The Individual Level Dynamics of Bounded Partisanship[1]

Anja Neundorf[2] Daniel Stegmueller[3] Thomas J. Scotto[4]

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Abstract

Over the past half century, scholars utilized a variety of theoretical and methodological approaches to study the attachment or identification voters have with political parties. However, models on partisan (in)stability ignore its bounded character. Making use of Mixed Latent Markov Models we measure change and stability of individual-level West German partisan identification captured over a 24 year period via the German Socio-Economic Panel (GSEOP). Results suggest that distinctive subpopulations exist, which follow different patterns of partisan stability. One party's loss is not necessarily another party's gain.

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[2]Nuffield College, University of Oxford; anja.neundorf@nuffield.ox.ac.uk.

[3]University of Mannheim & University of Frankfurt; mail@daniel-stegmueller.com.

[4]University of Essex; tscott@essex.ac.uk.

Introduction

The last fifty years have seen a growing body of research into the origins, consequences and dynamics of party identification. Despite this scientific effort, our knowledge about the individual level dynamics of party identification is limited at best. While recent research has made some progress on the methodological front, we argue that a key ingredient of a potent model of partisan dynamics is its bounded nature (Clarke and Suzuki 1994; Zuckerman and Kroh 2006; Zuckerman et al. 2007). This implies that there is no 'party menu' from which individuals choose freely every time they are surveyed. Instead, most voters have a limited choice set. Many opt to move from one of the major parties into independence or back – but almost never to the competing camp.

Even if partisanship is bounded, the classic debate over question of its stability and change that pits a social-psychological against rational updating models of partisanship does not go away. Validation of the notion that few in the electorate switch from one major party to another still leaves patterns of stability and change to be uncovered. Do partisans of different stripes move into and out of parties at the same time, does one party gain at the expense of the other, or do parties have supporters moving to and away from them at different points in time? Importantly, can subsections of the electorate be identified who will remain loyal to one political party through thick and thin?

In their recent article appearing in THIS JOURNAL, Clarke and McCutcheon (2009: 21) employed Mixed Latent Markov (MLM) models to make a convincing case that electorates in English speaking democracies "were composed of various mixtures of peoples with durable and flexible [partisan] attachments." This model choice allows voters to be one of two types: they are either stable partisans who remain supportive of a political party through good and bad times or citizens prone to change their preferred party as they update their beliefs about party and leader performance.

A limitation of Clarke and McCutcheon's (2009) work is that so-called MLM 'mover-stayer' (MS) models employed to establish patterns of partisanship over four and five wave election study panels do not allow for an exploration of patterns of bounded partisanship throughout a long period in a nation's electoral history. Fundamental differences may exist in patterns of movement in and out of major parties, and these may have interesting implications for the nature of party systems in advanced democracies. The MS model assumes that there is one and only one class of flexible partisans, whereas the theory of bounded partisanship suggests that patterns of switching between independence and support for one party might be different from movement to and from the other.

In this paper, we examine long term patterns of party identification in West Germany from 1984-2007 using data from the German Socio-Economic Panel (GSEOP). We bolster support for the theory of bounded partisanship by establishing that an MLM model with two mover classes, each dominated by flexible supporters of the Christian Democrats (CDU) or the Social Democrats (SPD) is superior to the MS model that lumps flexible partisans of all stripes into a single group.

Extending the analysis of patterns of individual level support to the non-English speaking electorate of West Germany is particularly interesting because the period covered by the GSEOP allows us to examine patterns of partisanship over periods of relative political calm and three major political upheavals, the first being reunification and the other two being party specific events of the CDU donation scandal and the SPD platform shift. These events underscore the need for multiple types of movers because bounded partisans of the different parties may have dissimilar reactions to these episodes.

Table 1: Model Hypotheses

Model	Party ID stable	Measurement error	Unobserved heterogeneity	Bounded character
Social-Psychological	yes	no	no	not important
Latent Construct	yes	yes	no	no
Rational Updating	no	no	no	no
Bounded Partisanship	yes + no	yes	yes	yes

We proceed with a review of the debate over the stability of party identification in light of unobserved heterogeneity and the bounded nature of partisanship, and then move on to a discussion of major party support in West Germany over the long 1984-2007 period. After presenting and estimating the MLM model with multiple mover classes, we discuss the relevance of our results for the study of partisanship in advanced democracies.

The Lingering Question of Partisan Stability

Rival theories of partisan identification posit that voters face questions tapping party support in one of two ways. Researchers in favor of the *social-psychological* model think of partisan identification as an identity that emerges from a pre-adult political socialization process and acts as an exogenous predictor of political choice during adulthood. Advocates of this approach believe party identification only changes during major political events, but otherwise is mostly set in stone (e.g. Campbell et al. 1960; Jennings and Niemi 1974; Miller and Shanks 1996). Others view partisanship as an endogenous variable that is subject to change due to *rational updating* as the voter receives information about the performance of the economy, governments, leaders, and opposition parties (e.g. Jackson 1975; Fiorina 1981; Franklin and Jackson 1983; Achen 1992, 2002; MacKuen et al. 1989; Erikson et al. 2002). Discussions on partisanship as a *latent construct* due to measurement error adds complexity but does little to resolve the conflict or alter the battle lines. Green and his colleagues (1994; 2002) claim that single questions on surveys make for imperfect instruments when it comes to measuring both partisan attitudes and identities, as it complicates the ability to separate fact from fiction when observing partisan movements.

Table 1 summarizes the predicted outcomes and assumptions behind the three models of partisan identification that most frequently appear in the literature. An exclusive belief in one of these models forces scholars to buy into quite rigid assumptions concerning the stability of partisan identification, the influence of time and events on partisan change, the presence of measurement error, or some combination of all of these. Two competing views of partisan (in)stability emerged over the past fifty years: one of a stable electorate composed entirely of those with very strong partisan ties who will not reconsider their loyalties even in the face of poor leadership and governance by their party and another comprised of electorates where each voter is potentially ready to turn on a party in the face of slight leadership or economic hiccups. We argue much of the debate over partisan (in)stability and the models employed to adjudicate the controversy neglect two important points – that partisanship is 'bounded' and unobserved heterogeneity drives distinct patterns of stability and change in party support among sub-groups within an electorate. The models we employ aim to incorporate these important details into this and future discussions of

mass partisan identification.

Unobserved Heterogeneity in Individual Partisan (In)Stability

Models of political attitudes often make the analytical assumption that all citizens utilize the same thought processes to arrive at a decision, for example which party to support. To date, much of the work relaxing this homogeneity assumption focuses on how different *observed* levels of political information and sophistication lead voters to consider different types and numbers of variables in arriving at a vote choice or political support (e.g. Rivers 1988; Sniderman et al. 1991; Johnston and Pattie 1996; Gomez and Wilson 2001; Cutler 2002; Box-Steffensmeier et al. 2004; Box-Steffensmeier and De Boef 2008; Carsey and Layman 2006; Roy 2009; Bafumi and Shapiro 2009). However, change and continuity in an individual's political choices and their determinants may also be a function of *unobserved heterogeneity* or differing forces that cannot be modeled directly.

