

New Approaches to Electoral Volatility: Evidence from Postcommunist Countries

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Abstract

The development of a stable party system is considered an essential element of a consolidated democracy. Party system stability has been most frequently measured in terms of electoral volatility, which attempts to capture the stability of the electorate's preferences across elections. The traditional measure of party stability, Pedersen's Index of Volatility, however, includes both volatility among stable parties and volatility created by party entry and exit without distinguishing between the two. When both types of volatility are likely to be present, e.g. especially in newer democracies, this is potentially troubling because we expect different factors to be causing the two different types of volatility. More fundamentally, we argue that volatility caused by entry and exit is primarily a function of *elite* decision making – in terms of whether or not a new party is formed – while volatility across existing parties is primarily a function of *voter* decision making. To address these concerns, we separate these different components of volatility into their constituent parts, creating a Type A Volatility measure that captures volatility from party entry and exit and a Type B Volatility measure that captures volatility among stable parties that contest both elections. We then separately test hypotheses specific to both Type A and Type B volatility using data from 80 elections across 21 postcommunist countries. We report three primary findings. First, the majority of electoral volatility in postcommunist countries is of the Type A variety, stemming from the entry and exit of political parties into the electoral arena, and has been declining over time. Second, variation in Type A volatility is a function of both institutional factors (largely through electoral thresholds and a growing understanding of the meaning of these thresholds) and sociodemographic conditions, but does not appear to react to short-term economic shocks. Third, Type B volatility has actually increased slightly over time, but does not seem to be systematically predicted by any of our theoretically relevant variables. These results should be of interest to students of voting behavior generally, those that study electoral volatility in particular, analysts of political behavior in postcommunist countries, and scholars interested in the growing application of multi-level models in the study of comparative politics.

Key Words: Voting, Elections, Electoral Volatility, Pedersen's Index, post-communist countries, political behavior, Russia, Poland, Hungary, Czech Republic, Slovakia

Introduction

The development of a stable party system is considered an essential element of a consolidated democracy. Voters are able to understand the party choices and how these fit with their own preference. Parties have relatively stable ideologies (or at least loose policy packages) and know which voters are likely to be sympathetic to these. This fit between voter expectations and party offerings encourages rational voting on the voter side and stable coalition formation for campaigning and for government on the party side. This stabilization, often called party system institutionalization (Mainwaring and Scully 1995) contrasts with situations where new party alternatives are suddenly being offered to unprepared voters, old party alternatives are leaving the electoral arena and sharply changing degrees of voter information and wildly shifting party promises lead to voters deserting parties entirely.

The concept of party system stability is an enduring one that political scientists have sought to both explain and use as an explanation for other phenomena. Scholars studying both consolidated democracies (Bartolini and Mair 1990, Elff 2007) and consolidating democracies in Latin America (Mainwaring and Scully 1990, Roberts and Wibbels 1999), Eastern Europe (Rose and Munro 2003, Cotta 1996, Lewis 2000, Tavits 2005), and Africa (Kuenzi and Lambright 2005, Lindberg 2007, Mozaffar 2005, and Ferree 2004) have consistently turned to the same concept and metric. Party system stability has been most frequently measured in terms of electoral volatility, which attempts to capture the stability of the electorate's preferences across elections¹. The most commonly used definition of which is Pedersen's Index of Volatility:

¹ Many scholars use legislative volatility in place of electoral volatility. Depending on the proportionality of the legislature's seat allocation, these metrics can range from nearly identical to quite different. In consolidated democracies in which most serious parties pass the electoral threshold, the metrics tend to be fairly similar. In new democracies, however, there can be important differences between the metrics. While legislative volatility is an important independent variable in some studies of policy outputs, our interest in voting behavior in this paper leads us to focus on the more appropriate metric for that topic of electoral stability

$$\text{Volatility} = (\sum_{i=1}^n |p_{it} - p_{i(t+1)}|) / 2 \quad (1)$$

where n is number of parties and p_i represents the percentage of votes received by that party in time periods t and $t+1$. While this measure is easy to implement in consolidated democracies where the same parties contest elections, it is more problematic in newer democracies where parties enter and exit frequently. Similarly, scholars attempting to calculate this formula in new democracies are faced with a myriad of coding questions. How do you code a party that splinters into multiple parts? How do you treat multiple parties that form a coalition in the next election? How exactly do you define what is a party, in a context of evolving party names, party leaders, and party identifies?

Also lurking within the Pedersen Index is the reality that it lumps together volatility among stable parties with volatility created by party entry and exit. This is potentially problematic for two reasons. First, if we think that these two different types of volatility may have different implications for political outcomes – e.g., that volatility due to the entry of new parties may be more destabilizing than vote shifts between established parties – then there is no way to ascertain from the Pedersen index which form of volatility any given volatility measure represents. For example, as we will illustrate in this paper, the fact that total volatility is declining in postcommunist countries over time masks the fact that volatility between existing parties has actually been increasing slightly in recent years. Second, and perhaps even more troubling from an analytical perspective, it may be that different factors are causing the two types of volatility, as indeed we will argue in the next section. Thus by conflating the two separate phenomena in one measure, we are at the very least likely adding a great deal of noise to our analyses; in certain conditions, we may be obscuring the topic of interest to such an extent as to

render the results impossible to interpret. More fundamentally, we believe that volatility caused by entry and exit is primarily a function of *elite* decision making – in terms of whether or not a new party is formed – while volatility across existing parties is primarily a function of *voter* decision making. As such, the two phenomena are conceptually distinct and ought to be hypothesized and analyzed separately.

To address these concerns, we separate these different components of volatility into their constituent parts, creating a Type A Volatility measure that captures volatility from party entry and exit and a Type B Volatility measure that captures volatility among stable parties that contest both elections.² More technically, Type A Volatility is defined as:

$$\text{Type A Volatility} = (|\sum_{o=1}^n p_{ot} + \sum_{w=1}^n p_{w(t+1)}|) / 2 \quad (2)$$

where o = old disappearing parties that contested only the election at time t and w = new parties that contest only the election at time $t+1$. Type B Volatility is defined as:

$$\text{Type B Volatility} = (\sum_{i=1}^n |p_{it} - p_{i(t+1)}|) / 2 \text{ , among all stable parties.} \quad (3)$$

The sum of Type A Volatility and Type B volatility is, therefore, equal to the traditional Total Volatility measure.

While stable party systems in consolidated democracies do occasionally experience party entry and exit, this conceptual distinction is particularly important in new party systems and party systems where new parties appear and old ones disappear with regularity. It is our

² We are indebted to Mik Laver for highlighting the usefulness of thinking about volatility in this manner, as well as for offhandedly referring to them as “Type A” and “Type B” volatility.

suspicion that in most cases in established democracies Type B volatility will look quite similar to Type A volatility (although there may be individual elections that provide exceptions). In new democracies, however, it is likely that both Type A and Type B volatility will be significant; indeed, as we will show, in postcommunist countries Type A volatility is on average quite a bit larger than Type B volatility and therefore more closely correlated with Total Volatility.

An additional methodological point worth noting is that since both Type A Volatility and Type B Volatility are posited to be a function of both country (systemic) specific and election specific effect, they should be estimated using a multi-level model, that has not, to the best of our knowledge, been addressed by previous studies.

