Electoral Studies 44 (2016) 341–350

Contents lists available at ScienceDirect

Electoral Studies

journal homepage: www.elsevier.com/locate/electstud

Distinguishing territorial structure from electoral adventurism: The distinct sources of static and dynamic nationalization

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ARTICLE INFO

Article history:
Received 31 December 2014
Received in revised form
1 June 2016
Accepted 5 September 2016
Available online 8 September 2016

Keywords:
Static nationalization
Dynamic nationalization
Political parties
The normal vote
Electoral volatility
Ecuador
Uruguay

ABSTRACT

Estimates of static nationalization do not always reflect stark qualitative differences between parties. We use a research design oriented around a comparison of sharply different parties—the unstable Democratic Left in Ecuador and the stable Broad Front in Uruguay—to develop the distinctiveness of static and dynamic nationalization. Snapshot measures that only consider a single election suggest that both parties are poorly statically nationalized; but we show that the former case is highly statically nationalized, and that the observed territorial differences arise because it is poorly dynamically nationalized. We adopt the linear mixed modeling approach to reduce the bias in extant estimators. The approach is also informative about the sources of variance in a party's territorial support: relatively stable district attributes account for static nationalization, while features unique to the electoral cycle account for dynamic nationalization. Substantively, our study alters conclusions about parties operating in highly unstable electoral contexts.

1. Introduction

In comparative politics, the main estimators of electoral variability (static nationalization, electoral volatility, etc.) can be misleading. They suggest, for example, that the Broad Front in Uruguay (Frente Amplio; FA) and the Democratic Left in Ecuador (Izquierda Democrática; ID) are broadly similar. Gini-based estimates of static nationalization—a concept that pertains to territorially-sourced heterogeneity in party support across districts—indicates that both are on average poorly nationalized, ranking in the second quartile from the bottom of major parties in the region (Jones and Mainwaring, 2003). Reading off each party's contribution to Pedersen's Index of electoral volatility—a concept that taps voter mobility—both score high.

Despite these apparent similarities, scholars with case knowledge of the two parties know that they are very different creatures. While it's fair to say that the electoral support for each party changes with time and is geographically dispersed, the variation in FA's support is highly systematic across space and time, whereas there's very little that's systematic about ID's support at all.

Consider this: FA has competed in all six national legislative elections since the transition to democracy in 1984. If one were to know just three facts—the national average support in 1984, the average rate of change in its national support from 1984 to 2009, and the amount in 1984 by which its support in any one district was different from its national average support—then one could provide a very accurate estimate of its support in that same district more than two decades later. Why? Its support is highly territorially structured, and it trends simply with time and similarly across districts. It was strongest in the district of Montevideo at the transition, and it remains so today, (albeit about 25 percentage points higher, just like everywhere else in the country); it was second weakest in Lavalleja in 1989, and it is weakest there today (but again, about 25 points higher).

ID in Ecuador has also competed in national legislative elections since the transition to democracy in 1979. Yet, knowing the same three facts is of little help in predicting later support, not only in elections separated by two decades, but even in two consecutive elections. For example, in 1984, the party was strongest in Morona Santiago; two years later, it didn't even field a candidate there; two years after that, it was again strongest. In short, the electoral support of ID is highly irregular: neither strongly territorially

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http://dx.doi.org/10.1016/j.electstud.2016.09.003
0261-3794/

structured, nor trending smoothly in districts or similarly between them.

Why don't the mainstream estimators of static nationalization and volatility offer cues to these important differences? They rate FA as somewhat more statically nationalized and somewhat more volatile than ID: is this relative assessment even correct? Are there alternative approaches which more accurately reflect the qualitative differences between parties like FA and ID?

In this paper, we address these questions by examining district-level electoral data for these two parties. We show why certain common approaches are misleading, and use an alternative modeling strategy—linear mixed models[1]—to develop conclusions that can stand even under the scrutiny of case specialists. We are especially interested in improving upon the treatment of highly unstable cases like ID which are the most difficult to model because so many features of their performance are changing simultaneously.

Some of our findings are contrarian. Perhaps the most provocative of all is that despite having highly uneven district support from the point of view of a single election, parties like ID in Ecuador are relatively statically nationalized. How so? To the extent that national party leaders are able to make and break ties with voters and sub-national political leaders—shopping, as it were, freely across the electoral marketplace—territory does *not* structure their support. To be sure, this sort of electoral flexibility betrays a different form of variability (namely, low dynamic nationalization); but to the extent that estimates of static nationalization are meant to indicate durable territorially-sourced differences in support, we show that many do not properly characterize cases like ID.

Two problems afflict estimators of static nationalization which use only a single election—a "snapshot"—to draw conclusions. The first arises because they conflate different phenomena. We will show that there are two sources of the dispersion of party support across districts, but that only one—territorially stable sources of difference—pertains to the concept of static nationalization. We distinguish it from dynamic nationalization—territorial heterogeneity arising from election cycle sources of variability—and show that it does not belong within the conceptual domain of static nationalization. Morgenstern and Potthoff (2005) characterize this problem as one of bias in "unidimensional" estimators of electoral variability. Unidimensional approaches are those which estimate one form of variability without controlling for other forms of variability. Their decade old claim is serious and the bias often large in party systems with high levels and diverse forms of instability, but it has been mostly ignored by comparativists to the extent that we continue to construct the empirical foundations of our theoretical arguments using approaches that don't decompose the raw dispersion of the vote into its static and dynamic components. Pedersen's Index of electoral volatility is also unidimensional and biased.

Some snapshot approaches are based upon the Gini index, which introduces a second element which can undermine their performance as estimators of static nationalization. The Gini is a *relative* estimate of dispersion which adjusts the absolute dispersion in support by the average size of the party. This property systematically rewards larger parties with scores that suggest higher static nationalization. Given two parties with the same dispersion of district support, the larger will be scored as more statically nationalized. We will show the advantages of an *absolute* estimate of dispersion.

[1] Despite diverse terminology in naming this class of models, our approach is broadly similar to the approaches of Stokes (1965), Morgenstern and Potthoff (2005), and Mustillo and Mustillo (2012).