The deployment of modern panel data and latent variable modeling techniques have addressed the issue of unobserved measurement error inherent in most analyses using survey data. Thus, we can model out and ignore chance variations in the data that occur due to lack of question clarity and the presence of politically naive and disinterested voters. However, surveys cannot capture all of the forces that may predispose one to be a stable or an unstable partisan during the life of a panel. The likely presence of substantively meaningful patterns of unobserved heterogeneity in the data requires a model that can consider measurement error and allow samples of electorates to be comprised of multiple groups that follow the different patterns of partisan stability – some being stable partisans ('stayers'), while others are predicted by the model to change their party preferences ('movers').[5] The model for this purpose is the Mixed Latent Markov model that we detail below. However, before doing so, we must further discuss the types of switching we should see among those in the sample who are flexible partisans.

Bounded Partisanship and the Question of Individual Change

Another issue that is often overlooked in the discussions concerning partisan identification is the nature and content of the voter's selection menu. Decisions concerning the construction of party identification variables often make the implicit assumption that voters select one from all of the available parties, but empirical evidence supplied by election study panels in America and elsewhere suggest that voters engage in a restricted search when choosing a party to support. Clarke and Suzuki (1994) and Clarke and McCutcheon (2009) establish that most of the switching is from identification with one party to non-identification (or independence) or vice versa and not across parties. Furthermore, they find that those who switch from supporting a major party to independence are not just using their new found non-identification as a half-way house en route to forming an identity or supporting another party. Observing such patterns of movement led Zuckerman and Kroh (2006) and Zuckerman et al. (2007) to declare partisanship 'bounded'. Their label underscored the reality that for much of the electorate, partisan choice comes down to the decision to support or not support one of the major parties while declaring an identification with an opposing party is absent from the thoughts of an overwhelming number of voters. By implication, this makes party identification a nominal level variable because people move to and

[5]The model yields the probability of switching for those respondents classified in the 'mover chain(s)'. Individuals are not necessarily observed as doing so throughout the time period under observation.

from independence and one of the major parties irrespective of the positions and actions opposing parties.

We believe that if theories of bounded partisanship are accurate and most voters never entertain the idea of supporting one of the major parties, then the success or failure of that party should not enter into the citizen's decision process. A party's poor performance while in government may lead flexible supporters of *that* party to shift away. However, there is no reason why loose partisans who move in between support for the main opposition party should react. Further, major national or party specific effects (e.g. a platform change or a scandal) may only impact volatile supporters of one party. Putting the issues of unobserved heterogeneity and bounded partisanship together, electorates are expected to be made up of a sub-group of stable partisans and sub-groups that are dominated by volatile members of each of the major parties.

Party Identification in Germany

In this paper we apply the concept of bounded partisanship and its (in)stability to Western Germany, which constitutes an interesting comparative case and extends the study of the impact of unobserved heterogeneity on party identification beyond the English speaking nations studied by Clarke and McCutcheon (2009). Various studies have confirmed that party identification is a valid concept in the German context and that it is quite distinct from actual party choice (for a review see Falter et al. 2000; c.f. Falter 1977, 1984; Gluchowski 1978, 1983; Norpoth 1978, 1984). Nevertheless, the same lingering questions about partisanship remain unanswered for the German mass public. Several studies found partisanship to be highly stable (Klingemann 1985; Falter et al. 2000; Schmitt-Beck and Weick 2001; Arzheimer and Schoen 2005), while others find party identification to be a 'shaky attachment' (Schmitt-Beck et al. 2006; c.f. Zelle 1995; Zuckerman and Kroh 2006; Kroh and Selb 2009).

The nature of this instability is however less understood. Even if, as Schmitt-Beck et al. (2006: 598) find, "movements out of partisanship into independence are quite common, while direct shifting to another party is a less frequent phenomenon," ideas concerning 'bounded partisanship' have not yet made their way into models of individual level stability and change that allow for unobserved heterogeneity and the presence of measurement error. An initial analysis of data from the German Socio-Economic Panel confirms Zuckerman et al.'s (2007) finding that partisan switching mainly occurs between one particular party and independence. Table 2 reveals that less than 1 per cent switched their partisanship between the two major parties – from Social Democratic Party (SPD) to Christian Democratic Union (CDU) or vice versa – from one year to the next.

Table 2 reveals that, on average, 80 per cent of respondents stay loyal to their preferred party or remain independent over the course of two waves of the panel. This might suggest that party identification is indeed quite stable in West Germany. However, to put this question to a rigorous empirical test we need to study partisan instability taking into account its bounded character by unpacking the patterns of movement of different party supporters. If as suggested by the notion of bounded partisanship movements to and from each party follows different patterns, this should be observable at multiple points across the long GSOEP panel. In particular, the major political and party specific events should highlight the fact that the movements of flexible partisans from each major party follow different patterns and respond to different stimuli.

In the period under observation, Germany's political system saw three major political events

Table 2: Average Party switching (1984-2007)

PID at t-1	*PID at t*	per cent
SPD	stable	20.15
	no or other	5.07
	CDU	0.45
CDU	stable	19.77
	no or other	4.78
	SPD	0.44
No or other	stable	40.75
	SPD	4.77
	CDU	4.49

Note: The average party switches are estimated by a simple Markov model assuming time homogeneous transition probabilities.

that are believed to have 'shaken partisan attachments'. In 1990 the divided country was reunited after 40 years of separation. The country observed a time of optimism and shifted to the political right after reunification. However, after a short time, electors and politicians realized that the promised 'flourished landscapes' in East Germany were not achievable without sacrifices. Zelle (1995) argued that the strong political dissatisfaction in the early 1990s affected partisan loyalties, with many citizens turning their back on established parties.

Furthermore, two party specific events occurred during the duration of the panel, which both provoked political controversies. First, in late 1999 it was revealed that the Christian Democratic Union (CDU) had repeatedly accepted illegal donations under Chancellor Helmut Kohl. The so-called 'CDU-Spendenaffäre' was the "biggest scandal in post-war German political history" (Clemens 2000: 25; c.f. Pappi et al. 2004; Scarrow 2006).

Second, after receiving another mandate in 2002, the Social Democratic Party (SPD) announced a major political reform in Spring 2003. This policy proposal, 'Agenda 2010', saw a drastic overhaul of the German welfare state and caused nationwide protests (Pappi and Shikano 2005; Niedermayer 2006). Furthermore, as the reform agenda was imposed by the party elite, many party activists left the SPD and founded a new leftist party (which later merged with the Socialist party PDS) (Braunthal 2003; Camerra-Rowe 2004). The party is still struggling with the consequences of this policy shift, and many traditional SPD supporters are said to have defected from their party.