In this paper, we develop appropriate theories for predicting the occurrence of Type A and Type B volatility, propose a transparent coding scheme for measuring Type A and Type B volatility, and test hypotheses using data from 80 elections across 21 postcommunist countries and employing appropriate multi-level statistical models. We report three primary findings. First, the majority of electoral volatility in postcommunist countries is of the Type A variety, stemming from the entry and exit of political parties into the electoral arena, and has been declining over time. Second, variation in Type A volatility is a function of both institutional factors (largely through electoral thresholds and a growing understanding of the meaning of these thresholds) and sociodemographic conditions, but does not appear to react to short-term economic shocks. Third, Type B volatility has actually increased slightly over time, but does not seem to be systematically predicted by any of our theoretically relevant variables. Taken together, these findings suggest that previous studies of electoral volatility in the postcommunist context (and potentially other new democracies as well) may have been largely reporting findings related to volatility caused by the emergence of new parties. These results should be of

interest to students of voting behavior generally, those that study electoral volatility in particular, analysts of political behavior in postcommunist countries, and scholars interested in the growing application of multi-level models in the study of comparative politics (Kedar and Shively 2005).

Theoretical Arguments

Previous Theories of Volatility

Previous studies of electoral volatility in consolidated and consolidating democracies have suggested numerous theories to explain the sources of electoral volatility. Broadly speaking, these theories can be grouped into four categories: economic voting, institutional characteristics, cleavages, and changes in the size of the electorate.

The idea that economy influences election results is widespread in the political science literature.³ Although there is variance in the extent to which voters hold governments accountable for economic performance (see Powell and Whitten 1993; Anderson 2007), it has been fairly clearly demonstrated that economic evaluations strongly affect voting decisions. In the established party systems of the United States and Western Europe, this research has primarily focused on the extent to which incumbent governments are held responsible for economic performance (although see Bellucci 1984). In postcommunist countries, research on economic voting has also demonstrated an economic effect for the vote for particular types of parties, such as reformists or postcommunist parties (Fidrmuc 2000a,b; Jackson et al. 2003, 2005; Tucker 2006). Regardless of the exact nature of the effect, the existence of economic voting has been cited to suggest that electoral volatility ought to be increased by fluctuations in economic conditions. And indeed, in a variety of contexts, scholars have consistently found that

³ For reviews, see Lewis-Beck and Stegmaier 2000 and Anderson 2007.

changes in the economy are associated with higher levels of electoral volatility (Roberts and Wibbels 1999, Powell 2004, Tavits 2005).

In addition to the role of economic voting, Roberts and Wibbels (1999) and Tavits (2005) suggest that institutional characteristics can also play a role in exacerbating or limiting electoral volatility. Characteristics such as the effective number of parties, party age, party polarization have all been found to play a role in the stability of party systems.

Whether directly or indirectly by influencing the institutional characteristics, societal cleavages have also been hypothesized to play a role in party system stability. Roberts and Wibbels (1999) suggest that strong class cleavages provide a stabilizing force on the party system. Ferree (2004), Powell (2004, 2006), and Tavits (2005) have all suggested that ethnic cleavages influence the stability of the party system. Similarly, Birnir (2007) suggests that linguistic cleavages serve as a driving force in stabilizing the electorate.

Lastly, changes in the size of the electorate have been suggested to influence electoral volatility. If, for example, there is a newly franchised population, or a dramatic change in turnout, these new voters may have different preferences, which could dramatically change a country's aggregate election results. Bartolini and Mair (1990) and Madrid (2005) have found that changes in the size of the electorate increase electoral volatility.

All of these works, however, consider electoral volatility *in toto*, without considering Type A and Type B volatility separately. In the remainder of this section, therefore, we elucidate a series of hypotheses specific to Type A and Type B volatility individually.

A Theory of Type A Volatility

Type A volatility is a measure of aggregate party entry and exit between consecutive legislative elections.⁴ The question is why do parties enter and exit? Our answer is a supply side story. New parties enter if they think they can win; old parties disappear when they are abandoned by elites who no longer believe they can win. If we are right that new parties enter if they think they can win, then the question becomes why might they think they can win. Thus the micro-level foundations underlying all of our hypotheses regarding Type A volatility are at the elite level. (This an important point of which to be aware, because, as previously noted, hypotheses concerning Type B volatility are driven by micro-level beliefs about voter behavior.) With this in mind, we suggest three general factors that can increase the likelihood of elites believing that potential new parties may have a chance of achieving electoral success: uncertainty over voter preferences; significant shocks that shift voter preferences; and reductions in the electoral threshold necessary to secure representation in the parliament.

VOTER UNCERTAINTY

The first reason elites might be more likely to believe there is an opportunity for a new party to succeed is if there are high levels of uncertainty regarding voter behavior. To understand the logic of this argument, consider the alternative: if elites are completely certain that voters will all support existing parties, then there is no incentive for new party entry.⁵

The role of uncertainty is especially important in the early elections of a new democracy, where partisanship is likely to be less developed and voters are expected to have fewer and less

⁴ We discuss the decision to exclude presidential elections from our study below.

⁵ Or, to be more precise, no incentive for new parties to enter who hope to achieve electoral success. There may still be incentives for blackmail parties to enter the political process (Downs 1957), but as these parties intend primarily to shift the stance of existing parties as opposed to actually winning votes, they are of less interest in a study of volatility.

permanent ties parties. There are a multitude of factors that can contribute to elite uncertainty regarding voter behavior, especially in newly competitive party systems; here we focus on six: (1) the passage of time since democratization; (2) previous experience with democracy; (3) changes in electoral rules; (4) ethnic fractionalization; (5) the number of viable parties in the party system; and (6) previous evidence of Type B electoral volatility. In all cases, we suspect that greater uncertainty will make elites more likely to think that new parties have a chance to win elections, and thus increase levels of Type A volatility.

Early in the democratic experience uncertainty regarding voter behavior is likely to be very high. Elites are learning about the electorate, which can include learning how to use opinion polls and how to organize supporters. Furthermore, just as elites are learning about their voters, voters are learning about democracy and the party options. As time passes, and both elites and voters gain experience, we would expect both a reduction in voters' own uncertainty about their party preferences, as well as elites' understanding of voter preference (Dawisha and Deets 2006).

In addition to the passage of time, elites in countries without any democratic history prior to Communism may face greater uncertainty over voter behavior in the postcommunist era, at least compared to postcommunist countries with prior democratic histories. Previous experience with democracy has the potential to leave at least some guide to voter preferences and loyalty (Wittenberg 2006). Although the length of time spent under communist rule mitigates against this legacy being particularly strong, it still may provide at least less uncertainty than in countries that lack any legacy of democracy.

Changes in electoral rules ought also to increase elite uncertainty about voter behavior as compared to elections using previously employed electoral rules. While the time since

democratization hypothesis captures this effect since the initial change from non-competitive elections (here under communism) to competitive elections, there is no reason to think that smaller changes in electoral rules will not also increase uncertainty, at the very least until voters have had a chance to observe the effects of these new rules and elites have been able to observe how voters react to these effects.

As has been extensively argued elsewhere, to the extent that they are politically relevant, ethnic divisions can serve to reduce uncertainty over voter preferences (Birnie 2006; Ferey 2004). Thus we might expect, all things being equal, that there will be more uncertainty over voter behavior in ethnically homogenous societies than in more ethnically diverse societies.

Uncertainty among elites regarding voter behavior may also be driven by the number of relevant parties competing in an election. Especially in early elections, we would expect voters to know less about parties (and consequently be less certain about their reason for supporting parties) the more crowded the political field (Brader and Tucker 2002, 2007). The less information that elites believe voters have about parties, the more uncertainty elites are likely to have about how voters are likely to behave. In a related vein, uncertainty regarding voter behavior may be directly affected by earlier levels of instability. Specifically, if elites witness high levels of switching among the stable parties (Type B volatility) in previous election, they will likely be more uncertain about how voters will behave in the future.