Our central argument is that substantive conclusions that circulate about highly unstable parties are flawed. We build our research design around FA and ID because they are instances of the extreme opposites in stability and instability; as such, it puts the contradictions that arise between unidimensional approaches and the linear mixed model approach in sharp relief. As we will show for the case of FA in Uruguay, a party's electoral support can be strongly determined by district characteristics when a party's core constituency is distributed heterogeneously across the districts. We use a time-invariant proxy for an urban, secular and union-based core constituency to account for most of FA's variability in support between districts. As we will show for the case of ID in Ecuador, even while a party can maintain relatively even national level support (and legislative representation) over many electoral cycles, tactical considerations can lead to shifting alliance patterns and highly variable electoral support at the sub-national level. District characteristics only weakly constrain ID's national ambitions.

The paper develops as follows. First, we discuss FA and ID and place them in the context of their party systems. Then, we treat the conceptualization and operationalization of static and dynamic nationalization, and review our analytic approach—the linear mixed model. Next, we report and discuss the results, and conclude.

2. The context of party competition in Ecuador and Uruguay

The substantive motivation for this project is to understand profoundly unstable patterns of party support. In much the same way that Pedersen's work on volatility was directed at modeling the new emerging instability of the European electorate of the middle 1900s (1979), scholars today are working to model the more extreme instability that has sometimes arisen in Third Wave and old democracies alike. We are not only seeing higher *levels* of electoral instability, but also *novel patterns* of instability (Haughton and Deegan-Krause, 2015; Mustillo, 2009).

To this end, our paired comparison of two social democratic parties from small Latin American countries offers considerable analytic leverage. It is a comparison of superficially similar cases at opposite extremes of stability and instability which is intended to demonstrate sharply how and under what conditions the various approaches to operationalization yield different conclusions, especially concerning the static nationalization of a party's support. Our main target of understanding is ID, which is poorly characterized by unidimensional estimators because there are so many dimensions of variation. FA is a carefully chosen counterpoint which appears similar, but is not. Indeed, since there is one principle dimension of electoral change for FA—it has grown—the traditional estimators of static nationalization and electoral volatility perform well.

Electoral politics in Ecuador is famously turbulent. Mainwaring and Scully classify the party system as "inchoate" (1995) and Carreras, Morgenstern and Su's examination of party system alignments concludes that Ecuador has only briefly been "partially aligned" (2015). There has been a long series of outsider and populist challengers to the party system and regime itself. Ecuador is a case where many forms of variation and change are present all at once.

ID emerged in advance of the 1979 democratic transition. It was founded by a left-leaning and reform-oriented group which split with the historical liberal party. Their ambition was to build a social democratic alternative. ID won the presidency in 1988 and was consistently strong through the 1980s and early 1990s; by 2009, it had disappeared. Relative to the rest of the party system, ID is widely considered the most programmatic and statically nationalized; yet, in broader comparative perspective, it scores low on both

dimensions. Indeed, the party system as a whole is deeply regionally cleaved into three: a sparsely populated Amazon region in the west; a more Catholic and conservative Andean region centered around the capital city, Quito; and a more populist and export-oriented coastal region centered around the largest city, Guayaquil. Of course, these characterizations are only rough and ready tendencies, but they resonate strongly in the academic literature and have historical roots, as in the pre-transition two-party rivalry between the coastal Liberals and the highland Conservatives. By the 1970s, these two parties had largely given way to a highly fragmented cast of party actors. While many of the parties in Ecuador remain constrained by these regional divisions—that is, they are poorly statically nationalized—we'll show that neither region nor province accounts for much of the territorial variation in ID's electoral support, and that the dispersion of its support arises from low dynamic nationalization.

Uruguay's party system is a strong contrast. It has been deemed "programmatically structured" (Kitschelt et al., 2010) and "institutionalized" (Mainwaring and Scully, 1995). Change is not absent in Uruguay: the country experienced an important realignment through the 1990s. Yet, the aggregate patterns of electoral change are limited and relatively easy to model.

FA is the central character in the realignment. It emerged in 1971 from a coalition that brought together the traditional left, as well as defectors from the two historical parties. A military coup interrupted party competition in 1973, but the prior party system dynamics—dominance by the historical Colorado and Blanco parties with an insurgent party on the left—reemerged intact in 1984. Through the 1990s, FA shifted its orientation from being a mass party on the left that was especially strong within the organized labor and student bases of the capital, to a more moderate catchall party that competed also for informal and rural voters. This expansion into the latter constituencies constituted the basis of the realignment (Luna, 2007, 2014). FA first governed the capital in 1990, and first won the presidency and a congressional majority in 2004.

3. Conceptualizing two forms of nationalization

Morgenstern and his colleagues have shown that two distinct concepts lurk behind the discipline's treatment of nationalization (Morgenstern and Potthoff, 2005; Morgenstern et al., 2009). Notwithstanding the confusion that can arise in the absence of a modifier to the term, the conceptual work has generally drawn sharp distinctions; Morgenstern et al. (2009) introduce the modifiers "static" and "dynamic." We adopt these terms and define the concepts as follows: static nationalization concerns the heterogeneity in territorial support arising from relatively stable district differences; dynamic nationalization concerns the heterogeneity in territorial support arising from dissimilar swings between consecutive elections.

Our definitions include qualifications that have not previously been explicitly; however, they are often implied. The theoretical treatment of static nationalization has emphasized institutional sources, such as the centralization of state power (Chhibber and Kollman, 2004), and social, and economic foundations, such as the presence or absence of national "functional" alignments (Caramani, 2004). In either case, the object of analytic interest has been the territorialization or nationalization of the electorate conceptualized as a (relatively) persistent outcome. High static nationalization often arises from an underlying homogeneity of the politically salient attributes of a population across the territory. Alternatively, it may also arise if parties develop durable (if diverse) modes of linkage across the districts; that is, if they develop the ability to coordinate across districts (Chhibber and Kollman, 2004; Cox, 1997; Hicken, 2009). In either case, it pertains to durable district differences in support. The evolutionary dynamics which Caramani (2004) and Mustillo (forthcoming) analyze pertain to changing levels of static nationalization, but they are not election cycle dynamics; instead, they correspond with long or medium-term re-equilibrations of party strategies, underlying demographics, or both.

The treatment of dynamic nationalization has emphasized the relative balance of national versus local forces that operate at the scale of election cycles. Stokes (1967) and Kawato (1987) studied candidate differences and local events as the sources of non-uniform swings by US parties across the districts. Others have focused upon incumbency advantage (Jacobson, 1983) and coattail effects (Converse, 1969). Converse advocates splitting the actual vote between the "normal vote" and the "current deviation from that norm, which occurs as a function of the immediate circumstances of the specific election (1966, p. 11)." Whatever the source, if we accept the conclusion that non-uniform swings across districts generate heterogeneous levels of support across districts, then we have the foundations for the operational task of decomposing the raw dispersion in any one election into two components. Shortly (in Section 5 and with reference to Fig. 1) we will use this conceptual distinction to build an argument that links each type to its own set of explanatory variables: district differences that are (relatively) fixed in time influence static nationalization, whereas district features that vary by election cycle shape dynamic nationalization.