These two events can bring to light party specific movements in party identification. If it is indeed necessary to take into account the bounded character of partisanship when studying its dynamics, we should find different patterns of movements among flexible SPD and CDU supporters during major events specific only to one major political party. SPD partisans should not be very impressed by the 'CDU-Spendenaffäre', while the CDU adherents should not be affected by any policy shifts of the SPD. The next section gives details on why the German Socio-Economic Panel in combination with Mixed Latent Markov models is suitable to test these expectations.

Measuring the Stability of Party Identification

Data

The German Socio-Economic Panel (GSOEP), a unique longitudinal database, covers an exceptionally long period between 1984 and 2007. No other panel study with political variables encompasses so many years. This offers users the opportunity to analyze the individual level dynamics in party identification over a considerable time span.[6] Information on households and each individual living in a household is obtained through annual face-to-face interviews.[7] The GSOEP is mainly interested in (changes in) the socio-economic status of German households and its members. The study contains various samples, such as separate Eastern German or refreshment samples. We limit our analysis to West German citizens drawn from all the samples that include this sub-group.[8] As the predominant aim of this paper is to investigate individual partisan stability over a rather long period, we only work with a homogeneous group of respondents (at least based on their origin). The inclusion of East Germans or immigrants would yield a different research question, as the political socialization processes experienced by these groups are quite different. In total the selected respondents comprise the 21,915 individuals who had at least three valid observations on the party identification variable.[9] We correct for the fact that respondents living on the same household (the primary sample unite) are non-independent by using cluster-based standard errors (Binder and Roberts 2003; Vermunt 2002).

The English language translation of our dependent variable reads: 'Many people in the Federal Republic of Germany (Germany, after 1990) are inclined to a certain political party, although from time to time they vote for another political party. What about you: Are you inclined – generally speaking – to a particular party?' Those who respond, 'Yes' are then asked, 'Which one?' and handed a card that lists all the parties. Those giving 'no answer' or 'don't know' were set to missing. Those who respond 'no' are considered non-identifiers. This exact question was asked in every year of the study that began in 1984.

For each time point, respondents are assigned to the following mutually exclusive and exhaustive categories – being a (1) Social Democratic Party (SPD), or (2) Christian-Democratic Union (CDU) adherent, or (3) not supporting any of the major parties. The last category encompasses independents as well as partisans of some smaller niche parties.[10]

[6] Studies that used the GSOEP data to analyze party identification in Germany include Arzheimer and Schoen (2005); Kohler (2005); Schmitt-Beck et al. (2006); Zuckerman and Kroh (2006); Zuckerman et al. (2007); Kroh and Selb (2009). Nevertheless the powerful statistical tool of Mixed Latent Markov modeling has not been used to tackle the question whether or not heterogeneous patterns of partisan (in)stability exist within the sample.

[7] For more information on the GSOEP contents and structure see Haisken-DeNew and Frick (2005) and Wagner et al. (2007).

[8] Based on GSOEP terminology, this includes sample A (drawn in 1984), sample E (1998), sample F (2000), and sample G (2002). For the latter samples we used the question of the location of the respondents in 1989 to separate East and West Germans. People who do not have German citizenship were excluded from the analysis.

[9] Individuals with less than three responses were excluded from the analysis. Our results are robust to choosing a different minimum number of responses. The model can be viewed as a hierarchical setup with responses nested within individuals. Missing responses simply mean less information per individual, but maximum likelihood estimates are still consistent.

[10] The proportions of the other parties among those identifying with a political party is as follows: the liberal party, FPD: 4 per cent; the Greens: 8.4 per cent; one of the three possible right-wing parties: 1 per cent; other: 3 per cent. In total 16.4 per cent of all partisans do not support one of the two big parties. This proportion adds to the 45 per cent who do not identify with any party at all. It is worth noting that the overall proportion of non identifiers is relatively high compared to proportions of independents usually observed in political surveys. Arzheimer (2006)

Mixed Latent Markov Models

To analyze change in nominal level variables across time, one needs a method that accommodates unordered dependent variables and the presence of autocorrelation. A *Markov model* achieves that objective by employing a first-order Markovian structure allowing subsequent individual observations to be correlated. Markov models are not newcomers to political science: "In fact, the Columbia group was the first to adumbrate a Markov-process model of partisan transmission. Markov models resurfaced in Converse (1964) and Dobson and Meeter (1974), but these forays did not have much impact on conceptualization in the field" (Johnston 2006: 330).

Recent discussions of the dynamics of party identification cited above made clear that measurement error is a concern. This amounts to the argument that not each and every observed change in an individual's responses constitutes a true change in identification. Rather, it may reflect idiosyncratic short term forces beyond the grasp of an external observer. A *Latent Markov* model deals with this phenomenon by specifying 'true' partisan identification to be a nominal latent variable that is measured imperfectly by observed individual choices. This constitutes a typical single indicator latent variable model where partisan identification, the indicator, is measured on multiple occasions (Jackman 2008; Skrondal and Rabe-Hesketh 2004). The change from more well known factor analysis models employed by Green et al. (1994; 2002) is that we employ a latent class model since the indicator is a nominal level variable.[11] Combining a measurement model with a transition structure yields the following equation (c.f. Hagenaars 1990; van de Pol and Langeheine 1990; Collins and Wugalter 1992; Vermunt et al. 1999; Langeheine and van de Pol 2002; Paas et al. 2007; Vermunt et al. 2008):

$$P(y_{it}) = \sum_{x_0=1}^{3} \cdots \sum_{x_T=1}^{3} P(x_0) \prod_{t=1}^{23} P(x_t|x_{t-1}) \prod_{t=0}^{23} P(y_{it}|x_t) \tag{1}$$

In this logit formulation, y_{it} is the observed response of individual i ($i = 1,\ldots,I$) at time point t ($t = 0,\ldots,23$) and x_i represents the 'true' state purged of measurement error.[12] This models the observed response as resulting from three components: being in one of the latent states at the initial observation $P(x_0)$, the measurement error part $P(y_{it}|x_t)$ and the transitions from one latent state to the next $P(x_t|x_{t-1})$. Therefore, it allows us to partition individual movements into 'true change' and measurement error. A graphical description of the model is given in the upper half of figure 1, where we, following the usual convention, denote latent variables by circles and observed variables by squares. It visualizes that transitions occur only between *latent* states x_t, which are connected to observed indicators y_t via a probabilistic model, leaving no correlation

analyses the development of party identification in the German mass public in a similar time period (1975-2005), but he uses pooled cross-sectional data of a monthly political poll, the Politbarometer. On average about 70 per cent of West Germans indicate a party identification. The GSOEP on the other hand 'only' indicates about 50 per cent identifiers. We believe the more conservative estimate comes from the fact that the GSOEP is not primarily a political survey reducing the propensity of framing effects to motivate answers to the party support question.