OPPORTUNITIES FOR ATTRACTING NEW SUPPORTERS

The second reason elites might believe that new parties has a chance of electoral success is when circumstances suggest that a large number of voters might be abandoning their previous party choice. One such opportunity is likely to occur following severe negative economic

shocks, when we expect voters to be abandoning incumbents (and, in the postcommunist context, reformist parties generally) in droves. A similar opportunity could be provided by a major scandal.

A different type of opportunity for picking up new voters could be created by a major change in the salience of issues. To be more specific, an issue that was previously irrelevant to voter choice that takes on added salience could lead elites to believe that a party capable of addressing that issue could capture large numbers of voters. Examples of salience changing events include terrorist attacks, war, and, particularly relevant in the postcommunist context, imminent accession to the European Union.

THRESHOLDS FOR ENTERING THE PARLIAMENT

Perhaps most obviously, we should also expect elites to believe electoral prospects for a new party are more optimistic when thresholds necessary for gaining representation to the parliament are lower. Thus at a very basic level, we ought to observe more Type A volatility in countries with lower electoral thresholds. Barriers to entry, however, are complicated by the learning process of elites and the aggregate uncertainty in earlier elections. In early elections, we expect high thresholds to be associated with higher levels of Type A volatility as parties may fail to properly anticipate threshold requirements. Over time, as aggregate uncertainty is reduced, and elites better understand the strategic implications of high barriers to entry, we expect higher thresholds to reduce new party entry and exit. It is, therefore, important to consider the interactive relationship between time and barriers to entry.

* * *

Our discussion thus far has centered around party entrance, however, Type A volatility also includes party exit. We suggest that most often party exit is the result of a decision by elites to reconstitute and form a new party—essentially party exit is largely a matter of new party entrance. Elites infrequently decide to leave politics completely, so most often the decision to disband is a strategic calculation that a new party is more advantageous. Thus, both party exit and entrance are dominated by uncertainty regarding voter behavior, visible opportunities for picking up new voters, and low or reduced barriers to entry.

A Theory of Type B Volatility

Type B volatility is a measure of party stability among parties that continue to compete across elections. Fundamentally, then, we ought to expect Type B volatility to be a function of voter choice, or, more specifically, the decision by a voter to change his or her vote across two existing parties. Thus, the best place to search for hypotheses regarding the factors likely to impact Type B volatility lies in the voluminous existing literature on voting: factors that predict vote change ought also to predict increases in levels of Type B volatility.

Theories of strategic voting by Cox (1997) and others suggest that voters take into account the strategic implications of the electoral rules in addition to their policy preferences in casting their votes. Changes in electoral rules will therefore increase or decrease the electoral viability of different parties, thus encouraging strategic voters to rethink their previous choices. Thus, *any changes* in electoral rules ought to increase the level of Type B volatility.

Multiple studies in the wide ranging field of partisan identification and voting suggests that voter preferences should become more stable over time (Converse 1969, Beck 1991, Dalton and Weldon 2007). In the postcommunist case, then, we would suspect that as the time passes

since the onset of transition to competitive elections, Type B volatility ought to decrease. As many of these theories are predicated upon learning and information, we may think that they are most likely to apply in high information environments, which typically exist in more urban areas. Thus, we also consider the potential interactive relationship between time and urban population.

Theories of retrospective voting suggest that voters punish and reward incumbents for past performance (Fiorina 1981; Ferejohn 1986). Thus we might expect to see greater Type B volatility when economic conditions are either worse than usual (voters flocking away from incumbents), or better than usual (voters flocking towards incumbents). Alternatively, incumbents could be punished or rewarded for non-economic reasons, such as success or failure in important foreign policy realms.

Lastly, Lipset and Rokkan (1967) suggest that societal cleavages influence the development of the party system. They may provide anchors to stabilize mass preferences, thus reducing volatility. Once developed into political conflict, cleavages should help stabilize voting patterns in early elections because individuals are anchored to particular positions, which allow parties to pursue particular groups (Birnie 2006). Thus to the extent that ethnicity can serve as an additional force to anchor people to particular parties, we ought to expect less Type B volatility in more ethnically divided societies, all else being equal.

Additionally, there are a number of variables that could have a mechanical effect on the level of Type B volatility, and thus ought to be controlled for in any analysis. One such variable is the effective number of parties. If there is any randomness in voter choice, even among a relatively small proportion of the electorate, the relationship between the effective number of parties and Type B volatility becomes one of mathematical probability. As the effective number of parties goes up, any randomness in vote choice will lead to an increase in volatility even if all

other voter preferences remain stable. We demonstrate this relationship in Figure 1 by altering the number of parties in a given system and the percentage of the population that chooses there vote randomly, allowing all other “non-random” choosers to remain with the same party across elections.⁶ The x-axis represents the number of parties and the y-axis represents the resulting volatility. The lines represent different percentage of voters randomizing over the parties; the lowest line represents 5% of voters, the next 10%, 20%, and 30%. Each combination of party and uncertainty level was simulated 1000 times, and the mean value is displayed in the figure. As the figure shows, as the number of parties increases, probability dictates volatility increases. The relationship between the effective number of parties and electoral volatility strengthens as greater proportions of the population make random draws to determine their vote choice.

-- INSERT FIGURE 1 ABOUT HERE --

In addition to the probabilistic effect of the effective number of parties, there is also a mechanical relationship between Type A Volatility and Type B Volatility. Not all parties that disappear are replaced by new parties. Rather, some voters may choose to support previously stable parties. Therefore, it is necessary to control for the excess volatility in the system due to the difference between party entry and party exit.⁷

It is also possible that changes in turnout could exert a mechanical effect on Type B volatility. If non-voters differ from voters, a change in turnout will result in increased Type B volatility without any changes in preferences among continuing voters. This, however, will not hold true if non-voters have similar preferences to voters. As we can not know whether the preferences are aligned *a priori*, it seems prudent to also control for change in turnout in any analysis of Type B volatility.

⁶ Randomness could be due to flipping a coin in the ballot box, indecision, randomization of ballot orderings, misinformation, a trembling hand, or a myriad of other reasons.

⁷ We do so by taking the absolute value of the difference between party entry and exit.

* * *

In this section, we have presented hypotheses about the sources of Type A volatility, driven by beliefs about elite level behavior, and about the sources of Type B level volatility, driven by beliefs about voter behavior. In some cases, this has resulted in similar predictions, such as the fact that ethnic fractionalization is predicted to decrease both types of volatility. This is not necessarily surprising, as part of the elite calculus in which we are interested is driven by beliefs about voter behavior. However, in other instances, we arrive at different predictions for the same variables: economic shocks of either a positive or negative nature are expected to impact Type B volatility, but only negative economic shocks ought to affect Type A volatility. In the following sections, we lay out our approach to operationalizing these concepts, and then report on empirical tests of many of the hypotheses.

Measurement Strategy

One of the great, and often under-discussed, challenges of any study of electoral volatility – but particularly one including new democracies – is that of actually coding the volatility. Challenges include the omnipresent “other” category in reported election results, defining a new party as opposed to a successor party, and handling parties that either split or merge. To address these challenges, in this section we make explicit the exact coding rules we have employed

First, to overcome variability in reporting standards, we defined all parties that received at least 2% of the vote share in either the first or second election to “count” as a party. All other smaller parties were excluded from the analysis. This decision was necessary because not all countries report vote shares for very minor parties that may have received only a few votes. To

include and exclude small parties inconsistently, would have created bias across countries that could have been related to quality of reporting standards.