4. Operationalizing two forms of nationalization

Turning now to the domain of estimation, we identify two features of many extant approaches which can generate misleading results, and offer an alternative approach in Section 5. Our first concern applies narrowly to Gini-based approaches to static nationalization; the second applies to a wider range of estimators.

Gini-based approaches have become widespread. The Gini is a measure of dispersion which ranges from a low of 0 (perfect equality) to a high of 1 (complete inequality). Jones and Mainwaring (2003) first proposed it for this application, and others followed with variations to treat important issues, such as different numbers and sizes of districts (Bochsler, 2010).

We use Equation (1) to develop our critique, which applies equally to all variants. Gini is calculated from a simple transformation of a pair-wise difference measure. It is computed as half the mean absolute difference between every pair of data points, divided by the mean:

Equation (1): Gini Coefficient of Inequality

$$G(y,n)=\sum_{i=1}^{n}\sum_{j=1}^{n}\frac{\left|y_i-y_j\right|}{2n^2\mu} \tag{1}$$

where y is the party's vote percentage in the district, n is the number of districts, and μ is the mean of y. Our concern lies with a feature of the denominator: in dividing by the mean, μ, of the distribution, the Gini is converted into a relative measure of dispersion which weights the absolute dispersion of district support by the average support of the party. Given two parties with the same dispersion, the larger will be scored as more statically nationalized. The Gini summarizes how a party's total vote is apportioned among the units, but not how dispersed it is. The former has the advantage of offering insights into the relative presence or absence of strongholds, which an absolute estimate of dispersion cannot convey.

Notwithstanding this advantage, for this application, we favor

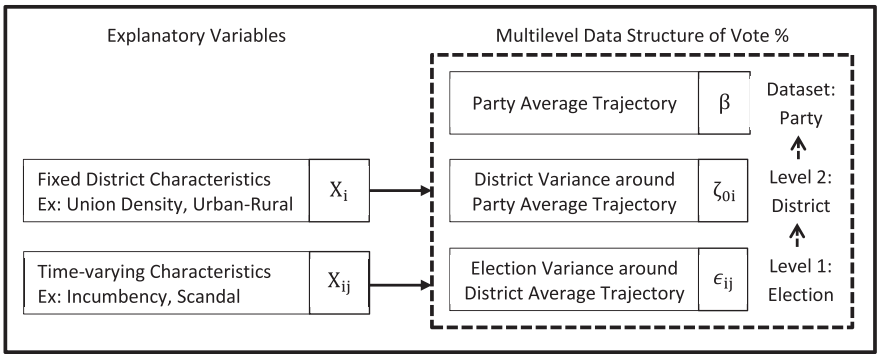

Fig. 1. : Relationship of explanatory variables to variance components.

an absolute estimate. The dispersion of district support and the mean national support are distinct attributes of a party's character. We substantiate this preference with three observations. First, empirically, the two attributes are at least partially independent. In fact, we'll show that the absolute dispersion of FA's support—the snapshot variance of Fig. 4—is approximately the same in the first and the last observation, even though its support is about four times higher at the end. Second, even to the extent that they are associated—smaller parties tend to have less dispersion in the district-level vote—this does not by itself imply that the operationalization of static nationalization must incorporate an adjustment. In a descriptive context, one can offer a complete accounting by reporting both size and dispersion; and in an explanatory context, one can deal with the association by using party size as a statistical control Mustillo (forthcoming). Finally, an absolute estimate has the advantage of conveying the fact that very small parties *are* more statically nationalized than large parties in an important respect: their support is very low everywhere.

The second source of trouble for estimators of electoral variability arises when they are "uni-dimensional" approaches which conflate diverse phenomena because they estimate the target concept without controlling for other forms of variability. For this reason, Morgenstern and Potthoff (2005) characterize them as biased. "Snapshot" estimators of static nationalization—those which only consider one election at a time—will be biased because they don't isolate territorial sources of difference. Moreover, they will be biased in a predictable direction: since they do not partial out dynamic nationalization, they will always overestimate static nationalization (unless dynamic nationalization is zero). In a case like FA, where there are few cycle-specific sources of district dispersion, the bias will be small; however, in a case like ID where district-level cyclical dynamics are highly variable, the bias will be large. Despite carrying the modifier "static," this form of nationalization cannot be accurately assessed unless one increases the number of elections under observation. Treatment of the underlying multi-dimensionality of electoral variability requires an approach which can simultaneously model all the spatial and temporal patterns in electoral data.

Before presenting our technique, we close this section by asking what the conceptual and operational decomposition of nationalization does to the status of notions and operationalizations that are based upon a snapshot? With respect to operationalization, in a fundamental sense, snapshot estimates do what they have always done: they summarize the raw dispersion of the vote at any point in time. One can reasonably argue that they represent the degree of nationalization (without modifier) of a party's support, whatever its source. Conceptually, however, there is a problem: given that there are two categorically different sources of dispersion, it is not clear what nationalization without a modifier means. Unless the two types can be integrated within an overarching super-type which lies up the ladder of abstraction (Sartori, 1970), the two concepts must demarcate two pieces of the raw total which are not related.

5. The linear mixed model as an analytic approach

We treat electoral variability in the "variance components" tradition first proposed by Stokes (1965). [2] In particular, we adopt and extend the linear mixed modeling approach of Mustillo and Mustillo (2012). It differs from the others by allowing that electoral data can involve many forms of variability (not just volatility and the two nationalizations), and by treating the data as a multilevel panel. Importantly, they show that volatility, static nationalization, and dynamic nationalization do not exhaust the systematic forms of variability in these data. Thus, rather than proposing a fixed model with a fixed set of parameters—for example, Morgenstern and Potthoff (2005) propose a model with three parameters which they argue correspond to these three concepts—Mustillo and Mustillo propose a *general modeling framework* which can be used to build a well-fitting representation of electoral performance, whatever the unique forms of variability may be. We treat parties over a relatively long series of elections, which represents a revision to the framework with implications that we discuss shortly.

