HUNTING A SNARK - A REPLY TO 'RE-EVALUATING VALENCE MODELS OF POLITICAL CHOICE'

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'Just the place for a snark! I have said it thrice; What I tell you three times is true.'
Lewis Carroll: 'The Hunting of the Snark', 1874

Introduction

It is always gratifying to have other scholars take your work seriously and we thank Evans and Khat (hereafter EK) for their considered comments and interesting analysis of the valence politics model of electoral choice which we have developed in various publications over the past decade (e.g., Clarke et al., 2004, 2009; Clarke, Kornberg and Scotto, 2009; Whiteley et al., 2013). Although this critique does not seriously challenge the model, it does raise wider issues for the social sciences about relationships between theory, model specification and empirical analyses and, in particular, the utility of major survey datasets gathered in traditional national election studies for theory testing purposes. We discuss these issues after responding to various points that EK make in their paper.

As an 'executive summary', we believe that the valence politics model easily survives the critique offered by EK for four separate, but related, reasons. First, EK do not actually test the valence politics model which is a theory of voting, not a theory of the relationship between partisanship and issue perceptions; second, they use inappropriate variables in their analyses in the sense that their variables do not appear in our specification of the valence politics model; third, their argument provides no theoretical grounding for the key variable which they claim is strongly exogenous, i.e., partisanship; and fourth, their reliance on exogeneity testing for warranting statistical inference is misleading and the data they employ for this purpose is inadequate to the task.

To develop these points, we begin by briefly reviewing the valence politics model. If readers are puzzled by the quote from Lewis Carroll above, we use it as a metaphor for our argument that 'hunting for a snark', i.e., seeking an elusive and mysterious variable which provides a *strongly exogenous* anchor for explaining electoral choice, is a fruitless and

unnecessary exercise—one which has preoccupied students of voting and elections for far too long. In the valence politics model, electoral choice at any point in time is the product of dynamic, oftentimes fast-moving process—one in which most people have little incentive to try to become well informed. Endowed with agency, but not omniscience, voters are 'smart enough to recognize that they are not smart enough' to make choices according to the canons of micro-economic rationality. Attempting to make sensible decisions in complex situations where stakes are high and uncertainty abounds, these 'street-smart' voters rely heavily on simple, but powerful, heuristics or information processing short-cuts to guide their choices. The result is that valence politics theory implies the existence of multiple inter-relationships among key variables which 'bounce off' each other in an ongoing, inter-temporal tennis match. This contest is viewed very imperfectly through the lens provided by traditional election study data sets. Implications for model specification and empirical analysis are discussed below.

The Valence Politics Model of Electoral Choice

Donald Stokes introduced the term *valence* in a seminal article published fifty years ago (Stokes, 1963; see also Stokes, 1992), which was designed as a critique of the then emerging literature on spatial models of party competition (Black, 1958; Downs, 1957). Stokes argued that voters rely heavily on their evaluations of rival parties' perceived capacities to deliver good policy performance in issue areas where there is broad consensus about what government should do. In the language of spatial models, valence issues are ones with very widely shared 'ideal points'. A canonical example is the economy. Virtually everyone wants vigorous, sustainable economic growth coupled with low rates of unemployment and inflation. Similarly almost everyone wants affordable, accessible and effective public services in areas such as education, health, transportation, and environmental protection. Vast majorities also demand protection from threats to national and personal security posed

by rogue regimes, terrorists and miscellaneous miscreants. Persistent public concern with these valence issues means that they typically dominate the political agenda in Britain and in other mature democracies. Valence issues are important in emerging democracies as well (Ho et al., 2013). Although the rank of specific valence issues on the political agenda varies over time, their persistent salience works to focus debate on 'who can do the job' rather than on 'what the job should be.' As a consequence, evaluations of which party and which leader are best able to deliver on consensually agreed-upon policy goals are key drivers of voting in most elections and typically drive the dynamics of party support in inter-election periods.

The major alternative theoretical account of electoral choice—the one which Stokes criticized—is the spatial model of party competition. Since its inception, the spatial model has been developed in formal theoretical exercises and it has been subjected to extensive empirical testing (see, e.g., Adams, Grofman and Merrill, 2005; Merrill and Grofman, 1999). The spatial model's key assumption is that *position or spatial issues* are dominant factors governing voting decisions. Ideal points are not widely shared; indeed, there is considerable *disagreement* among voters and political leaders over policy goals. For example, the Conservatives differ from Labour on the desirability of cutting taxes as a goal of government policy. Similarly, although both Labour and the Conservatives supported the invasion of Iraq in 2003, the Liberal Democrats strongly opposed it, reflecting widespread public disagreement about British involvement in that conflict.

Spatial theory inherited the assumption that voters have exogenously determined issue preferences from neo-classical economic theory. These preferences anchor the theory as individuals attempt to 'maximize utility' by supporting a party that is closest to them in a possibly multidimensional policy space defined by specific position issues and more general ideological orientations. For their part, parties are strategic actors who try to maximize electoral support in light of knowledge of voter distributions in the commonly shared

issue/ideological space. Although spatial models have been imaginatively elaborated in various ways, they retain the core assumption that salient *position* issues are what matter for choices of utility-maximising voters.

With the notable exception of the literature on 'economic voting' (e.g., Lewis-Beck, 1988; Duch and Stevenson, 2008), considerably less attention has been accorded to valence issues compared with spatial ones—despite abundant evidence of the central role that the latter play in general elections in Britain and elsewhere. Repeated empirical analyses in diverse political milieus demonstrate that valence issues dominate explanations of electoral choice, with spatial issues playing statistically significant, but secondary roles (e.g., Clarke et al., 2004, 2009; Clarke, Kornberg and Scotto, 2009; Clarke and Whitten, 2013; Ho, 2013; Whiteley et al., 2013). As indicated above, are good theoretical reasons why this is the case. The costs of information processing are much lower for valence rather than spatial issues, and the former are much less subject to manipulation by politicians than are the latter. Valence-minded voters can rely heavily on readily available heuristics and easily acquired information about existing states of affairs rather than unfulfilled promises and untested policy programs (see Clarke et al. 2009: 30-52).

As developed in our studies, the valence model has three key variables that drive voting behaviour and party support between elections: evaluations of party performance on valence issues, partisanship and leader images. Valence issues are at the core of the model. A major valence issue, the economy, often dominates electoral politics, although public services such as health, education and crime prevention, the delivery of which is, of course, related to the state of the economy, are important too. A strong performance in delivering a prosperous economy, high quality public services and public safety produces electoral rewards for incumbent parties, whereas a weak performance runs substantial electoral risks.