[11] For an excellent introduction to latent class models in a social science context see McCutcheon (1987). This is more appropriate given the choice set available to voters in the context of bounded partisanship (cf. Clarke and McCutcheon 2009).

[12] The model could also be formulated in a log-linear framework (cf. Haberman 1979). Here each latent variable is just an additional dimension in an expanded table. However, when using this framework, estimation becomes cumbersome for large models (i.e. long panels) and it is not as easy to specify constraints. Furthermore, the χ^2 goodness-of-fit test usually associated with log-linear models is problematic for large data sets. The logit formulation yields log-likelihood values and derived information criteria (Burnham and Anderson 2003) which we use to assess fit and compare models.

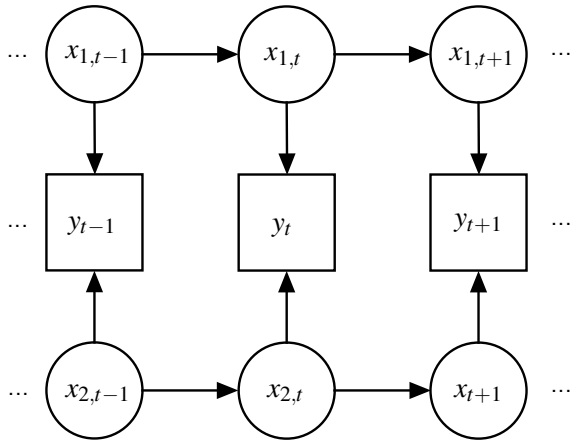


Figure 1: Illustration of a Mixed Latent Markov Model

between observed states.[13]

Individuals enter our sample from rather different starting points. To capture some of the observed forces that increase or decrease the propensity of an individual to belong to one of the three partisan classes when they enter the survey, we extend the above model by allowing the initial probabilities to depend on individual level covariates w: $P(x_0, w_i)$. More precisely we condition on a respondent's age, education, gender, and social class position. However, we suspect that unobserved heterogeneity yields distinct types of partisans, namely the 'movers' and 'stayers', that arise not from measurable social positions but from forces not captured by the sample (Clarke et al. 2004; Clarke and McCutcheon 2009). This can be captured by extending the model with a time constant latent variable m, which 'partitions' it into M latent subgroups or mixtures, yielding the so called *Mixture Latent Markov model* (van de Pol and Langeheine 1990; Dias et al. 2008):

$$P(y_{it}) = \sum_{m=1}^{M} \sum_{x_0=1}^{3} \cdots \sum_{x_T=1}^{3} P(m)\, P(x_0, w_i) \prod_{t=1}^{23} P(x_t|x_{t-1}, m) \prod_{t=0}^{23} P(y_{it}|x_t) \tag{2}$$

This model extension can be understood as generating additional Markov chains, each with its own set of parameters – as depicted in figure 1 using two chains. Its most well known incarnation is the 'mover-stayer' model (Blumen et al. 1955; Goodman 1961), which is constructed by setting $M = 2$ (i.e. generating two chains) and fixing the transition probabilities of one chain at zero. This yields a group of individuals who do not change during the panel and another group that has a non-zero probability of moving from one state to the next. Keeping these constraints and increasing the number of mixtures yields models where 'movers' are allowed different movement patterns. The models formulated here can be estimated using an extended variant of the EM algorithm (Baum et al. 1970) which in addition handles missing responses on the dependent variable as part of the model.[14] Furthermore, we account for the fact that individuals are not randomly sampled, but

[13] This is the local independence assumption commonly made in latent variable models: that there is no relationship between items once we condition on the latent trait (Lazarsfeld 1959).

[14] A standard EM algorithm proceeds by estimating the joint conditional distribution of the $T + M$ latent variables

Table 3: Model Specification and Log likelihood

Model	Description	LogLik	par
M1a	Markov	-128690	140
M1b	1a + x_0 covariates	-128404	164
M2a	Latent Markov	-117054	146
M2b	2a + x_0 covariates	-116124	170
M3a	Mixed Latent Markov, Mover-stayer parametrization	-116217	149
M3b	3a + x_0 covariates	-114913	173
M4	Mixed Latent Markov, stayer class, two mover chains + x_0 covariates	-113455	185

are living in the same households (average household size is 3.35), producing more conservative, clustered standard errors (Binder and Roberts 2003).[15]

Empirical Models

In order to illustrate the necessity to include measurement error and to allow for unobserved heterogeneity in the case of bounded partisanship, we estimated several model specifications which are summarized in Table 3.[16] All models are fitted in two variants: the first is the standard setup without taking observed individual differences into account (a), whereas the second variant controls for individual's different initial states by including control variables x_0 (b). Comparing the log-likelihood for those two variants clearly shows that specifications which control for observed individual heterogeneity improve our models in each and every case.[17] This yields a clear improvement over MLM model specifications previously employed by political scientists (c.f. Clarke et al. 2004; Clarke and McCutcheon 2009).

Contrasting the model obtained from the simple Markov model (M1) with those obtained from the Latent Markov model (M2) reveals the importance of adjusting for measurement error. We describe its implications for predicted individual transition patterns below. In a next step, we further allow for unobserved heterogeneity in the predicted transition probabilities modeled in the Markov process. We first examined the traditional Mover-Stayer model for the West German

given model parameters and data (E-step). In the M-step the latent variables are treated as observed and new model probabilities are estimated from a table with $M * 3^{T+1}$ cells for each subject i. It is easy to see that computation (or rather memory) requirements increase exponentially to enormous levels with large T. The Baum-Welch algorithm – implemented with extensions allowing for covariates and mixtures in the Syntax version of LatentGOLD (Vermunt and Magidson 2008) – allows estimation with many time-points by exploiting the fact that only marginal distributions of $P(m)$, $P(m,x_t)$ and $P(m,x_{t-1},x_t)$ are needed in the M-step.

[15] The Design Effect (taken from model 4 below) is 1.268.

[16] With models of this level of complexity, convergence to a local instead of a global maxima is a problem. The standard strategy to avoid this problem is to start the maximizing algorithm from a variety of different starting points. Therefore, we started the EM algorithm from 20 random initial values and compared their log-likelihood values after 150 iterations. We selected the two sets of initial values that resulted in the highest log-likelihood and rerun the model for twice the amount of iterations. The best initial values (in terms of log-likelihood) were then used for the final model run.

[17] Please refer to the Appendix for the estimates of the covariates on the initial status of partisanship in our final model specification.

