	-0.49*	0.03
Mobilised	0.52	0.63*	-0.47	0.13

* Significantly different from the reference class (class 5)

^a Compared to those with <18 yr qualifications

^b Compared to intermediate class

Table 2b. Estimates for abstention responses

Class	Voluntary abstention	Involuntary abstention
1	-0.35	3.22*
2	2.98*	15.00 ^b
3	-1.48*	15.00 ^b
4	15.00 ^b	-0.22
5	3.13*	2.72*

* Wald test for significance (p < .05).

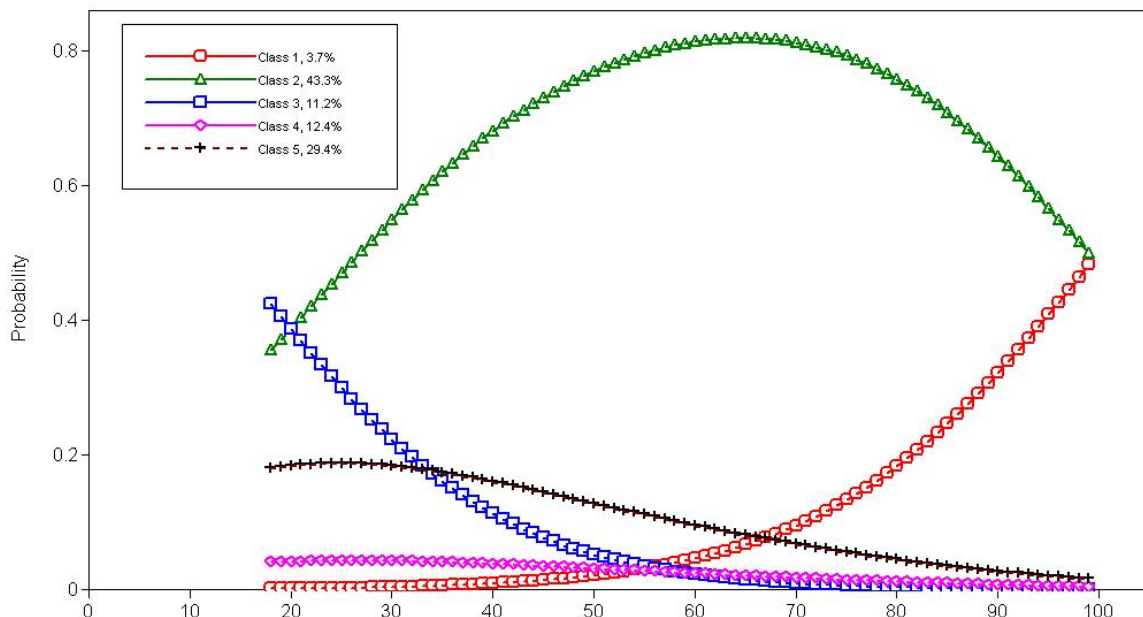
^a For these binary indicators, response probabilities were estimated using logistic regression. The estimates are the log-odds of not observing the response indicated. Figure 3 (below) shows the results as percentages.

^b The response is unobserved (i.e. zero) in this class and therefore the probability of the response is undefined/infinity. To estimate the model these thresholds were set to 15.0, which on the log odds scale effectively corresponds to an infinite probability.

Class 2: ‘Engaged voters’ (45.9%)

This class of electors are highly unlikely to abstain either voluntarily or involuntarily. They tend to be well educated middle or intermediate class homeowners with low levels of religiosity. They make up nearly 46% of the sample and, as shown in figure 2, are slightly more likely overall to be men than women. Figure 4, below, shows that this class has an age distribution similar to the stereotypical voter, with probability of class membership rising from initially low levels but falling off in old age (c.f. Wolfinger and Rosenstone, 1980). This quadratic effect (AGE2) only just failed to reach significance at 95%. In figure 4, probabilities sum to 1 for each value of age. Absolute probabilities reflect the relative popularity of the classes controlling for the other covariates in the model.

Figure 4. Probability of class membership by age, controlling for other covariates.



Like class 5 members of this class have relatively high levels of system orientation, political trust and party orientation. What marks them out from those in class five is that they are more cognitively engaged, showing similar levels on this factor to class 1. Another notable characteristic of this group is that they are much more likely to report being contacted by a political party. This is in keeping with the expectations outlined above: namely that the mobilisation variable should be most strongly associated with electors most likely to vote and with high levels of cognitive mobilisation and party orientation.