Leadership images and partisan attachments act primarily as *heuristic devices* in this analysis. In contexts where voters have few incentives to invest time and effort in learning the details of politics and policy-making and recognize their limitations in gathering and processing politically relevant information, they will use cognitive and affective shortcuts to make decisions. Cognitive psychologists and experimental economists have stressed the centrality of heuristics (e.g., Gilovich, Griffin and Kahneman, 2002; Gigerenzer, 2008; Gigerenzer, Hertwig and Pashur, 2011; Kahneman, Slovic and Tversky, 1982; Kahneman, 2013) and political scientists have recognized the importance of heuristics for electoral choice (Popkin, 1991; Sniderman, Brody and Tetlock, 1991; Lupia and McCubbins, 1998; Lupia, McCubbins and Popkin, 2000). Although heuristics traditionally have been seen as inferior to classical expected utility theory which underpins the spatial model, recent work by Gigerenzer and associates (2008; 2011) demonstrates that 'fast and frugal' heuristics actually are superior to expected utility theory in many 'real-world' decision-making situations. This is because the classical model is excessively costly, too slow, and in many cases involves intractable calculations which prevent effective choice. Thus, it does not surprise that simple, but useful, heuristics involving answers to questions like: 'What party do I identify with?', 'Has the economy been getting better or worse?' and 'Do I like this particular leader?' play key roles in explaining why people vote the way they do. If voting involved the kinds of knowledge and calculation required by all but the simplest spatial models then very few people would, or could, do it. We turn next to specific points raised by EK.

A 'Neo-Nuffield' Critique

EK's central argument is that partisanship is autonomous vis ά vis other factors in the voter's decision-making process. The idea that partisanship is a directionally stable long-term force which influences other important variables (i.e., issue and leader orientations) in voting models was first introduced in the 'Michigan model' developed by the authors of *The Voter*

Decides and *The American Voter* over half a century ago (Campbell, Gurin and Miller, 1954; Campbell et al. 1960). EK cite recent literature suggesting that partisanship influences issue perceptions, evaluations of leaders and a variety of other variables. We find these claims entirely convincing, but none of them demonstrate that partisanship is autonomous to other important variables.[1] In the classic 'Michigan' analysis partisanship is typically the product of socialisation processes in the family and community, processes arising from experiences in childhood and early adulthood. Once formed partisanship is directionally stable, except in rare periods of 'realignment' caused by major economic and socio-political upheavals. For this reason, in any given election, partisanship could be reliably characterized as an 'unmoved mover'—an autonomous anchor in the skein of forces driving electoral choice.[2]

When the Michigan model was first introduced into Britain by Butler and Stokes (1969) in their seminal book *Political Choice in Britain*, the central claim was that partisanship was strongly rooted in social class. Since, with rare exceptions, a person's class location does not change, this means that partisanship is a durable and powerful force on electoral choice. The core argument was summarized with rhetorical flourish by Peter Pulzer (1967) in his often-quoted phrase: 'in British party politics, class is everything, all else is embellishment and detail'. The class environment within which people were socialised created and subsequently reinforced their partisan attachments which, in turn, did much to explain how they voted. Although there were some exceptions, working-class people largely identified with and voted Labour, whereas middle- and upper-class people identified with and voted Conservative. Minor parties such as the Liberals were not accommodated in this theoretical scheme because, circa the mid-20th century, they had a small and apparently declining vote share. The Liberals and other minor parties were seen as inconsequential political curiosities—eccentric relics of Britain's pre-industrial past.

The problem with this analysis is that it is inconsistent with data from successive British Election Study panel surveys, including data collected by Butler and Stokes themselves in the 1960s, showing substantial directional instability in partisanship over time. The magnitude of this instability is too great to be explained by migration patterns or the natural turnover of the electorate in periods between adjacent general elections.[3]

Figure 1 illustrates the point. The figure depicts levels of *directional* partisan instability in several British Election Study (BES) multiwave panel surveys conducted since 1963 when the study began. The dynamics are consistently impressive—between 29 per cent and 43 per cent of the respondents report directionally unstable partisan attachments across multiple waves of interviewing. Some of the people move between parties one or more times whereas others traverse between partisanship and non-partisanship.[4] Overall, partisan attachments appear slightly more stable in the 1960s than in the 2000s, but even when Don Stokes was enjoying his first claret at the Nuffield high table some 40 percent of his BES panelists failed to exhibit stable partisan attachments. The Michigan model, with its emphasis on directionally stable partisanship, is clearly inconsistent with this evidence.

(Figure 1 about here)

Reacting to reports of large-scale partisan instability in panel surveys, critics anxious to salvage the Michigan conventional wisdom argued that these analyses were misleading because they failed to take account of random measurement error in survey responses (see Green, Palmquist and Schickler, 2002). However, as shown in our previous work (Clarke et al., 2004, 2009; Clarke and McCutcheon, 2009) Mixed Markov Latent Class (MMLC) models (van de Pol and Langeheine, 1990; Hagenaars and McCutcheon, 2002) incorporating such measurement error consistently reveal that generalized 'mover-stayer' models outperform 'all stayer' models in BES multi-wave election study panel surveys conducted since the 1960s.[5] As Figure 2 illustrates, 'mover' groups in these MMLC analyses are

always substantial and quite similar in magnitude; e.g., 31 per cent between 1963 and 1970 and 30 per cent between 2005 and 2010. The average over the eight BES panels shown in Figure 2 is 32 per cent. *Pace* Green et al., partisanship in Britain clearly is not the 'unmoved mover' of Michigan lore.

(Figure 2 about here)

There is, of course, a rival theoretical account of partisanship introduced by Fiorina (1981; see also Franklin and Jackson, 1983; Achen, 1992) which argues that it is a 'running tally' of present and past party performance evaluations with prior evaluations being progressively discounted in favour of more recent ones. Since valence issues typically dominate the political agenda, partisanship is largely a compendium of judgments about how parties have handled, or would handle, these issues. If a party does badly in delivering on valence issues, its brand will be tarnished and its partisan base will erode. This idea is much more consistent with the evidence on partisan instability than the Michigan model, and it implies that partisanship and evaluations of party performance on valence issues should be strongly inter-correlated. In the valence politics model these variables influence each other over time, and they are part of a larger dynamic system of information processing which voters use to make choices. This means that all key variables in the system are mutually endogenous, and feed off each other over time. If the underlying theory suggests that we are going to observe interactive dynamics of this kind then searching for a mysterious master explanatory variable which is strongly exogenous is a futile exercise.