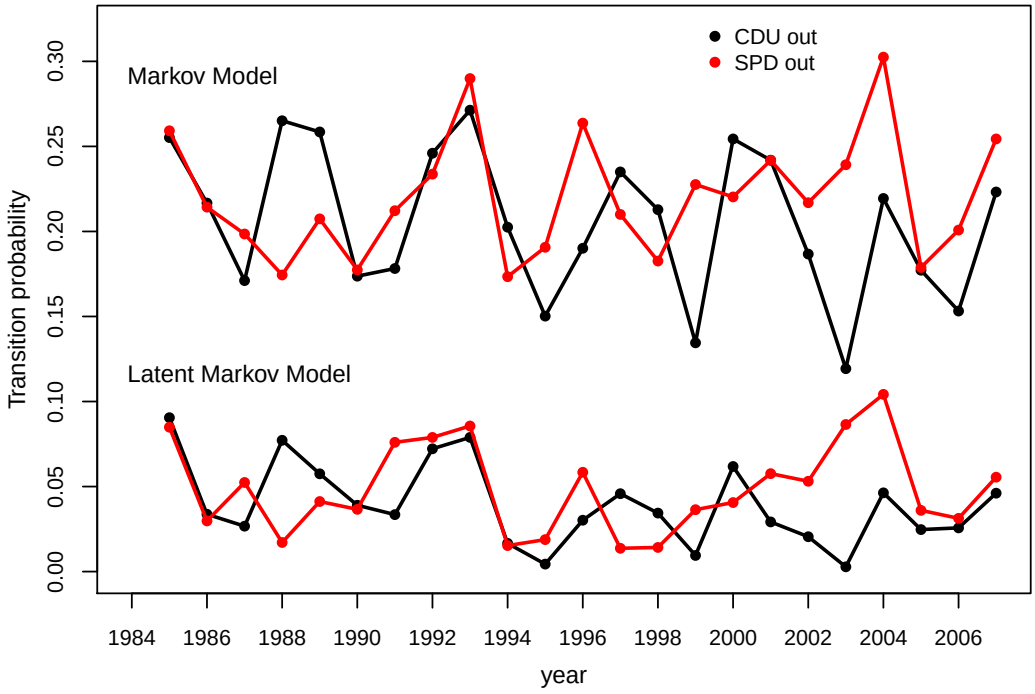


Figure 2: Markov and Latent Markov Model: Predicted outflows

electorate (M3) which decomposes the population into a group that never switches party identification (the 'stayers') and one that does (the 'movers'). Since we argue that bounded partisanship leads to distinct movements of identifiers of each major party, our final specification consists of a stayer class and two unrestricted mixture components – allowing for different movement patterns among subgroups of the population. We did not implement *a priori* restrictions mandating that each mover chain be composed of flexible partisans from a single party. Rather, if our theoretical argument is valid, we expect to find a clear separation: one chain should mainly be composed of flexible CDU identifiers, while the other one should be dominated by SPD adherents.[18]

The Question of Measurement Error in Partisanship

First, we turn to analyzing the observed stability of party identification, modeled using a simple *Markov* (M) model with time heterogeneous transition probabilities. The two top lines in Figure 2 present the yearly outflow of partisans from the two major German parties, SPD and CDU. We observe quite substantial movement in individual level partisanship: Each year, about 20 to 25 per cent of the respondents switch parties, moving from identifying with one major party to independence or support for another party and vice versa. This finding corresponds to the figures presented in Table 2, which shows an average 20 per cent of the respondents switching parties

[18] Including more mixtures as done here, of course, is 'paid for' by using up degrees of freedom. Our impressive number of parameters is due to the large number of transition probabilities freely estimated from wave to wave. Are those models simply overparametrized? We test this objection by re-estimating model 3 constraining all transition probabilities to be equal over time. This strict restriction considerably reduces the number of parameters. However, the larger log-likelihood of -117136 suggests that the restricted model specification should be rejected in favor of the model with the freely estimated transition probabilities.

Table 4: Average Transition Probabilities

A: Observed transitions (from Model 1b)				
			state t	
		SPD	CDU	other
state	SPD	0.779	0.018	0.202
$t-1$	CDU	0.018	0.792	0.191
	other	0.095	0.090	0.815
B: Latent transitions (from Model 2b)				
			state t	
		SPD	CDU	other
state	SPD	0.951	0.003	0.046
$t-1$	CDU	0.003	0.959	0.038
	other	0.016	0.014	0.970
C: Mover transitions (from Model 3b)				
			state t	
		SPD	CDU	other
state	SPD	0.841	0.007	0.152
$t-1$	CDU	0.007	0.803	0.190
	other	0.059	0.070	0.870

yearly.

Table 4 further provides average transition probabilities over all time points. About 78 per cent of SPD supporters remained loyal to their party during the whole time period. Note that among those switching their party preference, we find evidence that they leave the SPD and go to independence or to one of the smaller parties (presumably the Greens), but not to the CDU. The same pattern holds for the Christian Democrats. Only about 4 per cent of the respondents switch directly between the two major parties. This reinforces our decision to model partisanship as a nominal variable and accords well with the notion that partisan identification is bounded.

Green and colleagues (1990; 1997; 2002) have argued that this observed instability presented in the upper lines of Figure 2 is due to measurement error. Following this line of reasoning, we allow for the possibility that observed party identification has a degree of unreliability. The results of this *Latent Markov* (LM) model are also presented in Figure 2. The lower two lines display predicted transition probabilities in and out of the two major parties, and the contrast between the results of the Markov and Latent Markov model reveals that accounting for measurement error produces a substantial reduction in the volatility of partisanship.

Overall, we can summarize the findings of the M and LM models as follows: Allowing partisanship to be measured imperfectly by allowing for measurement error reduces the level of instability of party identification. This suggests Green and his collaborators are correct about the massive impact of measurement error. However, their models assume that the electorate is homogeneous in the manner it develops and maintains identities with the major parties. In the next section, we investigate whether we can distinguish several distinct sup-groups of partisans. We

Table 5: Partisan composition of Mover and Stayer chains

	Model 3B			Model 4		
	Movers	Stayers		Movers 1	Movers 2	Stayers
SPD	0.244	0.251	SPD	0.123	0.418	0.220
CDU	0.211	0.306	CDU	0.363	0.058	0.293
No PID	0.544	0.443	No PID	0.515	0.525	0.487
Overall	0.484	0.516	Overall	0.246	0.238	0.517

Note: Calculated from model 3b (left panel) and model 4 (right panel).

begin by presenting the results of a mover-stayer model.[19]

Unobserved Heterogeneity in Partisan Stability

Looking at the left part of Table 5, we see that partisans are almost evenly divided between movers (48.4 per cent) and stayers (51.6 per cent). Those without a party identification or adherents of the smaller parties are over-represented in the mover chain. Approximately 54 per cent of the movers belong to this category, while only 44 per cent are stable (in the majority of cases) independents. CDU supporters on the other hand seem to be more stable: 31 per cent of stable partisans are supporting the CDU, while only 21 per cent show substantial instability in their party identification.