The approach is intuitive and follows a model-building logic: one begins by fitting a national mean trajectory of electoral support to a panel of a party's district-level data using a low-order polynomial (to allow for curvature). At the extreme, imagine a party with highly regular support as having a very simply specified national mean trajectory (say, a straight line over time) and with support in each district that is identical to this national trajectory. In such a case, the model would perfectly fit not only the national mean, but also the performance in each district. Of course, parties in the real world don't follow a perfectly linear trend, and district-level support will differ from the national average; that is, real cases that are modeled in this way will yield residual variance (observations that are off the estimated line). Thus, one then asks: Is there any additional structure or regularity in the residual? If so, what kind?

To that end, one begins a process of decomposition of the residual which will result in several variance components; they often

[2] Other works in this modeling tradition include Stokes (1967), Claggett et al. (1984), Kawato (1987), Morgenstern and Potthoff (2005), Morgenstern and Swindle (2005), Morgenstern et al. (2009), Mustillo and Mustillo (2012), and Morgenstern et al. (2014).

correspond to concepts of electoral variability. Continuing with the stylized simplification, if the only source of district-level deviation from the national mean trajectory arises because support in some districts is consistently higher than average, and in others it is lower, then one can fully account for the residual variance. This is accomplished by way of a parameter (ζ_{0i} below in Equation (2) and Table 1) to estimate this territorial dispersion, or static nationalization. If this were the end of the story, one would have fully modeled the data, and there would be no residual variance. Of course, this too is a stylized simplification, but below in Section 6.1 and in Model 2 of Table 1, we'll show that it is a very close approximation of FA.

Modeling would continue in this stepwise fashion: one would introduce additional parameters which chip away at the residual variance until no statistically significant improvement in fit is attained. The resulting final model is the so-called "unconditional model" because it represents the spatial and temporal features of the data before ever introducing explanatory variables to account for a party's performance. Once a satisfactory unconditional representation is in hand, one then turns to task of building the conditional model by adding explanatory covariates.

The unconditional model amounts to a representation of the multilevel data structure of the district-level vote share. It is multilevel in the sense that there are multiple observations in time for each district (i.e. time is nested in district). It would be incorrect to treat this result as a purely descriptive accounting of electoral results for two reasons. First, the unconditional model amounts to a theoretical imposition upon the data which is tested and either accepted or rejected. Indeed, this modeling framework tests and rejects assumptions which underlie Pedersen's Index and snapshot estimators of static nationalization. Second, the unconditional modeling results inform the explanatory task. A significant estimate of static nationalization (later, ζ_{0i}) implies that durable district differences are responsible for the dispersion, while the estimate of the residual variance (later, ε_{ij}) implies that election cycle characteristics are responsible for the dispersion in the vote. See Fig. 1.

We will soon see that the explanatory power for the FA case comes from fixed district attributes (since most of the total variability turns out to be static nationalization). By contrast, the workhorse to account for the raw dispersion of ID's support would come from time-varying characteristics (since most of the total variability turns out to be dynamic nationalization).

We introduce one novel element to the treatment by Mustillo and Mustillo (2012). They build their model using a panel of three elections and test specifications with a polynomial as high as the second order (this generalizes to using a polynomial with only one-degree fewer than the number of elections). With that specification, it is impossible to discriminate between long-term secular trends and short-term cyclical effects because the polynomial can perfectly track the election cycle. It amounts to modeling elections with a set of election dummy variables. [3] In this paper, we'll discriminate between secular trends and cycle-specific sources of a party's changing support by treating a longer panel of elections and showing that relative to the number of elections, low-order polynomials fit best.

Our general unconditional model, Equation (2), uses the notation from Rabe-Hesketh and Skrondal (2012) in the composite form:

Equation (2): Unconditional Model

$$\mathrm{VOTE}_{ij} = (\beta_0 + \zeta_{0i}) + \beta_1 t_{ij} + \beta_2 t_{ij}^2 + \beta_3 t_{ij}^3 + \varepsilon_{ij} \text{ with } \zeta_{0i} \sim \mathrm{N}(0,\ \sigma^2) \text{ and } \varepsilon_{ij} \sim \mathrm{N}\left(0,\ \sigma_\varepsilon^2\right) \quad (2)$$

where VOTE_{ij} is the vote percentage for a party in a given district, i, for each election, j.

The estimates of β together specify the national mean vote trajectory as a third-order polynomial. β_0 is the mean intercept at election 0, β_1 is the mean slope, and β_2 allows for curvature. For FA, we also add β_3 to estimate a cubic effect of time because there is an additional point of inflection in its long-term performance trajectory. [4]

The estimates of ζ represent the district-level random effects (or variance components). In our model, there is only one, ζ_{0i}, and it is an estimate of the variance of the district-level intercept around the party's mean national intercept, β_0. This is our estimate of static nationalization. The residual variance is estimated as ε_{ij}. We estimate models using Stata 13 (StataCorp, 2013). [5]

We add one important qualification about the residual, though we mostly set it aside because it lies beyond the scope and does not influence our estimate of static nationalization. It is this: by reserving the fixed effects to model long-term secular trajectories of party support, the residual will now necessarily include cyclical changes in party support. Since cyclical changes (i.e. swing) can be of two types—uniform and non-uniform—the residual does not isolate dynamic nationalization. Nevertheless, if there is little residual, a party is necessarily highly dynamically nationalized (as will be the case for FA). Furthermore, visual inspection of the predicted versus observed trajectories can offer clues about the degree of uniformity (as will be the case for ID).

In principle, all parameters in Equation (2) can vary; however, for any given party, it may turn out that some parameters are not different from zero. For random effects, these tests are conducted by comparing model fit, not with z-tests which are known to be flawed. Thus, the very appearance of a random effect in Tables 1 and 2 implies significance (see Mustillo and Mustillo, 2012, p 427).

Table 1
A model of the Uruguayan FA electoral support, 1989–2009.

	Model 1	Model 2	Model 3
Fixed Effects			
β_0 Intercept	9.96***	9.96***	1.82
	(1.70)	(1.71)	(1.42)
β_1 slope	3.09	3.09*	3.09*
	(4.33)	(1.49)	(1.49)
β_2 curvature	5.98*	5.98***	5.98***
	(2.75)	(0.95)	(0.95)
β_3 3rd-order polynomial	−1.19***	−1.19***	−1.19***
	(0.45)	(0.16)	(0.16)
β_4 ln(District Population %)	–	–	7.30***
			(0.95)
Random Effects			
District (Level-2)			
ζ_{0i} Static Nationalization	–	49.13	10.87
Election (Level-1)			
ε_{ij} Residual Variance	55.74	6.61	6.61
N	95	95	95
log-likelihood(model)	−325.78	−259.10	−245.61

*p < 0.05; **p < 0.01; ***p < 0.001; Standard errors in parenthesis.