What does this mean for the EK critique? The first point to make is that if they are correct and partisanship is indeed strongly exogenous to other variables in voting models, then it raises the question as to where do its dynamics come from. One cannot appeal to the Michigan model to solve this conundrum for reasons set out earlier. Partisanship is not only unstable at the individual level now, but it has been unstable at least since Don Stokes first

embarked from Ann Arbor to Nuffield. Similarly, EK themselves rule out the 'running tally' model arguing that it is 'untenable as perceptions of past performance are themselves shaped by pre-existing partisan affiliations' (p. xx), so that cannot provide a theoretical account. This means that the variable which is thought to anchor the analysis because it is a strongly exogenous determinant of the other variables has no plausible theoretical grounding. Partisanship has large-scale dynamics but they are seemingly autonomous. EK do not account for this 'moving mover'.

A second point to make about EK's critique is methodological in character. It is the point that causality tests should involve all the variables in the valence model with the measures we employ in our analyses: partisanship, evaluations of party performance on key valence issues, leader images and voting intentions, not just two of them which the theory suggests are likely to be strongly correlated. EK do not measure relevant variables the way we do and they neglect to include all of them in their analyses. Regarding the latter point, the implication of valence politics theory as articulated above is that one needs to estimate a system, not just selected bivariate relationships. Like all Granger-casuality tests (Granger, 1969), the ones EK perform are model dependent (e.g., Enders, 2010) and should not be conducted between only two variables if they form part of a wider system of interacting relationships.

A third point concerns their dismissal of contemporaneous or cross-sectional regressions to estimate effects. It is of course well known that statistical biases occur in the estimation of variables which contemporaneously influence other.[6] The use of lagged predictors and panel data may help to deal with this problem, but not if the actual lags resulting from the theoretical process are very different from the lags used to estimate models. Suppose for example, that there is a mutual relationship between voting and partisanship, with both variables having a very rapid impact on each other over time. This

will produce biases in a contemporaneous regression where voting is a function of partisanship or partisanship is a function of voting. But the correct estimates will not be recovered using a panel analysis if the panel waves far apart, say a year or more which is typical for BES and other panel surveys. Rather, the coefficients in analysis using such panel data will reflect (possibly many) successive interactions between the two variables over the period between the panel waves with no guarantee that they will capture the true effects.

It is important to recall that the number of waves and the intervals between them in BES and other national inter-election panel surveys have been imposed by the practicalities of data collection imposed by research funding constraints. Lags between adjacent waves of these panel surveys do not necessarily accord with—indeed, may have nothing to do with—the dynamics of voter decision-making. The problem will be compounded if there is heterogeneity in these decision-making processes. Some voters may switch their partisan attachments quite frequently depending on the performance of political leaders and the issues of the day, while others remain stable, not necessarily because they are strong partisans but because they do not pay much attention to politics. For these reasons, aggregate analyses of closely spaced time series observations in which individual idiosyncrasies are averaged out may provide a more accurate picture of dynamics than do individual-level analyses.

The other important point is that reliable estimates can be obtained from contemporaneous regressions as long as the key predictors are *weakly exogenous*. If variable y is thought to be explained by variable x, then x is said to be weakly exogenous to y if current values of y do not explain x. Note that unbiased estimation does not require that past values of y do not explain x, which is the definition of *strong exogeneity* or Granger non-causality (Charemza and Deadman, 1997). All that is required is that there is no immediate (time t) feedback from y to x. In a dynamic setting of the type which characterises voter decision-making, this means that if variable x has a rapid impact on y, while y has a rather

slow impact on x, then x can assumed to be weakly exogenous and inferences are valid. Moreover, this does not have to rely on assumptions since weak exogeneity can be tested in time series models *if* one is confident in the models for the variables(s) hypothesized to be weakly exogenous (Charemza and Deadman, 1997). If the latter models are themselves are contested or problematic, attempts to demonstrate weak exogeneity will fail to convince determined skeptics.

The latter point brings us on to additional methodological issues associated with estimating relationships. As the earlier discussion indicates, if hypothesized dependent and independent variables affect each other simultaneously, the result is biased parameter estimates. Economists faced this problem a generation ago, when attempting to estimate relationships in large-scale macroeconomic models (Fair, 2004). These 'Cowles Commission' models were complex, involving large numbers of simultaneous equations with a great many parameters (Greene, 2003: 587). However, these models proved inadequate to the task of capturing economic dynamics and accurately forecasting quantities of interest, in part, because analysts had to make possibly arbitrary and unrealistic assumptions about some parameters in order to claim that others were uniquely identified and could be empirically estimated.

At the start of the 1980s the econometrician Christopher Sims (1980) voiced an influential critique of this traditional simultaneous-equation approach to modelling the macro-economy. After delineating the shortcomings of the Cowles Commission approach, Sims introduced his Vector Autoregressive (VAR) strategy as a way forward. The VAR approach starts with a set of theoretically interesting variables, but avoids making unrealistic assumptions about causal relationships among them (Enders, 2010; see also Juselius, 2006). Rather, the focus is on capturing dynamic relationships among these variables in a series of autoregressive equations. Although promising, a limitation in early work on VAR modelling

with mean non-stationary variables was that it was only able to estimate short-term dynamics and did not incorporate long-term relationships in the analysis[7]. However subsequent work on cointegrated relationships has remedied this problem (Engle and Granger, 1987; Johansen, 1991, 1996). Cointegrated variables are in dynamic long-run equilibrium with each other, and it is possible to estimate these relationships at the same time as short-term dynamics are assessed. In the next section we investigate relationships among key variables in the valence model using Vector Error Correction Models (VECM) which enable us to study the interrelationships we have been discussing.

A VECM Model of Governing Party Support in the New Labour Era

As discussed above, the VAR approach is a sensible approach to studying inter-relationships among key variables in the valence politics model given their many possible dynamic inter-relationships. However, traditional BES panel data are wholly inadequate for the purposes of VAR modelling. VAR requires abundant time series observations and, for reasons articulated above, it is desirable to have these data spaced as closely together in time as possible. Here, we employ a time series data set using monthly data gathered over virtually the entire New Labour Era from July 1997 to April 2010 (154 months). We analyse governing (Labour) party support as measured by vote intentions over this lengthy period focusing on the effects of key explanatory variables in the valence politics model articulated above. These variables include standard measures of partisanship, approval of the job the prime minister is doing and judgments of Labour's performance on the economy. This large New Labour time series data set provides a useful basis for assessing the valence politics model. If the valence politics model cannot account for the dynamics of governing party support over this extended period which witnessed prolonged economic good times followed by a deep, protracted recession, then critics EK can rightly voice skepticism.