To investigate the mover chain in more detail, Figure 3 plots the average annual in and outflows for the SPD and CDU, showing the predicted proportion of party supporters who turned their back on a party (outflow, solid lines) and those moving to support a party (inflow, dashed lines). For reasons of space we do not present the movements of the 'no or other' party supporters. As has been shown the Table 4 the movement in and out of one specific party is usually connected to movements in and out of independence. Movement between the two parties is extremely low, which supports the bounded partisanship concept. The predicted transition probabilities presented in Figure 3 can hence be interpreted as e.g. movements from CDU to independents (CDU-out; black, solid line).

At the first glance it becomes apparent that both parties seem to have lost supporters between 1984 and 2007, as at most time points the outflow exceed inflows (except in 1987, when the CDU clearly attracted many more new supporters compared to those it lost). Once a respondent is classified into the mover chain (about 48 percent of the sample), even after measurement error is taken into account, their probability of changing identifications is real. This is especially true among those who to cease to support either the SPD or CDU. However, it is difficult to make sense of the movements we see here. Clear patterns connected to external events, such as the policy shift of the SPD in 2003 are not apparent and party specific movements are hard to discern. Figure 3 rather suggests that supporters of the SPD and CDU may follow different transition dynamics. To clarify how individuals change their party identification over time, we now turn to a model specification, which takes into account this bounded character of partisanship.

[19]The mover-stayer model is the best known type of Mixed Latent Markov (MLM) models. Converse (1969) introduced this type of modeling to political science research by developing his Black-and-White model. He argued that essentially there were two types of patters of change and stability in the public's attitudes towards issues and politics. One segment of the electorate had stable preferences while the other changed their preferences in a random pattern. However, this approach was shown to be deficient by Clarke and McCutcheon (2009).

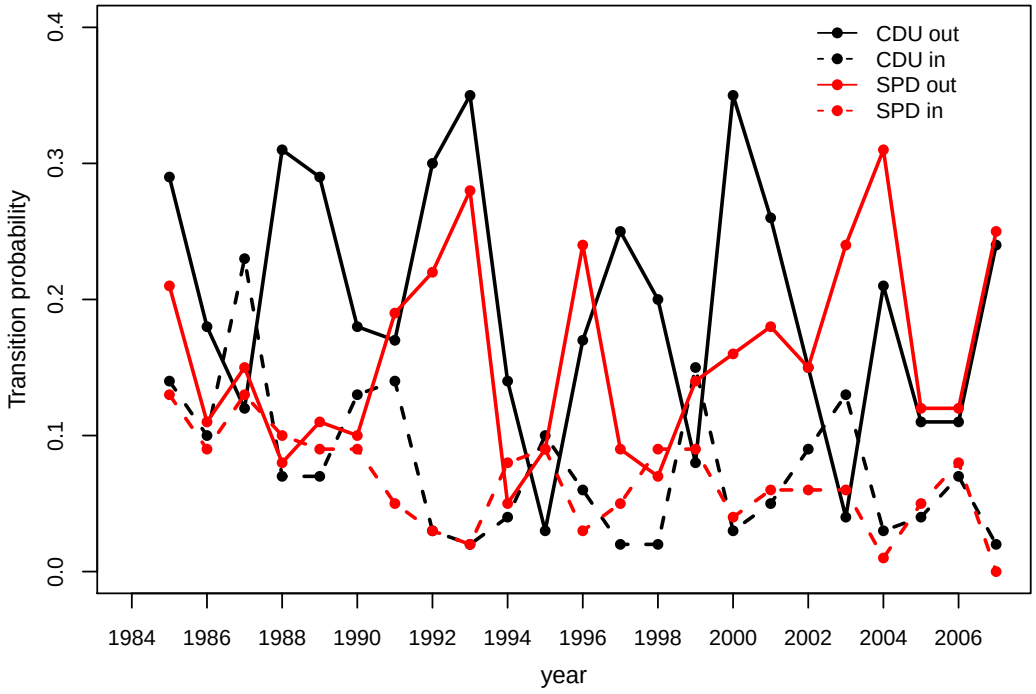


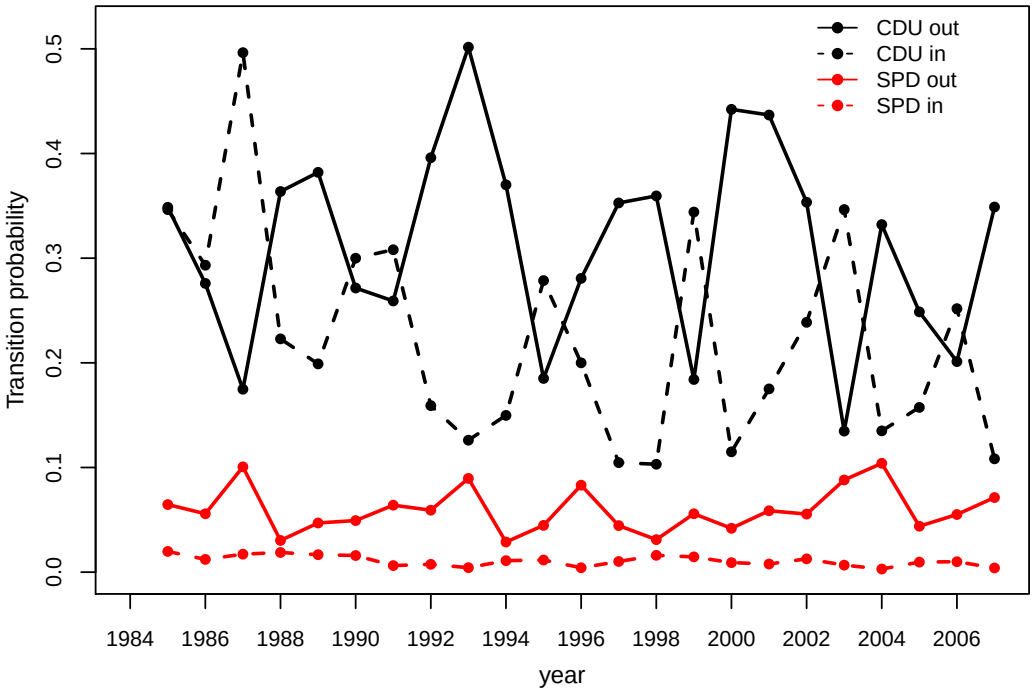
Figure 3: Predicted in- and outflow of mover chain from model 3b

Model 4 entails three mixture components (or chains), one constrained to no transitions (stayer chain) while the remaining two allow free transitions at each time point.[20] If flexible partisans of one party move in and out of party identification independently of variable partisans of the other party, we should observe two distinct mover chains – one dominated by flexible partisans of the SPD and the other predominantly comprised of those moving in and out of the CDU.