[3] In their assessment of estimates of nationalization, Morgenstern et al. (2014) do the same thing and therefore fail to detect much difference in their comparison of the results of Morgenstern and Potthoff (2005) and Mustillo and Mustillo (2012). By assessing such short panels—only two elections—they eliminate all the leverage that the linear mixed model offers for discriminating between cyclical and secular dynamics.

[4] In the discussion of section 7.2, we add a level-2 variable, ln(*DistrictPopulation%*$_i$), to the fixed effect portion of the model to test a conditional model in which district size accounts for FA's level of static nationalization. Note that it is subscripted only by district and does not vary over time.

[5] Replication files are available at the author's websites.

Table 2
A model of Ecuadorean ID electoral support, 1984–2006.

	Model 1	Model 2
Fixed Effects		
β_0 Intercept	23.59***	23.44***
	(1.07)	(1.28)
β_1 slope	−1.98***	−1.96***
	(0.20)	(0.17)
Random Effects		
District (Level-2)		
ζ_{0i} Static Nationalization	–	15.97
Election (Level-1)		
ε_{ij} Residual Variance	67.81	51.60
N	209	209
log-likelihood(model)	−737.21	−723.57

*p < 0.05; **p < 0.01; ***p < 0.001; Standard errors in parenthesis.

We analyze the district level results to the national legislature for FA over five elections from 1989 and for ID over 10 elections from 1984. We exclude Ecuador's small tier of national deputies. In both country cases, the districts correspond with provincial boundaries, of which there are 19 in Uruguay and up to 22 in Ecuador. We exclude the transitional elections because they introduce unique sources of electoral variability concerning the consolidation of party support Mustillo (forthcoming).

6. Results

6.1. The Uruguayan FA

Our results for FA appear in Table 1. The first two models together convey insights that arise from the task of model-building and comparison. Model 2 is the preferred unconditional model. Fig. 2 transfers the Model 2 estimates into plots of the predicted district electoral trajectories using dashed lines (alongside a right-hand plot of the observed values for comparison).

The fixed effects represent the party's national mean trajectory, which appears as the bold trajectory through the middle of the left plot. They are most intuitively represented by way of Fig. 2 because the numerical results for β are, strictly speaking, the instantaneous shape of the curve at the intercept. That is, FA's mean support in 1989 was estimated to be 9.96%; at that moment, it was increasing at a rate of 3.09% per election, and the positive curvature parameter suggests that this rate of increase was increasing with time. The negative 3rd-order coefficient is indicative that there is a point of inflection in the trajectory where the curvature changes sign; that is, the trajectory is S-shaped.

In Model 1, where we let this mean national trajectory stand alone (without estimating district differences), the residual variance is 55.74; but we can give a better accounting. In Model 2, after we introduce a random effect to allow for district differences in the intercept, we reduce the residual variance by nearly 90% to 6.61. The random intercept of 49.13—the variance in FA's district-level electoral support around its national mean—quantifies static nationalization. In this case, where there are no other forms of systematic variance, it amounts to a shift parameter since it represents how district performance is distributed above or below the national mean *through the entire series*, and not just at the intercept. Fig. 2 shows the close correspondence between FA's actual support in each district and the party's predicted support according to Model 2. Of course, the fit isn't perfect, and the residual variance of 6.61 summarizes what remains of the variance. The small residual suggests that there are few sources of cyclical dynamics, and we can conclude that FAs support is highly dynamically nationalized. As we will soon see, compared to ID, this value is very low. We return to Model 3 in the discussion.

6.2. The Ecuadorean ID

For ID, we report two models in Table 2. Fig. 3 plots the result of Model 2 (alongside the party's observed performance on the right). In both models, the party's national trajectory is estimated to begin at 23.59% of the vote in 1984 and decline linearly by almost 2% per year. The residual variance in Model 1 is 67.81. Unlike the case of FA, we are not able to give nearly as much of an accounting with district random effects. In Model 2, where we attempt to decompose the residual into district-level differences, there is a statistically significant but relatively small improvement in fit: in contrast to the 90% reduction for FA, we only have a reduction of about 24%, to 51.60. We quantify static nationalization for the ID with the random intercept of 15.97. The large residual of Model 2 indicates that ID's support has a large unmodeled component. We don't rigorously examine this residual further, but uniform and non-uniform swings can be roughly detected in plots of the observed district-level votes in Fig. 3. The low level of dynamic nationalization is visible to the extent that the district lines are not running parallel to each other.

In sum, even though each party's electoral support is distributed widely across the territory, our results show that FA has a low level of static nationalization and a high level of dynamic nationalization, while ID has a high level of static nationalization and a low level of

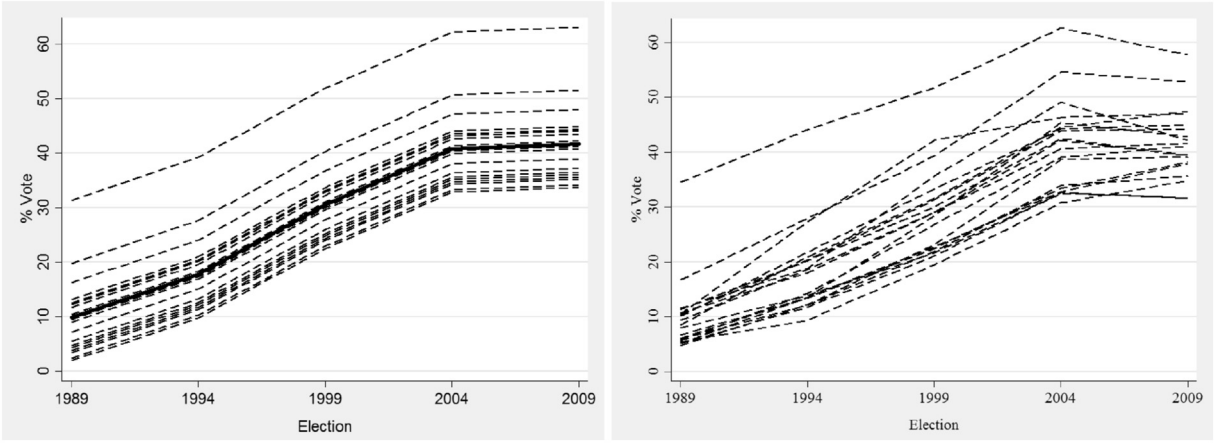

Fig. 2. Uruguayan FA, predicted and observed district-level trajectories.