The dynamics of Labour vote intentions, Labour partisanship, prime ministerial approval and Labour performance judgments on the economy are displayed in Figure 3. As shown, all four series decline precipitously, with Labour vote intentions falling by 28 points—from 58 per cent in July 1997 to 30 per cent in April 2010. Partisanship, prime ministerial approval and Labour performance evaluations also decline substantially, by 20 per cent in the case of partisanship, and by 40 per cent and 31 per cent, respectively, in the cases of prime ministerial approval and Labour performance on the economy. The numbers for Labour partisanship illustrate the point that partisan attachments in Britain have sizable aggregate- as well as individual-level dynamics. Figure 3 shows that these dynamics are closely related to those for the other three valence politics variables—the average inter-correlation between the four series is fully +.90 (range +.84 to +.95).

(Figure 3 about here)

The powerful downward dynamics evident in Figure 3 testify that the four valence politics variables are mean nonstationary. This conclusion is confirmed by Dickey-Fuller and KPSS unit-root tests (Enders, 2010). As Table 1 indicates, all four variables are nonstationary in their original level form, but become stationary when first differenced. Evidence that variables of interest are nonstationary does not necessarily mean that they are cointegrated—cointegration must be demonstrated empirically. To test for it, we employ the trace and maximum eigenvalue tests proposed by Johansen (1991, 1996). Results of these tests presented in Table 2 reveal that the four valence politics variables are indeed cointegrated and there is only one cointegrating vector. The existence of single cointegrating vector for the four variables comports well with valence politics theory. During the New Labour era, Labour vote intentions travelled in dynamic equilbrium with evaluations of the performance of Prime Ministers Tony Blair and Gordon Brown, assessments of Labour's management of the economy, and Labour partisan strength in the electorate.

(Tables 1 and 2 about here)

Within the general VAR modelling framework the existence of a cointegrating relationship for these four variables mandates the specification of a VECM to capture their mutual interrelationships (Juselius, 2006). The VECM system has four equations, one for each variable of interest. In addition to the error correction mechanism implied by the cointegrating relationship among the four variables, diagnostics indicate that three lags of first-differenced versions of the variables can be included each of these four equations. Three additional exogenous variables for shocks to the system caused by the petrol crisis (September 2000), the replacement of Tony Blair by Gordon Brown as prime minister and leader of the Labour Party (June 2007) and the Northern Rock bank crisis (September 2007) also are included. Parameter estimates for the VECM (see Appendix) show that the error correction mechanism in the Labour vote intention equation is very strong. The adjustment parameter for the error correction mechanism is -.92, indicating that slightly over 90 per cent of a shock to the system, for whatever source, is eroded in the month following its occurrence. Valence politics considerations clearly dominate the system's dynamics.

The existence of a very powerful long-run relationship among the four key valence variables implies that Granger-causal processes (Granger, 1969) are at work. As Giles (2011) states '[i]f two or more time series are cointegrated then there must be Granger causality between them—either one-way or in both directions'. Although there are several (nine) possibilities for the four variables, here we confine attention to possible Granger-causality involving effects of Labour partisanship, prime ministerial approval and judgments about Labour's performance on the economy, on the one hand, and Labour vote intentions, on the other. If valence politics theory is correct, all three of the former variables should influence the latter, for reasons discussed earlier.[8] Table 3 documents that this is the case; each of the

three variables individually Granger-causes vote intentions, and the three variables jointly do so as well.

(Table 3 about here)

Another perspective on the flow of influence in the VECM system is provided by converting it to a moving-average representation (MAR) and assessing the impact of shocks to one variable on the other variables. Using the conventional Cholesky decomposition for an impulse response analysis requires the analyst to order the variables according to a hypothesized flow of influence in the system, and results are potentially sensitive to alternative orderings (see Enders, 2010). In the present case, the flow of influence in the system is a major point at issue. Accordingly, we employ the generalized impulse response analysis methodology developed by Pesaran and Shin (1998). Results of this approach is invariant to variable ordering in VAR or VECM.

The results for the valence politics VECM are displayed in the four panels in Figure 3. As the figure shows, one standard deviation shocks to any of the four variables in the system have a variety of immediate and lagged effects on the other three variables. Of particular interest, the upper left-hand panel shows that Labour vote intentions respond quite strongly to shocks to Labour performance on the economy, Labour partisanship and prime ministerial approval. *Ceteris paribus*, after three months, Labour vote intentions would increase by from approximately .8 to 1.5 standard deviations as a result of shocks to other variables in the system, with the effects of judgments about Labour's performance on the economy being the strongest and Labour partisanship the weakest.

The cumulative effects of shocks to other variables on Labour vote intentions are shown in Figure 4. As one would intuitively expect given the powerful cointegrating relationship among vote intentions and the other three variables and evidence of Granger-causal effects of the latter on the former, all of these cumulative effects would be very

substantial. Although the *cet. par.* assumptions underlying the scenario on Figure 4 are unlikely to obtain in practice as negative shocks often quickly work to counteract positive ones, the power of valence politics considerations is clearly evident. More generally, the MAR analysis summarized in Figures 3 and 4 shows a wide variety of strong responses across the VECM for the valence politics variables. This is exactly what one would expect if these variables constitute the strongly interactive, dynamic system, predicted by valence politics theory.

(Figures 3 and 4 about here)

Conclusion: A Plea to Stop Hunting Snarks

In their interesting critique, EK develop a model which they label 'the valence politics model of electoral choice'. When we read their paper, we did not recognize the model; the dependent variable was something called 'Labour preference' which does not appear either conceptually or operationally in our work, except as occasional stylistic relief for 'vote choice' or 'vote intentions'. In addition, key explanatory variables were missing (e.g., leader images, party best on most important issue) or measured in ways other than we have (e.g., direction of partisanship). Given these several modifications to the valence politics model, it does not surprise that EK's model performs differently than the one we use in our analyses. When we 'round up the usual suspects', use our standard variables measured the standard ways, and employ appropriate methods for playing the strong exogeneity game, the results provide powerful confirmation of our version of the valence politics model.

Model specification, variable measurement and statistical methods are very important issues to be sure but, as argued above, we believe they are ultimately secondary considerations. The fundamental problem with EK's critique is their subtle, yet seductive, invitation to seek a magic variable that could account for the observed dynamics in voting, leader images and party performance judgments. EK believe that the variable is partisanship

which, by their account, is strongly exogenous to other variables under consideration. However, if EK are right, then partisanship must itself exhibit dynamic properties. After all, voting behaviour, images of party leaders, and evaluations of parties' ability to deal with major issues such the economy clearly manifest large-scale movements and one cannot explain variation with a constant. Of course, partisanship *does* move; above we show that there is substantial instability in British voters' partisan attachments at both the aggregate- and individual levels. Partisan flexibility is not a novel phenomenon in the UK; rather it has been a feature of British political psychology since at least the early 1960s when Stokes first accepted Butler's invitation to temporarily decamp chilly Ann Arbor for the (at least occasionally) cheery environs of Nuffield.