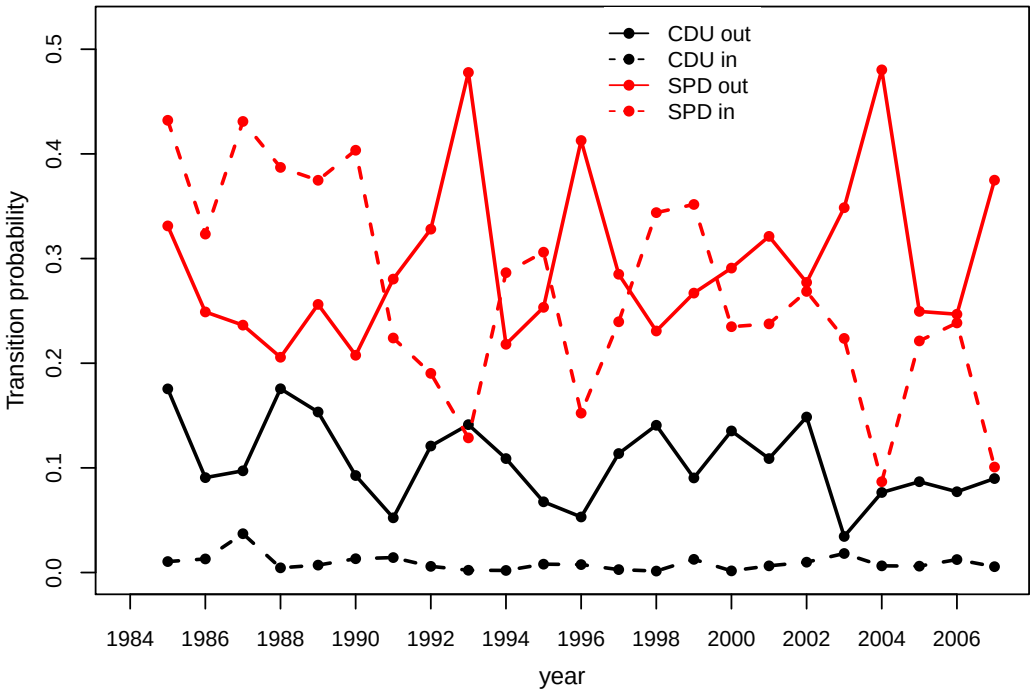
Table 5 presents a decomposition of the revised mixture model and reveals that the size and composition of the stayer chain remains virtually unchanged. It is the homogeneous mover chain of model 4 that is subdivided roughly into two equal halves of 24.6 and 23.8 per cent. Again most respondents in both mover chains are classified as independents (about 52 per cent in each chain). However, a closer look at the composition of the two volatile chains reveals an interesting picture. The first mover chain is dominated by CDU partisans who constitute 36.3 per cent of the mixture. In comparison, only 12.3 per cent of this chain is comprised of flexible SPD adherents. The second mover chain represents mainly SPD supporters: 41.8 per cent are SPD partisans, while only 5.8 per cent in this sub-group support the CDU. This clear division substantiates that the party identifiers of the two major parties in Germany mostly follow different patterns of partisan stability.

We have now arrived at an improved classification of 'true partisans' by accounting for measurement error and dividing the population into three (latent) subgroups of stayers and those with different propensities to transition from one state to another. Hence the detailed analysis of disaggregated movements in those two chains provides a clearer picture compared to the observed instabilities in the simple Markov model (c.f. Figure 2), which was compromised by measurement error and by lumping together different types of 'movers'.

[20] As before, we include covariates to capture differences in initial state probabilities.



(a) Mover chain 1



(b) Mover chain 2

Figure 4: In and Outflow of two mover chains calculated from model 4

Figure 4 further provides us with an even more detailed picture of how the two partisan groups differ. The upper graph shows the in and outflow of partisans on the first chain of model 4. Remember that this mixture is dominated by CDU supporters, while the lower graph sets up the movement in the second chain, which is mainly composed of SPD supporters.

Turning to the CDU-movers first, Figure 4(a) reveals that these flexible partisans follow some of the patterns we anticipated in the section above. We clearly see the post-reunification disappointment from 1992 to 1994, when annually about 40 per cent in this mixture component turned their back on the CDU and become independent from one year to the next. Also the political scandal surrounding illegal donations uncovered in late 1999 is visible in the predicted outflow. In the following two years, the CDU lost about 45 per cent of their volatile supporters.

Equally remarkable is the strong effect of the policy shift of the Social Democrats in 2003. Figure 4(b) reveals that in the following year, the SPD lost about half of their volatile partisans without gaining much from new inflows (only 9 per cent). Nevertheless, the party won back some of its base in the following year, when an early election took place. This could partially explain why the party retained its relative strength in the election, coming head-to-head with the CDU in 2005.

Moreover, model 4 shows that several sub-groups do exist in the population concerning their overall partisan stability. Ignoring this heterogeneity could lead to serious misconceptions about the stability of party identification. Lastly, our findings seem to suggest that partisan (in)stability is connected to political events such as scandals or policy shifts.

One theoretical assumption of this model is that three mixtures is the optimum. However, what happens if additional mixtures are identified? In order to empirically justify the theoretical expectation of three mixtures (one stayer and two mover), we additionally estimated two models with 4 and 5 mixtures. The Bayesian Information Criterion (BIC) offers a guideline to choose the preferred model, penalizing models with a greater number of parameters (Burnham and Anderson 2003). As Figure 5 illustrates, the BIC falls approximately 2391 units when moving from 1 to 2 mixtures and a further 2794 units when moving from 2 to 3 mixtures. However, extending the model to 4 mixtures results in a reduction in the BIC of only 442 and moving from 4 to 5 results in an even smaller reduction of 320 units. Furthermore the fifth chain is 'pathological' in the sense that no individual has a posterior chain membership probability that would classify him or her as belonging to that chain. More importantly, theoretical parsimony is sacrificed as there are no natural takeoff points in the literature for why those prone to change their identifications in a political system dominated by two major parties should sub-divide into additional mixtures.

Discussion and Conclusion

As both a theoretical and manifest construct, partisan identification is almost as old as voting surveys. Nevertheless, its meaning and nature remain highly contested in the literature. The aim of this research was to connect the battle field of partisan (in)stability with the concept of bounded partisanship by making use of recent methodological advances and a data set that is often overlooked by political scientists – the German Socio-Economic Panel (GSOEP).

This study offers three important conclusions, which have implications for research on partisan stability. First, we reinforce Green et al.'s (1994, 2002) assertion that measurement error obscures efforts to understand the individual-level dynamics of party identification. Neglecting measurement error results in serious overestimation of partisan volatility. However, Green et al.