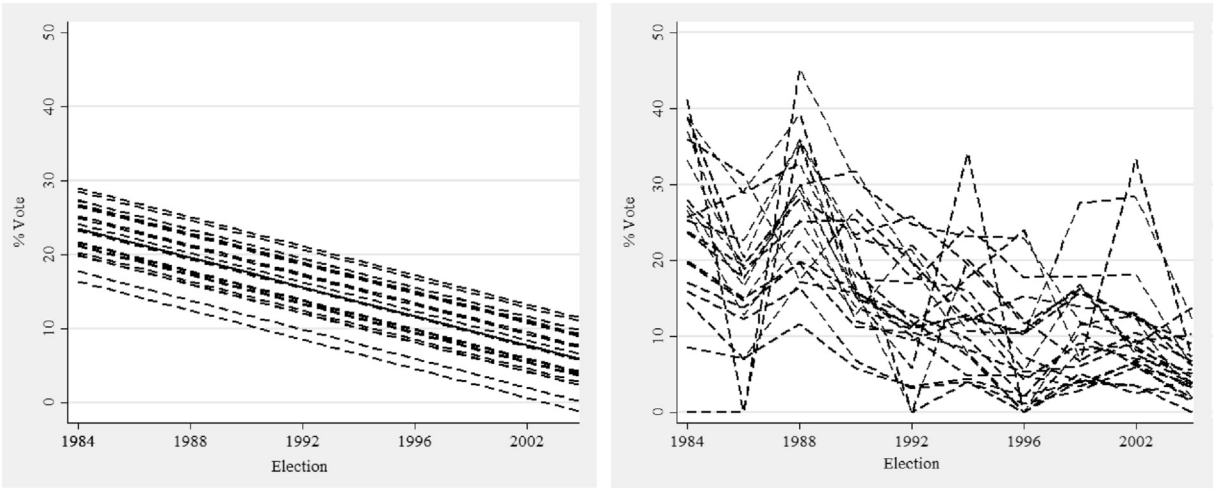

Fig. 3. Ecuadorean ID, predicted and observed district-level trajectories.

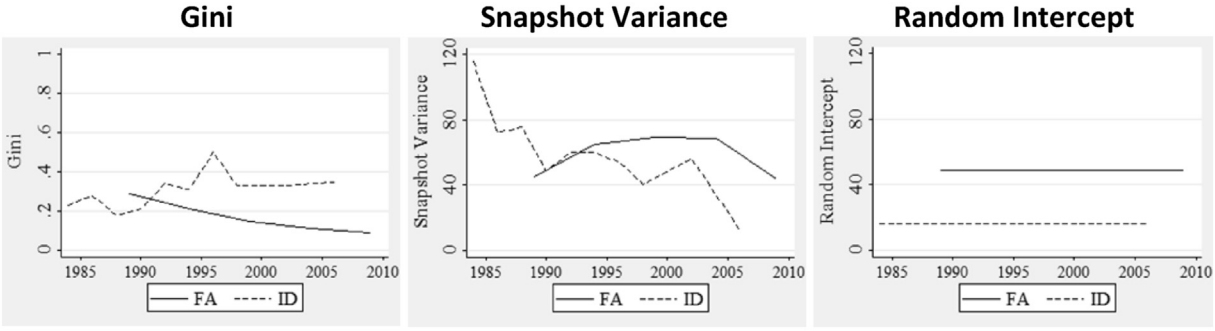

Fig. 4. Three estimates of static nationalization.

dynamic nationalization.

7. Discussion

The results offer some sharply differing conclusions vis-à-vis conventional estimates, especially for the case of ID where conventional estimators have the most bias. Our discussion encompasses three points: First, we place the results in comparative perspective with other estimates of static nationalization. Second, we discuss them with reference to the case literature for each party. Third, we make two conceptual points that extend from our work.

7.1. Comparing and contrasting indicators of static nationalization

First and most fundamentally, our approach alters conclusions about parties, and in particular about ID. Fig. 4 compares and contrasts our estimates with two conventional alternatives. We plot the Gini[6] and the snapshot variance used by Caramani (2004)—the absolute variance in district-level support when computed one election at a time—alongside our random intercept estimate of static nationalization. For each approach, low values correspond with low dispersion (high static nationalization). We first describe the estimates, and then account for their differences.

The three estimates of static nationalization suggest contrasting orderings of high and low levels, and different trends of change for each party. Our model estimates that static nationalization is constant throughout, and that ID (with district variance of 16) is far more statically nationalized than FA (with district variance of about 49). [7]

The snapshot variance indicates that FA has relatively stable levels of static nationalization, though on average somewhat higher than our estimate. By contrast, it shows that ID has had extreme changes in static nationalization, from very low at the outset, to levels broadly consistent with the FA scores through the middle, to very high static nationalization at the end of the series.

The Gini result flips the ordering of the cases for all but the first election: it indicates that FA is more nationalized than ID. Further, it shows that FA grew steadily more nationalized with time, while ID grew generally less nationalized over the 10 elections.

We account for these differences by invoking the two flaws we noted above—bias and the use of relative estimators.

One-dimensional approaches which conflate sources of variance result in an upward bias of the estimate, especially in a case like ID where there are many forms of variance in the data. This is easiest to see in a comparison of the snapshot variance and the random

[6] We also compute variations on Jones and Mainwaring (2003) method which correct for various factors (ex: weighting for district size), but the resulting values barely differ and the conclusions are not affected. These results are available upon request.

[7] It can be risky to compare cases with a different number of territorial units because fewer territorial units will tend to produce less dispersion, all else equal (Morgenstern et al., 2014). However, since Ecuador has 22 provinces and Uruguay has 19 departments, the small difference would work against the conclusion that FA is more statically nationalized.

intercept variance because they are on the same scale (i.e. variance in district level vote percentage). For FA, the snapshot variance estimates are only slightly higher on average. This small positive bias is not surprising: FA's electoral support is so territorially determined, and the structural model results in so little residual variance, that each snapshot value of dispersion is close to our estimate of 49.13. Since the time-varying sources of electoral variability play a relatively minor role in the politics of Uruguay generally and for FA in particular, snapshot estimates are less misleading.