But what moves partisanship? It is here that EK invite readers to begin the search. In an earlier time, Butler and Stokes and others at Nuffield had conjectured that social class was the magic variable. However, class clearly did not exhibit the dynamics required to explain either the sizable dynamics observed in the BES panel surveys or the large-scale change witnessed in successive general elections. But, if social class is not the magic variable that moves all other movers, then what is?

As argued above, we believe accepting an invitation to search for a magic variable is unwise. For well over half a century, EK and many other students of voting behaviour in Britain, the United States and elsewhere have employed data from periodic national election studies to try to find this fabled 'snark'. Although often technically well-executed, the results of analyses such as those by EK ultimately perpetuate the theoretical and methodological problems that continue to beset the field of electoral studies. Regarding theory, we say again (more than three times!) *there are no snarks—no magic hidden variables* the powerful effects of which will be revealed by just one more regression/logit/probit/sem analysis of survey data from just one more new election study. The variables in the valence politics model presented

above do not explain everything about electoral choice, but they *are* powerful. Supplemented by selected variables from spatial theory, the result is a parsimonious composite model[9] that goes a long way towards a satisfactory explanation of voting in Britain elsewhere. There is no need to rummage around one more time in the dark recesses of the famed 'funnel of causality' to find that sly snark. It's not there.

Finally, as executed, EK's critique nicely illustrates the limitations of traditional election study data gathering techniques. Unable to break free from the 'in-person' probability survey model established in Ann Arbor nearly 70 years ago, British political scientists lack the resources to gather the high-frequency, very large N, panel surveys that would provide leverage needed for studying the kinds of tightly inter-related dynamics systems of beliefs, attitudes and behaviour that drive individual and collective electoral choice and other forms of citizen political action in the 21st century. Simply stated, traditional in-person surveys cannot do the methodological job demanded of them (see Whiteley et al., 2013, ch. 1). Highly expensive, low frequency, small N, 'convenience samples in time', these surveys were leading-edge methodology when the Beatles were playing the Cavern in Liverpool and Stokes was enjoying the conviviality of the Nuffield high table. That moment is now long past and these surveys have become totemic relics that inhibit, not facilitate, scientific advance. Monster N, high quality, highly cost effective, national internet and smart phone surveys are likely ways forward. But, that is a topic for another paper.

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Figure 1. Observed Partisan Instability in British Election Study Multiwave Panel Surveys, 1963 - 2010

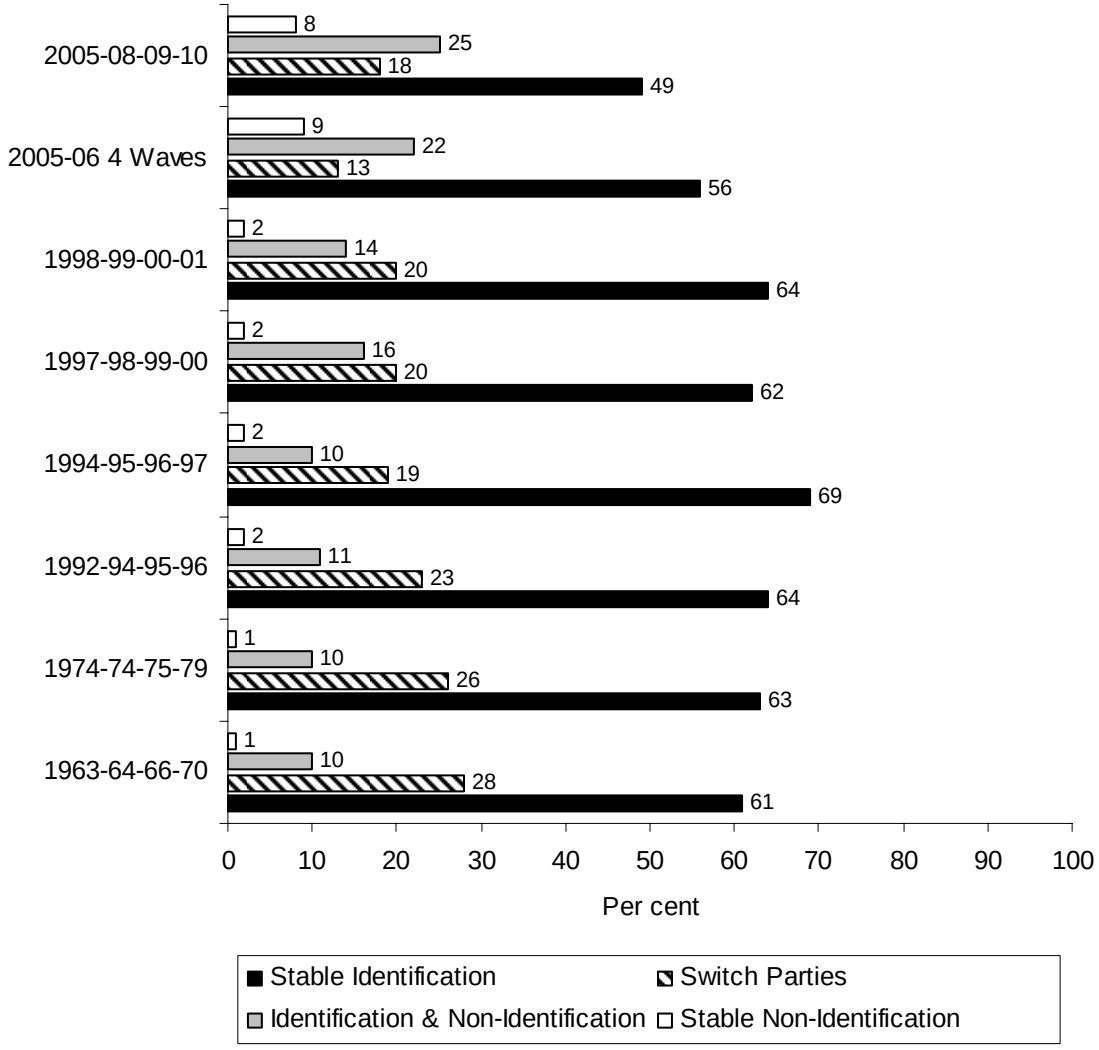


Figure 2. Size of Mover Groups in Mixed Markov Latent Class Analyses of British Election Study Multiwave Panel Surveys, 1963-2010