Coding Type A and Type B volatility decisions requires us to define the following concepts: New Parties, Party Splits, and Old Disappearing Parties. Old Disappearing Parties are defined to be parties that contested an election at time t but did not contest the subsequent election at time $t+1$ (or received less than 2% of the vote at time $t+1$). New Parties are parties that contested an election at time $t+1$ but did not contest (or received less than 2% of the vote in) the election at time t . Additionally, a party is coded as a New Party at time $t+1$ if it resulted from the merger of at least two parties that received at least 5% of the vote in the election at time t ; if only one of the parties received at least 5% of the vote in the election at time t , then the party is considered to be a “continuation under another name” of the larger of the two parties, and volatility regarding that party falls into the category of Type B volatility. If a Party Splits from an election at time t split, and one party is a clear successor (e.g., has the same name, controls the party resources), then the clear successor is not considered a New Party at time $t+1$, but the splinter group does count as a new party at time $t+1$. If a party that contested an election at time t splits without a clear single successor party, then all of the successor parties are considered to be New Parties at time $t+1$.

To summarize, stable parties eligible for inclusion in Type B Volatility were thus parties that achieved at least 2% across both elections. Parties that achieved at least 2% in only one of the elections were thus included in Type A Volatility. Parties that failed to receive at least 2% of the vote in either of the elections are not included in the analysis.⁸

⁸ Elections results were drawn from a wide range of both primary and secondary sources, although we relied especially heavily on the PARLINE database on national parliaments (http://www.ipu.org/parline-e/reports/2001_arc.htm, now encompassing the results previously found in the Chronicle of Parliamentary

Volatility in Postcommunist Countries

Our data for this paper was drawn from parliamentary elections from postcommunist countries from 1989 to 2007.⁹ Postcommunist countries provide a rich opportunity to study the unaddressed issue of Type A Volatility, while simultaneously creating a bounded set of cases with shared characteristics, most importantly the communist legacy. In keeping with most other studies of electoral volatility, we limit ourselves to parliamentary elections in order to eliminate a host of potential complications from comparing parliamentary and presidential elections.¹⁰ To meet the inclusion criteria, a country must have been either a part of either the former Soviet Union, the former Yugoslavia, the former Czechoslovakia, or a member of the Warsaw Pact.¹¹ From that list of countries, we then created a list of elections. To be eligible for inclusion, a *pair* of consecutive elections must have been held while the country was deemed at least Partly Free by the Freedom House ratings. Non-consecutive free elections were not eligible. Similarly, those elections that were invalidated due to fraud were also excluded. This left a total of 21 countries and 80 cases. Table 1 below shows the list of included elections and countries.

-- INSERT TABLE 1 ABOUT HERE --

From that list of eligible elections, we applied our volatility coding criteria and calculated both Type A and Type B volatility. Across all countries and elections the mean level of Type A Volatility was just under 30% (See Table 2), while the mean level of Type B Volatility was just

Elections), *Electoral Studies* election reports, and Wilfred Dirksen's Election World internet resource, which has now been transferred to Wikipedia (http://en.wikipedia.org/wiki/List_of_election_results).

⁹ For countries employing mixed PR and SMD electoral systems, we (to the best of our knowledge) use only the party list component of the election result.

¹⁰ This includes but is not limited to the fact that not all countries hold presidential elections, the fact that presidential elections dictate a different set of elite concerns, and the fact that many prominent presidential candidates have run as independents.

¹¹ We therefore exclude Mongolia.

over 13%. This finding suggests that more than two-thirds of the total volatility measured by previous studies is in fact Type A Volatility.

-- INSERT TABLE 2 ABOUT HERE --

Table 3 (below) shows the mean volatility levels by country over time for the different volatility definitions. For example, in Slovakia, the mean level of electoral volatility is 56%. However, when broken into Type A Volatility and Type B Volatility, it becomes clear that it is almost entirely composed of Type A Volatility. We can also observe that the composition of Type A and Type B Volatility in Slovakia is quite different compared to that of Ukraine, which is one of the few countries with higher Type B volatility than Type A Volatility.

-- INSERT TABLE 3 ABOUT HERE --

Figures 2-4 below show Type A Volatility, Type B Volatility and Total volatility over time. The line represents the bivariate regression of time and volatility. An examination of these time trends suggest that while both Type A Volatility and Total Volatility may be decreasing over time, Type B Volatility is stable or slightly increasing. These time trends suggest that these democracies may at some point start to resemble the more traditional volatility patterns of consolidated democracies as Type A Volatility fades and only Type B Volatility remains.

-- INSERT FIGURES 2-4 ABOUT HERE --

This time trend is also confirmed by looking at mean Type A, Type B and Total Volatility by time across countries. Specifically, Table 4 below shows mean volatility by election number and confirms the time trend shown in the figures. As countries have more elections, the level of Type A volatility decreases, while the level of Type B volatility slightly increases. This pattern is consistent with movement toward consolidation of democracy, though

the remaining levels of Type A volatility suggest that there is still considerable progress yet to be made.

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Testing our hypotheses

To test our hypotheses more systematically we use a multi-level model with country indicators as well as country (group-level) predictors¹². The country-level predictors help us to estimate the country intercepts, without overwhelming the information from the individual countries¹³. Following our hypotheses above, we fit the following model for Type A Volatility:

Model 1: Type A Volatility

$$y \sim N(\alpha_{j[i]} + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i}, \sigma_y^2), \text{ for } i=1, \dots, n$$

$$\alpha_j \sim N(\gamma_0 + \gamma_1 u_{j1} + \gamma_2 u_{j2}, \sigma_a^2), \text{ for } j=1, \dots, J$$

Where X1=Time, X2=Rule Change, X3=Economy Bottom 10% or Economy Bottom 20% or GDP Growth, X4=Lag Type B Volatility, X5=Threshold, X6=Threshold x Time, U1=Ethnic Fractionalization, U2=Democratic Experience, and α_j = the country level indicator, i =indexes elections, and j =indexes countries. For a detailed description of these variables see Table 4 below.

The specific coding of each of these variables, as well the sources for the data and a reiteration of the direction of their predicted effects, can all be found below in Table 5. A few notes are in order here. First, we have not included every variable discussed in the previous section, both out of an attempt not to stress the data with too many coefficients to estimate and because we have not yet been able to satisfactorily code all of the covariates. In particular, changes in electoral rules currently measure only changes in the electoral threshold and our negative shocks are

¹² We use the lmer() function in the lme4 package in R to fit this model.

¹³ See Gelman and Hill (2007).

limited to economic shocks; we have not yet included any measures of scandals. To try to account for the different types of economic shock and distress, however, we try three different economic variables in separate regressions: a dummy variable for whether or not the GDP change was in the bottom 10th percentile of the entire sample; a dummy variable for whether or not the GDP change was in the bottom 20th percentile of the entire sample; and the actual value of GDP growth (a continuous measure). Also note that this model includes a lagged volatility term, which reduces the number of observations from 80 to 59. For this reason, we rerun the entire model without the lagged term on the full dataset.

-- INSERT TABLE 5 ABOUT HERE --

-- INSERT TABLE 6 ABOUT HERE --

We use the same type of model to fit our Type B Volatility:

Model 2: Type B Volatility

$$y \sim N(\alpha_{j[i]} + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i}, \sigma_y^2), \text{ for } i=1, \dots, n$$

$$\alpha_j \sim N(\gamma_0 + \gamma_1 u_{j1}, \sigma_\alpha^2), \text{ for } j=1, \dots, J$$

Where X1=Effective Number of Parties, X2=Transformed Type A Volatility, X3=Change in Turnout, X4=Time, X5=Time x Urban, X6=Deviation in Economic Experiences, U1=Ethnic Fractionalization and α_j = the country level indicator, i =indexes elections, and j =indexes countries. For a detailed description of these variables see Table 4 below.