Class 3: 'Alienated and indifferent non-voters' (11.1%)

Electors in class three conform to most people's perceptions of non-voters in that they score low on each of the five dimensions of electoral disposition. They have very low levels of system orientation, party support and party orientation, and have by far and away the lowest levels of cognitive engagement. They are also, by a long way, the class most likely to abstain for voluntary reasons, though they are not observed to abstain for involuntary reasons (presumably like class one, they feel no obligation to make excuses). They are unlikely to be homeowners, to have received post 18 qualifications or to be religious (Table 3). Whilst more likely to be male than class 5, they are more likely to be female than the other predominantly non-voting classes (classes 1 and 4). Indeed, Figure 2 (above) showed that there were slightly more men than women in this class.

Figure 4 shows that the probability of belonging to this class decreases with age. Although the coefficients for individual year of age and age squared are not statistically significant (table 2a) the cumulative effect of age, as shown in Figure 4, is quite large, with class membership dropping of rapidly in the thirties. This is consistent with the popular image of young alienated non-voters.

Class 4: 'Involuntary or dutiful abstainers' (11.5%)

This is the class most likely to report involuntary abstention, with members not observed to abstain voluntarily. This reflects their greater system orientation compared to other predominantly non-voting classes, albeit not so strong as the system orientation of the

reference class, class 5. This class is average with respect to political support and cognitive engagement, but scores poorly on party orientation, which is nearly as low as the stereotypical non-voters in class 3. In other words they are fairly indifferent about parties but because of feelings of loyalty to the political system they either vote or claim to have failed to have voted for circumstantial rather than deliberate reasons. Members of this class are similar in social and demographic terms to the reference class, though are relatively evenly split by sex (explaining the positive coefficient for male).

Class 5 'The dutiful voter' (28.0%).

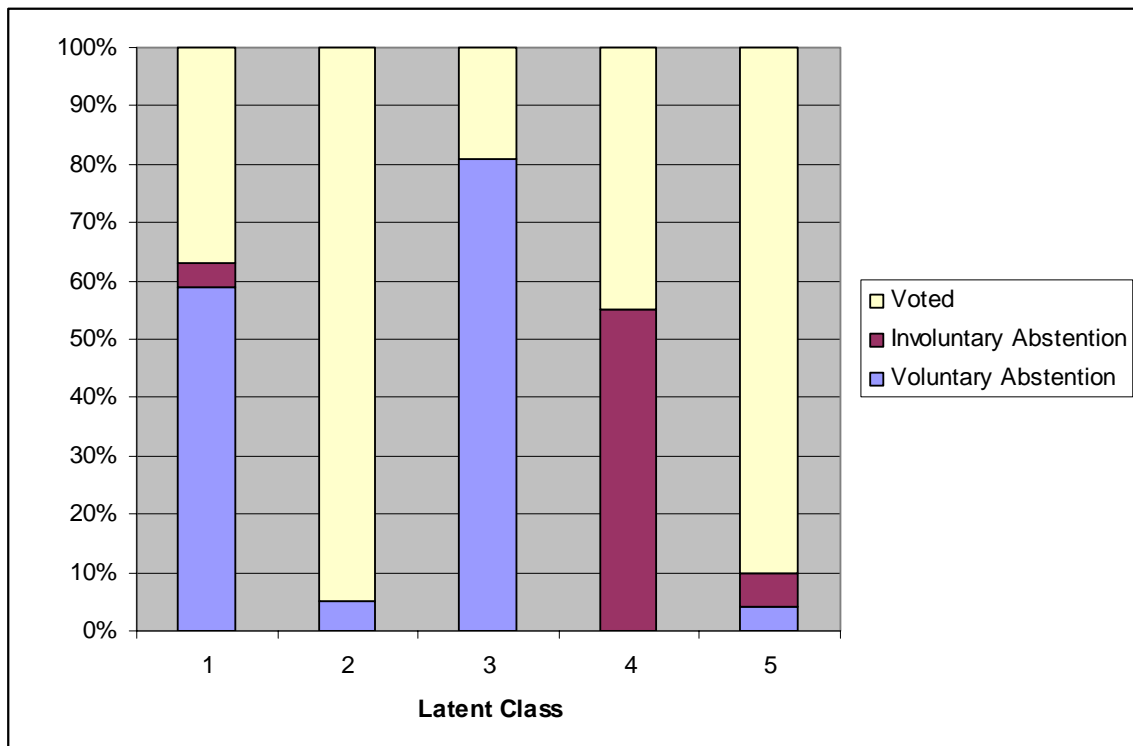
Along with class two, the reference class, class 5 is one of the two major voting classes. The main differences from class 2 are that as well as having high levels of system orientation and political support, class five has even higher levels of party orientation but is less engaged in politics at a cognitive level. Making up over a quarter of electors, whilst not being particularly engaged in politics in general, this group has strong feelings about which party wins and for the most part will turn out to vote, with low levels of voluntary and involuntary abstention. They are the most likely of all classes to have no qualifications and are more than three times more likely to be women than men (figure 4).