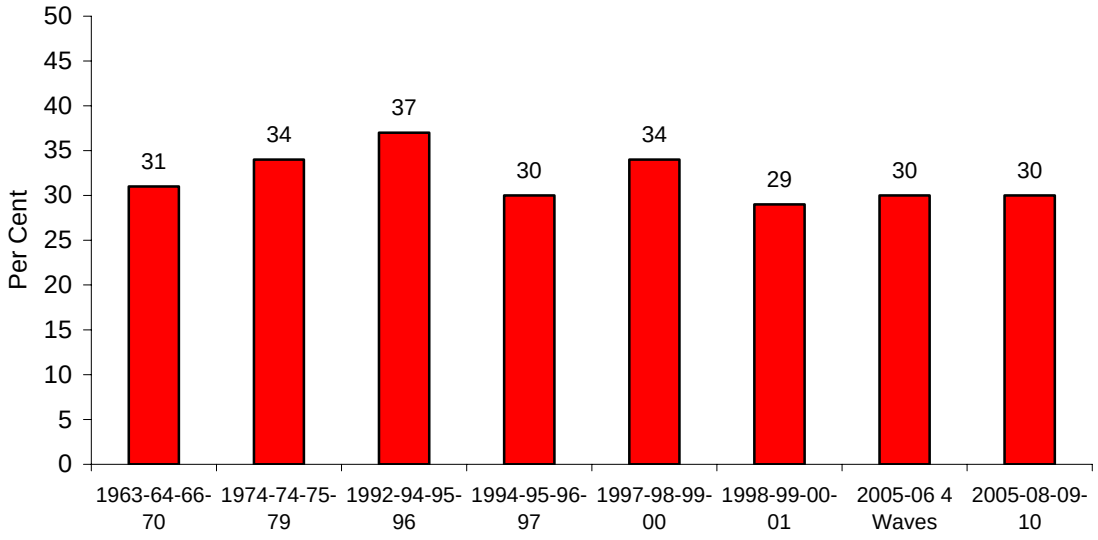
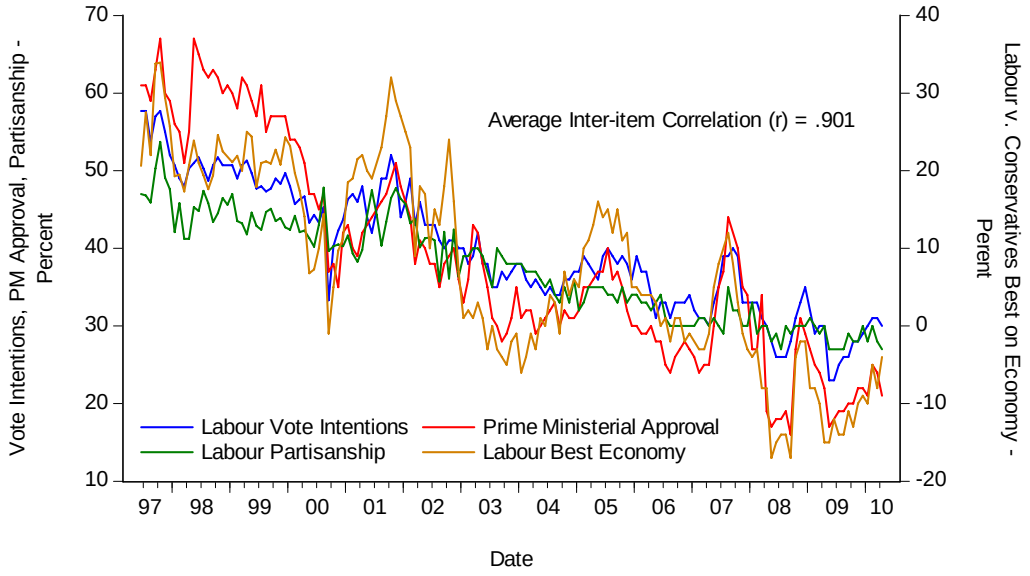


Figure 3. Dynamics of Labour Vote Intentions, Prime Ministerial Approval, Labour Performance on Economy and Labour Partisanship in the New Labour Era, July 1997-April 2010



Note: range of inter-item correlations (time t): r = +.844 to +.948

Table 1. Unit-Root Tests for Valence Politics Variables

	Dickey-Fuller Test		KPSS Test	
	Level	1st Difference	Level	1st Difference
Variables				
Labour vote intentions	-2.262	-11.692†	1.414‡	0.093
Prime ministerial approval	-1.709	-12.823†	1.336‡	0.033
Labour best on economy	-2.032	-14.670†	1.201‡	0.036
Labour partisanship	-1.453	-19.097†	1.476‡	0.210

† - rejects null hypothesis of nonstationarity, p = .05,
critical value = -2.880

‡ - fails to reject null hypothesis of stationarity, p = .05,
critical value = 0.463

Note: null hypothesis for Dickey-Fuller test is series is nonstationary; null hypothesis for KPSS test is series is stationary.

.

Table 2. Johansen Tests for Cointegrating Relationships Among Labour Vote Intentions, Prime Ministerial Approval, Labour Best on Economy and Labour Party Identification, September 1997-April 2010

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.298876	74.03611	47.85613	0.0000
At most 1	0.083898	20.06533	29.79707	0.4185
At most 2	0.033287	6.745885	15.49471	0.6074
At most 3	0.010472	1.600062	3.841466	0.2059

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.298876	53.97078	27.58434	0.0000
At most 1	0.083898	13.31945	21.13162	0.4233
At most 2	0.033287	5.145824	14.26460	0.7233
At most 3	0.010472	1.600062	3.841466	0.2059

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Note: Johansen tests performed with 3 lags for the four variables. Single cointegrating vector also indicated by tests performed with 1 or 2 lags.

Table 3. Granger Causality Tests of Predictors of Labour Vote Intentions

	Chi-Square Test		
	χ^2	df	p
Predictor Variables			
Prime ministerial approval	8.286	3	.041
Labour best on economy	10.416	3	.015
Labour partisanship	8.141	3	.043
Joint test - all predictors	35.206	9	.0001

Note: block exogeneity tests using VAR in levels including prime ministerial approval, Labour best on economy and Labour partisanship; 3 lags for each tested predictor and 4 lags for non-tested predictors.