Details concerning the variables can be found as well in Table 5. One variable here warrants additional discussion, which is the deviation in economic experience. Recall that in the previous section we suggested that either exceptionally good or exceptionally bad economic performances could increase Type B volatility. We operationalize this variable by taking the absolute value of

the difference between GDP growth in the current period and the mean of GDP growth across all years since the collapse of communism prior to the election.¹⁴

Empirical Results

Our results confirm some of our hypotheses, while suggesting we have more to learn about others that fail to succeed. Table 7 below shows the results our out Type A Volatility Model. Models 1-3 show the same model using three different ways to measure negative economic shocks: Model 1 uses the Bottom 10% Economy variable; Model 2 uses the Bottom 20%; and Model 3 uses GDP Growth. The results, though, are largely consistent across models.

-- INSERT TABLE 7 ABOUT HERE --

Turning first to our theory regarding elite uncertainty over voter preferences, our six primary factors (time, electoral rule change, democratic experience, ethnic fractionalization, effective number of parties, and lagged Type B Volatility) provide evidence largely consistent with our hypothesis that higher levels of uncertainty lead to more Type A Volatility. Our results suggest that the most important determinant of uncertainty is the effective number of parties competing for election. The more parties competing, the greater the level of uncertainty, and thus the greater the level of Type A Volatility.¹⁵ This finding is statistically significant and substantial. For example, a move from a two parties competing for election to 5 parties competing for election increases the Type A Volatility by approximately 12 percentage points.

¹⁴ We use GDP growth because of data availability, but there is no reason in principle why we couldn't use other economic measures here as well. We also want to note that in the next version of the paper we will include % Urban as a separate co-variate in the model in an effort to provide a more enhanced understanding of the interaction effect between time and % Urban; we did not include it in this version because our substantive interest is in the effect of time as conditioned by % Urban, and not in the independent effect of % Urban.

¹⁵ While it sounds tautological at first glance to say that there is less volatility due to new party entry when there are fewer relevant parties winning shares of the vote, this is not actually a tautological statement. This is nothing inherent in the definition of a party system with a large number of effective political parties that requires new parties be present; what we are demonstrating, though, is that when there are larger numbers of relevant political parties, it does in fact lead to more volatility due to party entry and exit, which is in line with our theoretical argument.

Although time, electoral rule change, and lagged Type B volatility failed to achieve statistical significance, both electoral rule change and democratic experience are in the hypothesized direction. As expected, changes in electoral rules increase uncertainty, and thus increase new party entry and exit. In contrast, a country's prior democratic experience decreases uncertainty.

Although the time variable is far from statistically significant, the fact that it is in the wrong direction is particularly interesting given the strong time trend we observed in the bivariate regression (see Figure 2). In the parlance of statistical methods, we have essentially "made the effect disappear", which suggests we are now accounting for it elsewhere in our model. Thus the fact that Type A volatility has declined over time should in some way be linked to either a decline in the number of relevant parties competing in elections, reductions in electoral thresholds, decreasing incidents of negative electoral shocks, or a growing stability in electoral rules.

Prior theoretical arguments have suggested that ethnic fractionalization ought to decrease electoral volatility. Our results suggest that exactly the opposite might be the case in terms of Type A Volatility, although high standard errors caution us against making too much of this finding. Given that ethnic fractionalization is a country specific (and not election specific) effect, one reason for finding this unexpected result may be due to the use of a more appropriate multi-level model in the analysis. However, the finding may also be driven by the fact that we are now analyzing Type A Volatility. Perhaps ethnic fractionalization, while decreasing overall uncertainty about voter preferences, simultaneously increases the likelihood that any given new party can more effectively target its appeals to a sub-section of the possibility, thus decreasing the costs a new party might have to incur to achieve viability. Support for such a proposition

would of course require more empirical investigation, but would be consistent with our findings so far.

Turning next to our second theory of Type A Volatility—the idea that parties might think they can win if they see opportunities for picking up new voters—we find surprisingly little evidence of any relationship between severe negative economic shocks and Type A Volatility. Surprisingly, none of the economic variables prove significantly related to Type A Volatility. Furthermore, these coefficients are often small and in the opposite direction from what we hypothesized. As this was just a first attempt at modeling negative economic shocks, we are not willing to rule out this explanation yet, and will continue to test other ways of operationalizing this variable. It may also be the case – as suggested by the 2001 Polish elections – that scandal may ultimately prove a better measure in this regard than economic shocks. Conversely, it may turn out that given massive economic shocks associated with the transition generally, Type A Volatility is driven more by other factors.

Our third theory of Type A Volatility suggests that elites might be more likely to believe new parties can succeed if there are low or reduced barriers to entry. Our findings provide strong evidence in support of this theory. Both the level of the electoral threshold as well as threshold learning process over time prove statistically significant and in the hypothesized direction. In early elections, high electoral thresholds increase Type A Volatility, as elites fail to properly anticipate voter behavior and appreciate threshold implications. However, over time, electoral thresholds begin to have their intended effect and higher thresholds lead to less party entry and exit.

The results from Models 1-3 are, however, based on a reduced sample. Our original model of Type A Volatility included a Lagged Type B Volatility term, thus decreasing our

number of observations. As a check on this smaller model we re-ran a reduced form of Model 1, which excludes the Lagged Type B Volatility term (See Table 6, Model 4), thus increasing the number of observations back to the full dataset of 80. Our findings here are consistent with our previously discussed results, although it is worth noting that the electoral threshold fails to achieve statistical significance in this case.

-- INSERT TABLE 8 ABOUT HERE --

Table 8 below shows our results regarding Type B volatility. A quick glance at the table reveals that the data have provided practically no support for any of our hypotheses. Just about all of the variables have standard errors larger than their coefficients, and the only coefficient that even marginally approaches statistical significance is in the wrong direction.¹⁶ These extremely negative results suggest that we are in one of three states of the world. First, it is possible that we have incorrectly theorized about the causes of Type B volatility. This, however, seems doubtful, given that we have drawn widely from extremely voluminous literatures on partisanship and voting behavior. To suggest that these literatures can not help us understand Type B volatility at all would probably be overreacting to the results, although we will certainly try to improve the theoretical work to date. A second state of the world could be that our theories are basically correct, but our data are either badly measured or our variables have been poorly operationalized. We of course can not rule this possibility out at this stage, and we will continue to work on improving the extent to which our our key concepts better; in particular, we

¹⁶ Contrary to our hypothesis, deviations from expected economic performance increase the stability of existing parties. Figuring out why this might be the case is an interesting question for future research.

are very interested in figuring out a way to add a variable measuring the prevalence of scandals to the analysis.¹⁷

But there is a third state of the world in which we could be finding ourselves, which is potentially the most intriguing of the three. It is possible that we have correctly theorized about the causes of Type B volatility and done a decent job of measuring Type B volatility, but nevertheless we are currently witnessing a period of time in which politics is still so unsettled that there are no systematic patterns of Type B volatility in post-communist countries. After all, when we revisit Column 3 of Table 3, we see that Type B volatility – in marked contrast to Type A volatility – really does not vary that much across countries. Perhaps we are witnessing a period of time in which all post-communist countries are going to suffer from a residual amount of Type B volatility across elections (say approximately 12-15 percent) just because people are still making up their minds about the value of various political forces, and that variation around that mean will essentially be caused by a series of small idiosyncratic shocks across elections.