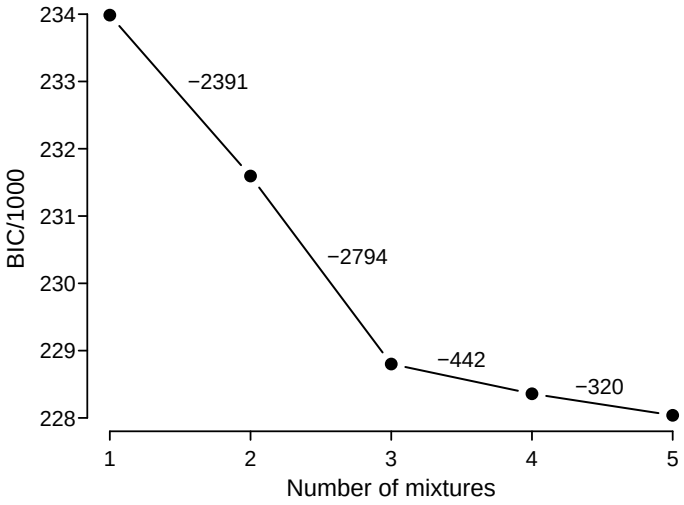


Figure 5: Bayesian Information criteria for models with different number of mixture components.

(2002) and many others usually work on the assumption that partisan identification is an interval level variable. This assumption implies that the distance a person has to travel between major party support and independence and then onto backing another major party is equal. Empirical evidence and the notion of bounded partisanship suggest otherwise. Most flexible partisans in the mover mixtures have a choice set that comprises of identification with one major party and independence, and support for other major parties is not on the menu. Consequently, the distance they must travel between one party and independence is far shorter than the reach the respondent must make to find their way into the opposing camp. Further, if the opposing party does not even appear in the set of available choices throughout much of the life cycle, the ideological direction one has to travel to support this party may be unclear to the voter. Consequently, party identification should be treated as a nominal variable and the estimation techniques employed to study partisanship must take this into account.

Secondly, this paper confirms the presence of considerable partisan volatility in a sample of respondents from an advanced democracy, West Germany. Comparing the predicted instability levels estimated by the Latent Markov model presented in Figure 2 and those of the mover chain(s) estimated by the Mixed Latent Markov models, presented in Figure 3 and Figure 4 allows us to reject the assumption made by the latent construct model of Green et al. that partisanship is stable at the individual level. Instead, we discovered that only about half the West Germans in the GSEOP were stable (non) partisans who can be counted on to support or not support the major parties time and again. The other half, a majority of whom at times did identify with one of the two major German parties were those open to shifting their identification. This leads to the conclusion that partisan instability exists. While the approximately 50 per cent who stay loyal to either CDU or SPD (or remain independent) are the stabilizing base of the party system, the 50 per cent who are unstable partisans may be the crucial element in elections and in determining periods where one major party will be dominant over the other.

The presence of different types of partisans has consequences for electoral choice. Political parties can rely on a pool of very stable partisans (stayers), but most victories come because the party was able, at least temporarily, to capture the hearts and minds of volatile supporters that can and, in the face of political events, will turn their back on the party of their choice.

The third important finding this research concerns the nature of this instability. The empirical models presented here further validate the concept of bounded partisanship and how it is connected to partisan movements. Party supporters appear to move more or less independently of one another. Zuckerman et al. (2007: 73) insightfully noted that "most persons never support one of the major parties ... they constrain the set to the choice between naming and not naming one of the two dominant political parties." Partisanship is bounded, meaning huge swaths of electorates may be unsure about whether they support their party at a given point in time, but they usually have fairly strong and consistent views concerning the party that they do not name (see also Weisberg 1980). The multitude of waves available for analysis and our results make it clear that a loss in support for one party usually will not correspond to gains by the other and that partisans of different stripes react differently to changes in the political landscape. The most striking example of this in our results is shown by the differences in patters of rises and declines in support for the CDU and SPD in the wake of German reunification – a national event that affected both parties equally.

As we note above, in line with the revisionist theory of partisan identification propagated by Fiorina (1981), partisan updating in response to short-term economic and political forces may still occur, and the 48 per cent of West Germans that we estimate to belong to the 'mover' are most prone to this type of behavior. Our findings allow us to look closely at the arguments made by the proponents of these models. We disagree with Erikson et al.'s (2002) claim that one party's loss is another party's gains. We rather conclude that switching among volatile partisans of one party occurs at different rates and in response to different stimuli than switching among supple adherents to the other. Moreover, patterns of inflows and outflows of partisans across chains do not mimic one another. As Figure 4 demonstrates, the SPD did not profit from the big CDU crises in 2000/01 that were provoked by a donation scandal.

The 48 per cent of West Germans we estimated to be flexible partisans accords well with the average size of the mover classes Clarke and McCutcheon (2009) estimate to exist in the United States (50 per cent) and Canada (46 per cent). The fact that the percentages accord well with one another cross-nationally should be viewed with caution as the form of the partisan identification question asked on the GSOEP typically produces more stability than responses to the "Generally speaking, do you consider yourself..." probe asked on election studies (cf. Clarke et al. 2004: 196). Nonetheless, we believe that it is safe to say that in established democracies dominated by two large parties, electorates appear to be divided into two distinct types of partisans.

Not all those consigned to the 'mover' mixture are observed as updating their identification throughout the panel, but the aggregate shifts we observe in Figures 3 and Figure 4 suggest that those consigned to this mixture likely affiliate with a party because of its performance rather than an affective orientation (Fiorina 1981). In contrast, those assigned to the 'stayer' class, though not impervious to moving away from a party in the face of poor performance, are closer to being the 'unmoved mover' of Michigan lore (c.f. Campbell et al. 1960). The results of the complex models estimated above therefore yields simple answer to those who ask what side of the Michigan-Rochester debate over the nature of partisan identification one should fall on: all of the above because electorates are heterogeneous!

Appendix: initial state covariates

Table 6: Multinomial logistic model on initial state probabilities (Model 4)

	SPD model		CDU model	
	coef	*s.e.*	*coef*	*s.e.*
Age	0.047	0.002	0.061	0.002
Female	-0.459	0.043	-0.568	0.043
Education	0.138	0.013	0.180	0.012
Higher professionals	-0.497	0.173	-0.569	0.170
Lower professionals	0.177	0.134	-0.082	0.136
Routine nonmanual, technicians	0.246	0.123	-0.016	0.129
Self-employed	-1.687	0.356	-0.016	0.129
Skilled manual workers	0.218	0.122	-0.457	0.13
Nonskilled manual workers	0.119	0.124	-0.322	0.141
Unemployed	-0.015	0.202	-1.285	0.34
Pension	-1.147	0.132	-1.448	0.132
In Education	-0.742	0.198	-0.826	0.207
Intercept	-3.731	0.257	-3.405	0.218

Note: Base outcome is 'no or other PID'. Reference category of class variable is 'no class information'.

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