Figure 3. Generalized Impulse Response Functions over Six Time Periods for VEC Model of Relationships Among Labour Vote Intentions, Prime Ministerial Approval, Labour Best on the Economy and Labour Party Identification, September 1997-April 2010

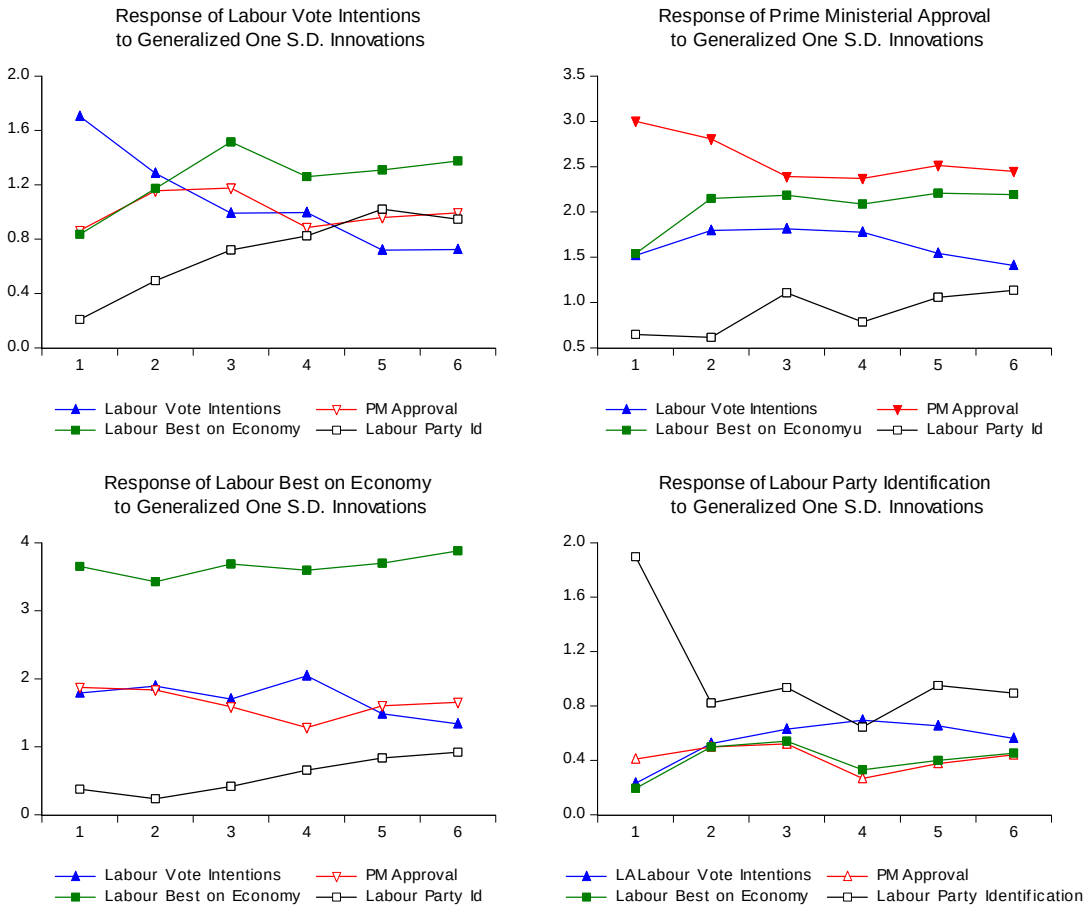
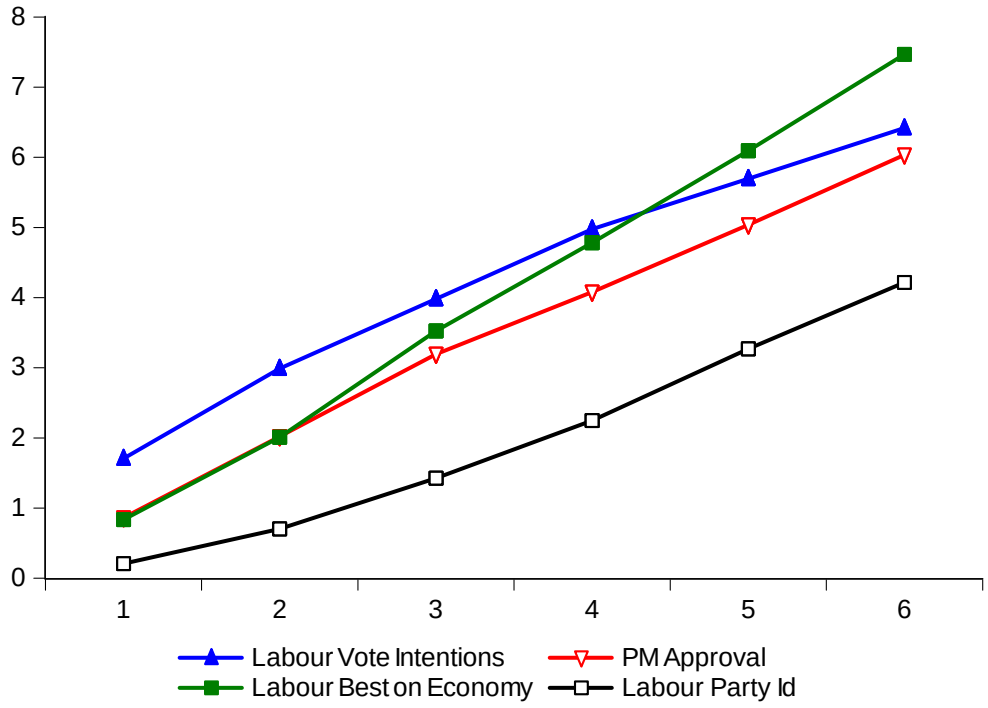


Figure 4. Accumulated Generalized Impulse Responses in Labour Vote Intentions Over Six Time Periods for VEC Model of Relationships Among Labour Vote Intentions, Prime Ministerial Approval, Labour Best on Economy and Labour Party Identification, September 1997-April 2010



Appendix. Vector Error Correction Model of Relationships Between Labour Vote Intentions, Prime Ministerial Approval, Labour Best on Economy and Labour Party Identification, September 1997 - April 2010

Cointegrating Equation	Cointegrating Coefficients (B)
LAB(-1)	1.000000
PMSAT(-1)	-0.191028
	(0.02645)
	[-7.22274]
LABM(-1)	-0.176246
	(0.02501)
	[-7.04699]
LABID(-1)	-0.539110
	(0.05335)
	[-10.1043]
Constant	-10.78250