Why might this be the case, when we have been able to explain variation in volatility rates in more established democracies? Perhaps – and this is only speculative at the moment – it is precisely because Type A volatility in post-communist countries remains so high. To put this another way, when factors that might normally cause systematic swings among party supporters in more established democracies occur, in post-communist they lead to the advent of new parties and the collapse of old parties. Until Type A Volatility settles down, therefore, we might not expect to be able to learn much about systematic causes of Type B volatility.

¹⁷ Our current plan to measure scandals would be to use Electoral Studies election reports, and create a scandal metric by dividing the number of words in the report referencing scandals (e.g., scandal, corruption, and disaster) by the total number of words in the report. Other suggestions on how to measure scandals systematically across elections would be most appreciated.

This finding raises an interesting point in regard to research on electoral volatility generally. Previous research on electoral volatility in post-communist countries that examined total volatility identified a number of factors as statistically significant causes of volatility (Tavits 2004; Powell 2004). Our evidence here suggests that most of the systemic effects identified in these papers were likely being driven by Type A Volatility, not Type B Volatility. The question then becomes, to what extent does this conclusion hold for studies of volatility in other parts of the world as well? Is it possible that studies of volatility in other new democracies are also largely picking up Type A Volatility as well (Birnie 2006; Ferree 2004)? How about in established democracies? Here we would expect that most volatility is of the Type B variety, but the consistently strong findings for institutional effects suggests perhaps that party entry and exit might still be an important factor. Furthermore, the nature of regression analysis is such that a few examples of new political parties appearing on the scene in some key cases could exert a powerful pull on a regression line. Put in a more extreme way, do we actually know anything about Type B Volatility at this point in time? This is certainly an important question for future research to explore, and one which we hope our new classification scheme for varieties of electoral volatility has not only helped to elucidate, but also can begin to facilitate new research efforts in this regard.

Works Cited

- Bakke, E. and N. Sitter. 2005. "Patterns of Stability: Party Competition and Strategy in Central Europe since 1989." *Party Politics* 11(2): 243.
- Barolini, S. and Mair, P. 1990. *Identity, Competition, and electoral availability*. New York: Cambridge University Press.
- Beck, Paul Allen, and M. Kent Jennings. 1991. "Family Traditions, Political Periods, and the Development of Partisan Orientations." *Journal of Politics* 53 (3):742-63.
- Bellucci, Paolo. 1984. "The Effect of Aggregate Economic Conditions on the Political Preferences of the Italian Electorate, 1953-1979." *European Journal of Political Research* 12 (4):387-401.
- Birnir, J. K. 2006. *Ethnicity and Electoral Politics*, Cambridge University Press.
- Brader, Ted, and Joshua A. Tucker. 2002. *Pathway to Partisanship: Russia's Developing Partisans*. Princeton, New Jersey. Working Paper
- Brader, Ted, and Joshua A. Tucker. 2007. *Reflective and Unreflective Partisans? Experimental Evidence on the Links between Information, Opinion, and Party Identification* New York, NY. Working Paper
- Cotta, Maurizio. 1996. "Structuring the new party systems after the dictatorship", in Geoffrey Pridham and Paul G. Lewis (eds) *Stabilizing Fragile Democracies: Comparing New Party Systems in Southern and Eastern Europe*. London: Routledge.
- Converse, Philip E. 1969. "Of Time and Partisan Stability." *Comparative Political Studies* 2 (2):139-71.
- Cox, G. W. 1997. *Making Votes Count: Strategic Coordination in the World's Electoral Systems*, Cambridge University Press.
- Dalton, R. J., and S. Weldon. 2007. "Partisanship and Party System Institutionalization." *Party Politics* 13 (2):179.
- Dawisha, Karen and Stephen Deets. 2006. "Political Learning in Post-Communist Elections," *East European Politics and Societies*, 20(4): 691-728.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper & Row.
- Elff, M. 2007. "Social Structure and Electoral Behavior in Comparative Perspective: The Decline of Social Cleavages in Western Europe Revisited." *Perspectives on Politics* 5(02): 277-294.

- Epstein, D. 2007. "How to Measure Party System Institutionalization in a Systematic Way". Working Paper.
- Fiorina, Morris P. 1981. *Retrospective Voting in American National Elections*. New Haven, CT: Yale University Press.
- Ferejohn, John. 1986. "Incumbent Performance and Electoral Control." *Public Choice* 50:5-25.
- Ferree, Karen. 2004. "How fluid is fluid? The mutability of ethnicity and electoral volatility in Africa?". Working Paper.
- Fidrmuc, Jan. 2000a. "Economics of Voting in Post-Communist Countries." *Electoral Studies* 19 (2/3):199-217.
- Fidrmuc, Jan. 2000b. "Political Support for Reforms: Economics of Voting in Transition Countries." *European Economic Review* 44:1491-513.
- Jackson, John E., Jacek Klich, and Krystyna Poznańska. 2003. "Economic Transition and Elections in Poland." *Economics of Transition* 11 (1):41-66.
- Jackson, John E., Jacek Klich, and Krystyna Poznańska. 2005. *The Political Economy of Poland's Transition*. Cambridge: Cambridge University Press.
- Kedar, Orit, and W. Phillips Shively. 2005. "Introduction to the Special Issue." *Political Analysis* 13 (4):1-4.
- Kuenzi, M. and G. Lambright. 2005. "Party Systems and Democratic Consolidation in Africa's Electoral Regimes." *Party Politics* 11(4): 423.
- Lewis, Paul G. 2000. *Political Parties in Post-Communist Eastern Europe*. London: Routledge.
- Lewis-Beck, Michael S., and Mary Stegmaier. 2000. "Economic Determinants of Electoral Outcomes." *Annual Review of Political Science* 3:183-219.
- Lindberg, S. I. 2007. "Institutionalization of Party Systems? Stability and Fluidity among Legislative Parties in Africa's Democracies." *Government and Opposition* 42(2): 215-241.
- Lipset, Seymour Martin and Stein Rokkan. 1967. "Cleavage Structures, Party Systems, and Voter Alignments: An Introduction," in Seymour Martin Lipset and Stein Rokkan, *Party Systems and Voter Alignments. Cross-National Perspectives*, pp. 1-64. New York: Free Press.
- Mainwaring, Scott and Timothy R. Scully. 1995. *Building Democratic Institutions: Party Systems in Latin America*. Stanford: Stanford University Press.

- Mozaffar, S. and J. R. Scarritt. 2005. "The Puzzle of African Party Systems." *Party Politics* 11(4): 399.
- Pedersen, Mogens. 1983. "Changing Patterns of Electoral Volatility in European Party Systems, 1948-1977." In *Western European Party Systems: Continuity and Change*, ed. Hans Daalder and Peter Mair. Beverly Hills, CA: Sage. Pp. 29-66.
- Powell, Eleanor N. 2004. "The Development of Party Systems in Post-Communist Democracies," unpublished manuscript.
- Powell, G. Bingham. 1982. *Contemporary Democracies. Participation, Stability, and Violence*. Cambridge, MA: Harvard Univ.
- Powell, G. Bingham and Guy Whitten. 1993. "A Cross-National Analysis of Economic Voting: Taking Account of the Political Context." *American Journal of Political Science* 37(2): 391-414.
- Roberts, K.M. and Wibbels, E. 1999. "Party Systems and Electoral Volatility in Latin America: A Test of Economic, Institutional, and Structural Explanations". *American Political Science Review* 93(3):575-590.
- Rose, Richard and Neil Munro. 2003. *Elections and parties in new European democracies*, CQ Press.
- Tavits, Margit. 2005. "The Development of Stable Party Support: Electoral Dynamics in Post-Communist Europe." *American Journal of Political Science* 49(2): 283-298.
- Tucker, Joshua A. 2006. *Regional Economic Voting: Russia, Poland, Hungary, Slovakia, and the Czech Republic, 1990-1999*, Cambridge University Press.
- Wittenberg, Jason. 2006. *Sustaining Political Loyalties: Religion and Electoral Continuity in Hungary and Beyond*. Cambridge, England: Cambridge University Press.