Discussion

We have argued above that an understanding of non-voting demands a recognition of the heterogeneous nature of abstainers and that the appropriate method for revealing this is through a latent class analysis. More specifically we have employed a latent class factor analysis model in which dependence among indicators is structured within classes by a common factor model. This approach recognises that many of the questionnaire items regarding political attitudes are highly intercorrelated, reflecting a smaller number of underlying dispositions and beliefs. The model results confirm our hypothesised dimensions of what we call electoral disposition, which reflect electors' orientation towards the political system and towards political parties, their level of political support and their level of cognitive engagement. We identified five distinctive sub-groups or classes of electors that display different attitudes towards these underlying dimensions,

that also have different socio-demographic and social characteristics and, perhaps most notably, different propensities to abstain either voluntarily or due to circumstances. Because our analyses include both voters and non-voters alike, the propensity to vote varies across classes. There is, in other words, no a priori assumption that non-voters are a discrete subset of the electorate, but rather they are drawn disproportionately from subsets of the electorate which are characterised by particular attitudes and characteristics. The model suggests five such classes, two of which are predominantly voters and three of which represent different types of non-voter. Figure 5 shows the distribution of voters and non-voters (voluntary and involuntary) across each class.

Figure 5. Percentage of voters and abstainers (voluntary and involuntary) by most probable latent class membership.



The classes made up mainly of voters are not our main concern. Suffice to say the two voting classes are differentiated by their level of cognitive engagement (reflecting the

extent to which they are interested in, discuss and know about politics), their social class and their level of education. They are also differentiated by the extent to which they report having been contacted by political parties. This may reflect effective targeting of parties insofar as these are a group of electors who are likely to vote and are receptive to political information. It may also suggest that such mobilisation methods are effective insofar as the group has a very high tendency to vote. However, it may in part reflect a higher capacity or desire of respondents in class 2 to relate a party contact. Whilst it is beyond the scope of this paper, the approach adopted here potentially allows us to test these explanations directly by exploring whether this covariate (and potentially others such as the marginality of the seat) has different relationships with voting within different latent classes.

Turning to the three predominantly non-voting classes, our analyses have been able to reveal some important differences among non voters. First, not all abstainers are uniformed and uninterested in politics. In keeping with Inglehart's identification of a 'post-materialist' agenda (Inglehart, 1977) and the link between this and declining political support (Dalton, 2004) a small but interesting sub-group of the electors (class 1) are highly engaged in politics in general at a cognitive level, but have little sense that it is their duty or obligation to vote, and they exhibit low levels of political support for authorities and institutions. Class 1 have little instrumental motivation to vote as they are not party oriented, and nor do they vote out of duty to the democratic system since they are not system oriented. This lack of attachment is reinforced by a high level of cognitive engagement and therefore attempts to mobilise this group through election campaigning may prove difficult or even futile.

This high level of cognitive engagement is in stark contrast with the stereotypical non-voter, the perception of which is probably much more in keeping with class three, members of which are both the least likely to vote and the least cognitively engaged. What class three does share with class one is low levels of system orientation, political support and party orientation. The latter indicates that members of this class are more likely to be indifferent towards or alienated from the major parties. Indeed, this class has

the lowest level of party orientation of all the classes, emphasising the important link between indifference, alienation and abstention (cf Brody and Page, 1973).

Different again are the third group of non-voters (class 4), which also contains significant numbers of voters. In many ways these non-voters are very like the ‘dutiful voter’ (class 5). They share a sense of duty and a reasonable level of cognitive engagement, and also have some distinct preferences for one party over another. Although their level of political support is low they are not detached from the party system and in many cases may vote. When they do not vote it is (ostensibly) because of circumstantial reasons. This claim may be genuine, thus explaining their similarity to voters in other respects. Equally this may be a case of ‘finding an excuse’ for not voting, or rationalising their abstention to prevent any discordance with their affinity to the democratic system. Either way this would suggest this group is potentially open to the mobilisation efforts of political parties. Indeed it may be that under the right circumstances (e.g. in a close run election) this group would vote in much greater numbers.

As noted above there is potential for exploiting the flexibility of the factor mixture model approach to test such hypotheses directly. However, this is beyond the scope of this research which represents a preliminary attempt to apply a latent class factor analysis to capture the heterogeneity of voters. The findings of these analyses clearly show that such heterogeneity does exist. Groups or classes of electors can be identified according to their levels of support for the political system and political parties, and their level of engagement in politics. Whilst levels of political support tend to be lower amongst predominantly non-voting classes than for voters, this does vary substantially between groups of abstainers. What is more, levels of cognitive engagement are found to be equally high in some classes of non-voters as in groups of voters. Clearly, a simple stereotype of the disinterested and apathetic is problematic. Not all abstainers are the same.

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