Error Correction:	D(LAB)	D(PMSAT)	D(LABM)	D(LABID)
Error Correction Mechanism	-0.916454	-0.169727	-0.330445	0.452104
	(0.13183)	(0.23220)	(0.28254)	(0.14678)
	[-6.95173]	[-0.73095]	[-1.16955]	[3.08024]
D(LAB(-1))	0.365126	0.301492	0.494862	-0.292021
	(0.12205)	(0.21497)	(0.26157)	(0.13588)
	[2.99167]	[1.40249]	[1.89188]	[-2.14906]
D(LAB(-2))	0.187986	0.358492	0.279982	-0.209305
	(0.10337)	(0.18208)	(0.22155)	(0.11509)
	[1.81853]	[1.96892]	[1.26376]	[-1.81861]
D(LAB(-3))	0.377382	0.369561	0.753102	0.040352
	(0.07957)	(0.14015)	(0.17053)	(0.08859)
	[4.74295]	[2.63698]	[4.41630]	[0.45551]
D(PMSAT(-1))	-0.031458	-0.288633	-0.050145	0.109587
	(0.06277)	(0.11057)	(0.13454)	(0.06989)
	[-0.50113]	[-2.61044]	[-0.37272]	[1.56797]
D(PMSAT(-2))	-0.081801	-0.385995	-0.238088	0.060434
	(0.06229)	(0.10972)	(0.13351)	(0.06935)
	[-1.31316]	[-3.51800]	[-1.78335]	[0.87138]
D(PMSAT(-3))	-0.116784	-0.150444	-0.336400	-0.027426
	(0.05900)	(0.10391)	(0.12644)	(0.06568)
	[-1.97950]	[-1.44777]	[-2.66051]	[-0.41754]
D(LABM(-1))	-0.010759	0.214170	-0.158702	0.148596
	(0.04889)	(0.08611)	(0.10477)	(0.05443)
	[-0.22008]	[2.48728]	[-1.51472]	[2.73014]

D(LABM(-2))	0.069398	0.113405	0.077973	0.100100
	(0.05061)	(0.08914)	(0.10846)	(0.05635)
	[1.37128]	[1.27222]	[0.71889]	[1.77655]
D(LABM(-3))	-0.073799	-0.059232	-0.046047	-0.026433
	(0.04504)	(0.07934)	(0.09654)	(0.05015)
	[-1.63838]	[-0.74657]	[-0.47699]	[-0.52708]
D(LABID(-1))	-0.361309	-0.084010	-0.254916	-0.362301
	(0.08587)	(0.15125)	(0.18404)	(0.09560)
	[-4.20764]	[-0.55545]	[-1.38514]	[-3.78960]
D(LABID(-2))	-0.200585	0.237985	-0.118927	-0.080596
	(0.09032)	(0.15909)	(0.19357)	(0.10056)
	[-2.22081]	[1.49595]	[-0.61438]	[-0.80148]
D(LABID(-3))	-0.116604	-0.048552	0.031860	-0.118559
	(0.07791)	(0.13724)	(0.16699)	(0.08675)
	[-1.49655]	[-0.35379]	[0.19079]	[-1.36672]
Constant	-0.096448	-0.195093	-0.064335	-0.185574
	(0.14296)	(0.25181)	(0.30640)	(0.15917)
	[-0.67463]	[-0.77476]	[-0.20997]	[-1.16587]
NROCK(-1)	0.255028	-1.709320	-6.084825	-1.252766
	(1.81350)	(3.19422)	(3.88670)	(2.01908)
	[0.14063]	[-0.53513]	[-1.56555]	[-0.62046]
BLAIRBROWN(-1)	1.433782	7.849236	1.432513	4.807102
	(1.78677)	(3.14714)	(3.82941)	(1.98932)
	[0.80244]	[2.49408]	[0.37408]	[2.41645]
PETROL	-13.40364	-12.62720	-15.98820	-5.570300
	(1.82132)	(3.20798)	(3.90344)	(2.02778)
	[-7.35932]	[-3.93618]	[-4.09592]	[-2.74699]
R-squared	0.502042	0.260317	0.276228	0.424750
Adj. R-squared	0.443024	0.172651	0.190447	0.356573
S.E. equation	1.704221	3.001738	3.652484	1.897412
F-statistic	8.506692	2.969416	3.220172	6.230045
Log likelihood	-287.6970	-373.7417	-403.5666	-304.0192
Akaike AIC	4.009171	5.141339	5.533770	4.223937
Schwarz SC	4.347368	5.479536	5.871968	4.562135

Note: LAB = Labour vote intentions; PMSAT = prime ministerial job approval;
LABM = Labour best on economy; LABID = Labour partisanship;
D() = difference operator; standard errors in parentheses; t-statistics in brackets.

ENDNOTES

[1] Although the statistical concept was not used by Campbell et al., they did assert partisanship was *weakly exogenous* to voting, i.e, party identification at time t affects voting at time t, rather than vice versa.

[2] In the 1960s Converse (1969) argued that partisanship tended to strengthen as voters aged as a product of behavioural reinforcement attendant upon repeatedly voting for the same party. This argument did not undermine the idea that partisanship is directionally unstable and, at any time t, exogeneous to voting.

[3] In a subsequent edition of their book, Butler and Stokes (1974: 268) recognized the scale of electoral change over relatively brief time periods was quite large: '[I]n the five intervals of change that we have examined in the 1960s, there were never as much as two thirds of the public positively supporting the same party at two successive points in time'.

[4] These numbers are tallied using data produced by responses to the first question in the traditional BES party identification sequence: 'Generally speaking, do you think of yourself as Labour, Conservative, Liberal Democrat or what?' The numbers are minimum estimates of levels of change. Respondents abandoning a party and then changing back to that party within the period encompassed by adjacent waves of a panel survey will not be recorded as having changed.

[5] This is true for Canada, Germany and the United States as well. See Clarke and McCutcheon (2009); Neundorf, Stegmueller and Scotto (2011).

[6] The correlation between predictors and the error term in regression analyses renders parameter estimates biased and inconsistent. See, e.g., Greene (2003).

[7] This is largely because of the need to avoid the problem of spurious regressions which can occur when non-stationary variables are regressed on one another (Granger and Newbold, 1974). On the assumption that the local level models are the relevant model class, nonstationary variables are transformed into stationary variables by differencing once or more, but this has the effect of eliminating any long-term relationships between them (see Charemza and Deadman, 2003: 150-212).

[8] The Granger causality tests are carried out using the methodology for VECMs recommended by Toda and Yamamota (1995). See also Clarke and Mirza (2006) and Giles (2011).

[9] With due apologies to Achen (2005), we believe that parsimonious composite models are not necessarily 'garbage cans' (estimation procedures aside). They may violate the 'rule of three,' but they may also be theoretically attractive and have strong explanatory power. Let theory and model selection criteria be your guide!