Table 1. Included Elections

Country	1st Year	2nd Year	Country	1st Year	2nd Year
Albania	1991	1992	Lithuania	1992	1996
Albania	1992	1996	Lithuania	1996	2000
Albania	1996	1997	Lithuania	2000	2004
Albania	1997	2001	Macedonia	1990	1994
Albania	2001	2005	Macedonia	1994	1998
Armenia	1995	1999	Macedonia	1998	2002
Armenia	1999	2003	Macedonia	2002	2006
Armenia	2003	2007	Moldova	1994	1998
Bosnia-Herzegovina	1998	2000	Moldova	1998	2001
Bosnia-Herzegovina	2000	2002	Moldova	2001	2005
Bosnia-Herzegovina	2002	2006	Montenegro	1990	1992
Bulgaria	1990	1992	Montenegro	2001	2002
Bulgaria	1992	1994	Montenegro	2002	2006
Bulgaria	1994	1997	Poland	1991	1993
Bulgaria	1997	2001	Poland	1993	1997
Bulgaria	2001	2005	Poland	1997	2001
Croatia	1990	1992	Poland	2001	2005
Croatia	1992	1995	Poland	2005	2007
Croatia	1995	2000	Romania	1992	1996
Croatia	2000	2003	Romania	1996	2000
Croatia	2003	2007	Romania	2000	2004
Czech Republic	1990	1992	Russia	1993	1995
Czech Republic	1992	1996	Russia	1995	1999
Czech Republic	1996	1998	Russia	1999	2003
Czech Republic	1998	2002	Serbia	1990	1992
Czech Republic	2002	2006	Serbia	2000	2003
Estonia	1992	1995	Serbia	2003	2007
Estonia	1995	1999	Slovakia	1990	1992
Estonia	1999	2003	Slovakia	1992	1994
Estonia	2003	2007	Slovakia	1994	1998
Georgia	1992	1995	Slovakia	1998	2002
Georgia	1995	1999	Slovakia	2002	2006
Hungary	1990	1994	Slovenia	1990	1992
Hungary	1994	1998	Slovenia	1992	1996
Hungary	1998	2002	Slovenia	1996	2000
Hungary	2002	2006	Slovenia	2000	2004
Latvia	1993	1995	Ukraine	1994	1998
Latvia	1995	1998	Ukraine	1998	2002
Latvia	1998	2002	Ukraine	2002	2006
Latvia	2002	2006	Ukraine	2006	2007
Latvia	2002	2006			

Table 2 Volatility Descriptives

Variables	Mean	SD	N
Type A Volatility	29.45	20.83	80
Type B Volatility	13.29	7.89	80
Total Volatility	42.73	19.33	80

Table 3. Mean Volatility by Country Over Time

Country	Type A Volatility	Type B Volatility	Total Volatility
Albania	28	17	45
Armenia	50	6	56
Bosnia-Herzegovina	23	11	34
Bulgaria	21	16	37
Croatia	19	11	30
Czech Republic	20	10	30
Estonia	25	17	42
Georgia	41	12	53
Hungary	13	14	26
Latvia	30	18	48
Lithuania	57	15	72
Macedonia	53	11	63
Moldova	46	11	57
Montenegro	16	8	24
Poland	25	19	44
Romania	29	13	43
Russia	26	16	42
Serbia	32	12	43
Slovakia	46	9	55
Slovenia	28	13	41
Ukraine	12	17	29

Table 4. Mean Volatility by Election Number over Country

Election Number	Type A Volatility	Type B Volatility	Total Volatility
2	42	12	54
3	28	14	42
4	25	14	40
5	20	12	33
6	22	16	38

Table 5. Variable Descriptions

<u>Variables</u>	<u>Description</u>	<u>Sources</u>	<u>Hypothesized Effect on Type A Volatility</u>	<u>Hypothesized Effect on Type B Volatility</u>
Type A Volatility	(Old Disappearing Parties + New Parties)/2	Coded by authors	n/a	n/a
Type B Volatility	Traditional volatility measure for stable parties.	Coded by authors	n/a	n/a
Time	# Years since 1 st Free & Fair post-Communist election	Coded by authors	-	-
Rule Change	Dummy variable for change in electoral threshold.	Armingeon and Careja, supplemented by coding by authors	+	+
Ethnic Fractionalization	Probability that two individuals will be from different groups. $1 - \sum p_i^2$ where p_i is the population share of the ethnic groups.	Alesina et al 2003	+	+
Democratic Experience	Average Polity democracy score during the inter-war period	Pop-Eleches	-	-
Effective Number of Parties	$1/(\sum p_i^2)$, where p_i is vote share of party i	Coded by authors	+	+
Lag Type B Volatility	$Vol_{B,t-1}$	Coded by authors	+	n/a
Bottom 10% Economy	Dummy for bottom 10% across whole sample of : -GDP Growth -GDP% relative to GDP in 1989 -Change in GDP 1989 since previous election	Pop-Eleches, World Development Indicators	+	n/a

Bottom 20% Economy	Dummy for bottom 20% across whole sample of : -GDP Growth -GDP% relative to GDP in 1989 -Change in GDP 1989 since previous election	Pop-Eleches, World Development Indicators	+	n/a
GDP Growth	GDP growth during the year during which the second election was held.	World Development Indicators Online	-	n/a
Threshold	Electoral Threshold %	Armingeon and Careja, supplemented by coding by authors	+ (<i>dependent on time passed since democratization, expected to be positive when $t=0$</i>)	n/a
Thresh*Time	Threshold x # of Free and Fair Post-Comm PR-Elections	Coded by authors	-	n/a
Transformed Type A Volatility	Transformed version of Type A Volatility: Old -New	Coded by authors	n/a	+
Time*Urban	# Years since 1 st post-comm election x. % Urban	World Development Indicators	n/a	-
Deviations from Economic Expectations	$ e_{t2}-e_{t1} $, where e_{t1} is the mean for that country over the prior period since democratization.	World Development Indicators	n/a	+
Change in Turnout	$ t_2-t_1 $	Coded by authors	n/a	+

Table 6. Summary of Variables

Variables	Mean	SD	N
1 st Year	1996.51	4.38	80
2 nd Year	1999.88	4.75	80
Election Number	3.51	1.24	80
Type A Volatility	29.45	20.83	80
Type B Volatility	13.29	7.89	80
Total Volatility	42.73	19.33	80
Time	8.32	4.7	80
Rule Change	0.24	0.43	80
Democratic Experience (Inter-war)	2.47	2.5	80
Effective Number of Parties	5.68	2.15	80
Threshold	4.47	1	80
Threshold x Time	15.81	6.66	80
Change in Turn Out	8.2	6.5	80
Urban	59.85	9.95	74
TimexUrban	471.72	287.47	74
Deviation from Economic Experience	4.38	2.84	80
Ethnic Fractionalization	0.36	0.16	80
GDP Growth	3.1	4.51	80
GDP relative to 1989	100.06	57.02	80
Inter-Election Change in 1989 Relative GDP	9.75	18.75	80
Bottom 10% Economy	0.1	0.3	80
Bottom 20% Economy	0.2	0.4	80