More extreme distortion arises for ID, where district dynamics are only loosely tethered to national political forces. The enormous instability reflected in the large residual in our model has been masquerading as poor nationalization because it drives district-level support to be erratic; but erratic support is not territorially differentiated support. For example, for the Gini, the election of 1996 occupies the extreme value. The low static nationalization of that year arose in part when an ethnic party temporarily stole support disproportionately in select districts where ID had otherwise done well. But this party never repeated such a strong performance, and certainly did not instigate a new alignment in national level politics in Ecuador. In other words, it was a cycle-specific perturbation that does not properly belong in the estimate of static nationalization. In our model, its influence ends up in the residual.

The Gini is a one-dimensional estimator, but because it is on a different scale, its tendency to be inflated on average is impossible to substantiate in a head-to-head comparison with our results. Instead, we focus on the consequence of its status as a relative estimate. Since it is computed relative to the mean national vote share, it is sensitive to this mean. This is easiest to see in the case of FA, where the secular trend of growth was dramatic, and gains in the districts followed a very similar trajectory. The Gini indicates more statically nationalized support over time (because the denominator grows), even though the raw dispersion of FAs support in 1989 is about the same as in 2009. This illustrates how size and dispersion can be independent, and how an absolute estimate of dispersion can better characterize a party's static nationalization.

7.2. Our findings and compatibility with the case literature on ID and FA

The second theme of our discussion places our findings into context by showing that they are compatible with common understandings of each party. We consider long-term secular trends and static nationalization for each party, in turn. For ID, our fixed effect estimates indicate a steady erosion of about 2% per election over time. This is less than half the average national swing of 4.8%, which would be used to compute volatility. Our result is more informative. First, it is directional: we know that ID lost 2% per election on average; the average swing is direction-free. Second, our result shows that both estimates (2% and 4.8%) certainly understate electoral volatility when one considers that it is an estimate of voter mobility. Volatility fails to detect offsetting gains and losses for a party: if one voter switches in and another voter switches out, then national averages miss this mobility in voter support. Unidimensional indices, such as Pedersen's Index, which are derived exclusively from national averages, offer only a floor to volatility, and no further information. Our result, on the other hand, indicates that above and beyond the 2% per election rate of secular decline, there is also a large residual which tells us that at the district level, there has been an enormous amount of additional mobility.

Turning to static nationalization, we conclude that ID's support is highly statically nationalized and poorly dynamically nationalized. To state that ID is nationalized in any sense is at odds with the mainstream view of politics in Ecuador, which holds that the country has profound divides where cultural, economic, and political divisions all reinforce one another (Freidenberg and Alcántara Sáez, 2001a; Pachano, 2006). Nevertheless, at least for ID, the case evidence shows that the party has moved in and out of provinces without much regard for these divisions. The tendency is most apparent in the low magnitude districts where strategic behavior is most influential. For example, in the low magnitude province of Pastaza, ID won the district in 1979 and 1988, but didn't compete there in the intervening elections of 1984 and 1986. Furthermore, the ethnographic and case literature shows that competitive clientelism commonly trumps territorial loyalty in Ecuador generally, and for ID in particular (Burgwal, 1995; Freidenberg and Alcántara Sáez, 2001b; Menéndez-Carrión, 1986; Mustillo, 2016). Provincial and community leaders routinely renegotiate their support of national party leaders; party-switching has been notoriously high throughout; and voters are deeply disdainful of parties. In sum, ID is highly statically nationalized because the dispersion in its support arises overwhelmingly from cyclical factors associated with low dynamic nationalization rather than from durable district differences.

One might fairly ask, however, whether we have conducted our analysis at the wrong level. Perhaps the electoral support of ID is structured by region rather than province? The 22 province/districts are distributed among the three regions described in Section 2. ID is widely considered to have been strongest in the highlands and weakest in the coastal districts. As a multilevel modeling framework, the linear mixed model can offer a rigorous test of the contribution of regional differences net district differences by attempting to further decompose the variance which in our model is assigned to district-differences. The results barely change; so, rather than fully report them, we note only how they differ from Model 2 of Table 2: the random effect for district is reduced to 9.9 (from 15.97) and a new level-3 parameter to estimate the influence of regional differences yields a variance component of 6.1. [8] We can conclude that regional differences are part of the story; however, dispersion within regions is greater than dispersion between regions, indicating that the salience of region is less than the salience of province. In sum, the influence of both region and province are relatively small and not nearly as important as election-cycle drivers of the dispersion in district-level electoral support.

For FA, the task of placing our results in context is rather more straightforward because politics is more orderly. The volatility in FA support (which enters into Pedersen's Index) has been shown (by way of the fixed effects) to be almost entirely about secular change, and hardly at all about election cycle swing. This is compatible with the realignment story. For FA, this growth phase appears to be over, and we would expect the profile of Uruguayan aggregate stability to become even more complete.

When static nationalization is low, contextualizing the heterogeneity implies that we can account for it. A proper accounting would require in depth district data about organizational life (for example, union density, or the strength of agricultural interests), cultural and values-based profiles (say, in religiosity), and other district attribute data that is beyond our scope here. However, we can offer an initial accounting by way of a proxy that is likely to be correlated with these district features. In Model 3 of Table 1, we test a variable which measures each district's share of the total population. Districts with higher population share are likely to be more

[8] We treated the Galapagos district as the only member of a fourth region; in an analysis where it is treated as a part of the coastal region, the contribution of regional differences is even smaller.

urban, more secular, and more unionized. The data come from the 2011 census, and we assume that population shares are constant over the 20 year span of our analysis (El Instituto Nacional de Estadística, 2011). We use the natural log to allow for a nonlinear diminishing positive relationship. The main result resides in the random effects: the variance estimate for static nationalization drops from 49.13 in Model 2 to 10.87 in Model 3. This tells us that differences in population share account for 77.9% of the variance in FA's district-level support. In sum, when territory structures the vote, a salient territorial difference has a large explanatory impact.