Table 7. Type A Volatility Model

	Model 1	Model 2	Model 3	Model 4
Ethnic Fractionalization	50.731* (30.725)	48.879* (29.780)	48.992* (30.771)	27.872 (17.375)
Democratic Experience	-7.131 (6.363)	-5.444 (6.216)	-6.580 (6.314)	-5.180 (7.078)
Time	0.936 (1.287)	0.362 (1.227)	0.491 (1.238)	0.738 (1.302)
Rule Change	4.514 (5.960)	6.091 (5.891)	4.832 (5.774)	-4.330 (5.433)
Bottom 10% Economy	-1.774 (7.115)			-7.943 (8.106)
Bottom 20% Economy		6.339 (5.356)		
GDP Growth			0.762 (0.633)	
Lag Type B Volatility	0.319 (0.287)	0.304 (0.283)	0.272 (.286)	
Threshold	9.982** (4.626)	9.630** (4.470)	9.169** (4.601)	3.381 (3.984)
Thresh x Time	-1.430* (1.077)	-1.107 (1.020)	-1.185 (1.038)	-1.681* (1.104)
Effective # of Parties	3.971*** (1.369)	3.885*** (1.351)	3.560*** (1.389)	1.507* (1.11)
Intercept	-41.570** (20.850)	-4.384** (20.315)	-38.626** (20.870)	22.872* (17.375)
Groups	21	21	21	21
N	59	59	59	80

*Multi-level model with country level indicators and country level predictors estimated in R using the lme4 package and the lmer() function. *** p < .01, **p<.05, *p<.10*

Table 8. Type B Volatility Model

Variables	Model 1
Effective Number of Parties	0.131 (0.455)
Transformed Type A Volatility	0.111 (0.101)
Change in Turnout	0.125 (0.146)
Time	0.376 (0.747)
Time x Urban	-0.004 (0.012)
Deviation in Economic Experience	-0.525* (0.329)
Ethnic Fractionalization	0.948 (6.807)
Intercept	11.031*** (4.527)
Groups	80
N	21

*Multi-level model with country level indicators and country level predictors estimated in R using the lme4 package and the lmer() function. *** $p < .01$, ** $p < .05$, * $p < .10$*

Figure 1. Simulation. Relationship between Number of Parties, voter randomness, and total volatility.

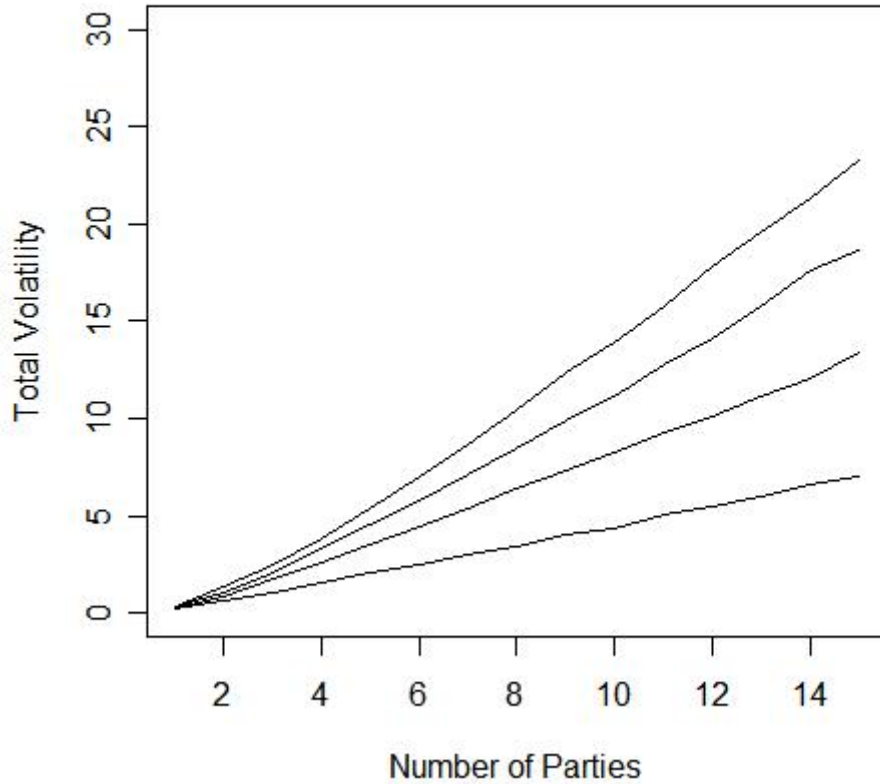


Figure 1. Simulation of the relationship between the number of parties, voter randomness and total volatility. The lines represent the percentage of voters randomizing over the parties; the lowest line represents 5% of voters, the next 10%, 20%, and 30%. Each combination of party and uncertainty level was simulated 1000 times, and the mean value is displayed in the figure.

Figure 3. Type B Volatility Over Time

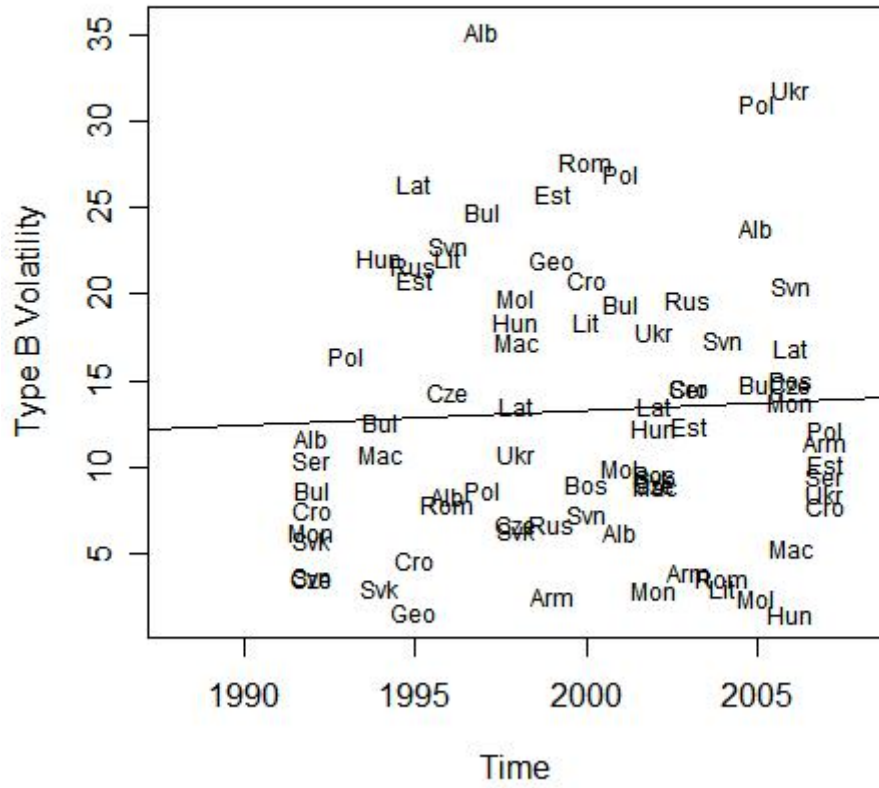


Figure 4. Total Volatility Over Time