7.3. Refining the conceptualization of nationalization

Our third discussion theme circles back to two recurrent points. The first is that static nationalization is a relatively stable phenomenon rooted in fixed (or slow-moving) sources of the dispersion of a party vote. Our finding that the static nationalization of ID and FA is constant over a period of decades, and not changing each cycle, sustains the point. As we discussed in Section 3 on the conceptualization of static nationalization, stability has often been implied in the literature. However, we have made it an explicit part of the definition of the concept, and our research design emphasizes how dramatically inflated and unstable estimates can be when unidimensional approaches meet poorly dynamically nationalized parties, as in the case of ID. The key modeling implication of Morgenstern and Potthoff's (2005) important discovery that the estimation of any particular concept of electoral variability must be purged of other forms of electoral variability is that estimates of static nationalization *must ignore observed variability when it does not arise from distinctively district origins*.

This is not to argue that static nationalization does not change; however, to the extent that it does, the forces driving the change will *not* arise from election-cycle dynamics of competition. Two processes illustrate changes in static nationalization. Caramani shows that social and economic changes unfolding over a timeframe of decades—for example, industrialization—can lead to the construction of more statically nationalized electorates in Europe (2004). Also,Mustillo (forthcoming) shows that forces acting on a more abbreviated, but not cyclical, scale can drive parties to nationalize or denationalize, as for example when parties consolidate more statically nationalized support following a democratic transition. A more general specification of the model of Equation (2) includes a parameter for estimating changing static nationalization. It does not appear here because it is estimated to be zero, but it does appear in Mustillo and Mustillo (2012) (σ_{10}) and in Mustillo (forthcoming) (ρ_{10}) as the "fanning" parameter. Fanning invokes the signature fanning-in or fanning-out pattern of district-level data as a party grows more or less statically nationalized over time.

Morgenstern et al. (2014, p. 190) review the estimators of static nationalization and conclude that the approaches of Morgenstern and Potthoff (2005) and Mustillo and Mustillo (2012) share a weakness: they impose higher data requirements because they use multiple elections. Our research shows that this is not a weakness, but an essential element of the analysis. A research design which estimates static nationalization using a snapshot does not have the temporal perspective required to detect whether the dispersion arises from static sources or dynamic sources. We can only conclude that FA is dominated by the static component by observing that the relative strength of the party in each district remains fairly stable (ex: always strongest in Montevideo); we can only conclude that ID is dominated by the dynamic component by observing that its relative strength varies widely. Thus, the requirement certainly imposes a constraint, but it is not a weakness.

Second, for Morgenstern and Potthoff (2005) and Morgenstern et al. (2009, 2014), the concept of dynamic nationalization is modeled with the residual variance. We don't make that claim because the residual of our model includes both uniform and non-uniform sources of cyclical deviations from the mean trajectory. In other words, it must be further decomposed in order to isolate a uniform component.

As in any other statistical model, decomposition of the residual amounts to introducing explanatory variables. Here, they would be time-varying. What constitute time-varying predictors? Sources of uniform swing will vary only by time: national economic performance indicators, presidential coattails, etc. For example, in 1988, ID experienced a fairly uniform positive bump in support which arose in anticipation of their presidential victory (see Fig. 3). These national forces can explain why a party's electoral performance—in a given year—deviates positively or negatively from a fitted trajectory. Sources of non-uniform swing will vary by district and time: they can explain why a party's electoral performance—in a given district, in a given year—deviates positively or negatively from a fitted trajectory. They most commonly include "internally observable data" which are often hard to detect from afar (Schedler, 2012) (ex: scandal, local failures of governance), but externally observable data are increasingly available (ex: district incumbency, local performance indicators).

8. Conclusion

Our primary purpose has been to improve the understanding of political parties in profoundly unstable electoral democracies. We use Ecuador's ID as the target case, and match it in a comparative analysis against Uruguay's FA, which occupies an opposite extreme on most dimensions of electoral instability. We advance the argument that a linear mixed modeling approach yields conclusions about profoundly unstable parties that are at once surprising and intuitive. They're surprising because they often defy the conclusions that arise from some of the mainstream one-dimensional estimators of party stability and variability—tools like Pedersen's Index of electoral volatility and Gini-based approaches for static nationalization—and they're intuitive because they are compatible with qualitative assessments of these types of parties. Case specialists know that despite superficial similarities between the FA and ID—high dispersion of the vote, high levels of electoral volatility—their ground games and performance profiles differ substantially.

FA is a programmatic, leftist party which has grown steadily over the two decades, building deep and durable relationships with voters, albeit not evenly across the territory since natural constituencies are not evenly distributed across the districts. Our model captures a profile of electoral support that is compatible with this reality: a national sustained trend upwards that accelerates after the transition and then slows as it gains prominence; district-level support that is at once very regularly distributed around this mean, and mirroring the national trend upwards in each district; and little residual deviation from this structure. ID is a nominally leftist, but primarily clientelist party which emerged after the democratic transition as a main contender, building mostly opportunistic coalitions with local political operatives that are commonly renegotiated at each election, and vulnerable to short-term tactical considerations; it has weak direct relationships with voters. Again, our model is compatible with this reality: a secular downward trend; district-level support that is widely dispersed around the national average in any given election, but which lacks much district-level logic; and an enormous amount of irregular cycle-to-cycle deviation around the national and district tendencies.

In Morgenstern et al.'s (2014) review of approaches to modeling electoral variability, they conclude that the published range of

approaches are all imperfect and that choice between them involves tradeoffs. Within the context of a research program conceived broadly, we share their ecumenism. For example, they admonish analysts to take into consideration differences in the number of districts for a cross-country analysis, and our research design involves two cases with a similar number of districts. It is not clear that these models would perform well in a comparison of cases that differ in this regard. We also imposed a scope condition on our main argument: our strong position in favor of the linear mixed model is in reference to the most turbulent party cases where the bias of snapshot estimates is the largest. Furthermore, we qualify our conclusions by noting that this modeling tradition has not yet considered the influence of some factors which the literature at large has raised, and especially differences in the size of districts. Both Ecuador and Uruguay have highly uneven population distributions. Finally, district-level data offer a vast improvement over national aggregate data for treating some electoral phenomena (ex: electoral volatility), but it would be incorrect to argue that it eliminates bias; instead, the approach here reduces bias. Time and data constraints are a limiting factor, but we generally attain higher resolution and less bias in our analyses by disaggregating further. At the extreme, a design would nest individual level observations within the relevant higher level territorial units.

Notwithstanding these limitations, our conclusions suggest that the linear mixed model is a fruitful approach. We hope to raise the salience of the conclusion that the comparative study of party performance and electoral variability—especially with respect to the most unstable cases—can be improved within this tradition.

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