Party Systems and Political Centralization and Decentralization

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Abstract

We provide evidence toward settling a lively debate in the literature on party systems and national political institutions. Using a comprehensive, global dataset, we detail the empirical relationships between political centralization and nationalization of political party support, and we also help explain disparate findings in the literature. Does political centralization or decentralization proceed nationalization or regionalization of political party support, or the other way around? We find the relationship between these factors is generally positive across many countries and across long periods of time; that is, more centralization goes with more nationalized party systems. The overall patterns in the data, however, show that on average centralization precedes party system nationalization more often than the other way around. And specifically, we provide novel evidence that it is administrative centralization, and not fiscal centralization, that drives these changes. The findings, based on a variety of statistical specifications and measures, are important because they shed light on the way that institutional changes, including constitutional changes regarding the relationships between central governments and subnational governments, affect party competition.[1]

Keywords: political centralization, party nationalization, party systems, regional autonomy

1. Supplementary material for this article is available in the appendix in the online edition.
Replication files are available in the JOP Data Archive on Dataverse (http://thedata.harvard.edu/dvn/dv/jop).

For some time now, researchers in electoral politics have analyzed the theoretical and empirical relationships between party nationalization and political centralization. Nationalized party systems have political parties receiving similar proportions of the vote across all or most regions of the country.[2] Countries vary tremendously in the degree to which their party systems are nationalized, and researchers have analyzed the causes and consequences of this variation. Both nationalization and centralization, of course, have changed over time within countries.

Theoretical arguments about the relationships typically focus on the choices of voters and candidates to support regional versus national political parties, whether those choices *lead to* changes in party representation that in turn leads to change in centralization, or whether those choices are *functions of* degrees of centralization. Electoral-based approaches emphasize the former, and tend to see the preferences of voters and candidates for either more regional autonomy or for more national policy solutions as causes, and these preferences drive partisan loyalties; within governments, regionalized parties push for more sub-national autonomy, while nationalized parties push for more centralized authority and policies (Brancati 2008; Caramani 2004; Jolly 2015; Lublin 2014). In contrast, state-centered approaches emphasize the latter, how changes in levels of centralization, which could come about for many reasons, affect party systems (Chhibber and Kollman 2004; Hicken 2009; Hicken and Stoll 2008; Lago and Lago-Peñas 2016; Lago-Peñas and Lago-Peñas 2011). One mechanism in some state-based theories is that voters take as given where power is lodged and decide to vote for the parties that will have an effect on policy-making by governments regionally or nationally. And there is the possibility of *reciprocal causation*: party system characteristics and decisions over changes in centralization can feedback on each other (Harbers 2010; Calvo and Leiras 2012; Lublin 2014). The logic is straightforward: Suppose regionalized parties arise and press for decentralization. The government decentralizes as concessions. This promotes increasing voting for localized parties because those parties are strong in multiple levels of government, including regional assemblies.

Empirical findings are mixed in the literature, especially on whether nationalization is predominantly a cause or consequence of centralization. On balance, empirical studies show a positive correlation between nationalized party systems and centralization, though there are a few studies showing no correlation or even a mildly negative correlation.[3] Some research, notably, has focused attention on specific aspects of centralization, an approach we follow when we deepen our analysis below (Falleti 2005). Past studies, including Chhibber and Kollman (2004) and Lago and Lago-Peñas (2016) and Lago-Peñas and Lago-Peñas (2011), have often used measures of fiscal centralization as proxies for broader changes, leaving unanswered whether fiscal centralization primarily drives party system changes or whether there are other aspects to

2. This is sometimes referred to as "static nationalization." An alternative approach is to analyze "dynamic nationalization," which we do not pursue here. See Morgenstern (2017) and Morgenstern, Swindle, and Castagnola (2009).

3. See, for example, Lago-Peñas and Lago-Peñas (2011) for mixed evidence.

centralization that might matter.

To address the mixed findings, and to add more nuance to the literature, we present results from a rigorous analysis of the empirical relationships between multiple measures of nationalization and multiple measures of centralization. Using comprehensive, global data on more than 50 countries across almost 60 years, and incorporating many controls, we find patterns in our data that help resolve some of the debates. We not only confirm the correlation between nationalization and centralization, but also indicate the (on average) temporal ordering across may countries. The evidence from our analyses is that, on average across many countries and time periods, changes in levels of centralization precede changes in party support, but the opposite does not appear to be the case. In broad terms, the state-centric approaches find the most support. Moreover, we pinpoint that specific kinds of changes in degrees of centralization—namely administrative changes as opposed to fiscal—spur more changes in nationalization than other kinds. We believe this to be the first such study using global data to establish these facts. We have used many of the covariates found in others' research, and we have incorporated countries from regions that others have studied. Our data are the most global in scope, using the widest range of variables and measures of nationalization and decentralization that we are aware of, with longer time spans than in other research.

Our findings, based on a variety of statistical specifications and measures, are important because they shed light on the way that institutional changes, including constitutional changes regarding the relationships between central governments and subnational governments, affect party competition. The findings indicate that on average the emergence and strengthening of political parties pressing for regional interests and potentially seeking more autonomy for regions occur *after* countries have decentralized. And moreover, in findings that challenge the existing literature, it is not fiscal decentralization driving these patterns in party systems.

Data

Our data are from multiple sources and we use a variety of estimation techniques. Using multiple approaches demonstrates robustness of the main findings and also allows for different aspects of the relationships to be analyzed.

Among measures of centralization, one suits our purposes to analyze many countries over long periods of time. (The appendix summarizes results, mostly in cross-section, for relating a variety of measures with nationalization.) For a dynamic measure of centralization, Hooghe, Marks, and Schakel (HMS) created categorical measures of regional authority on multiple dimensions, of which there are primarily two (Hooghe, Marks, and Schakel 2010). The first is the degree to which sub-national units ("regions") have autonomy to

set policy independent from the central authority. This self-rule measure captures the degree to which powers are devolved to democratic authority in the subunits. Within the self-rule measure are distinct components; we will focus on two in a later section—administrative and fiscal. The second main dimension measures the degree to which subunits participate in shared rule of national-level government, capturing the influence regional authorities have in shaping national-level policies. Combining the self-rule/autonomy measure and the shared-rule/influence measure provides a single measure, the Regional Authority Index (RAI), which ranges between 0 and approximately 30 in this sample. We also tested the models presented throughout this paper with both main dimensions of RAI for robustness, and also distinct components within each of the main dimensions (e.g., administrative and fiscal). The results across the two main dimensions are consistent, and interestingly, work for either measure, shared-rule or self-rule. The full set of estimates are presented in Online Appendix E.

We focus on party system-level measures of nationalization, measured at the country-election year level, and we incorporate all parties receiving votes, not just parties identified as a specific type. Our data are time series, cross sectional (details in the appendix). We analyze models with three measures of nationalization, drawing on data from the CLEA database (Kollman et al. 2014). The models are estimated using the Inflation measure in Cox (1999) (Cox Inflation), the Kasuya and Moenius (2008) inflation and dispersion score (K&M Inflation), and the standardized and weighted nationalization measure from Bochsler (2010) (PSNS).[4] These three measures are correlated across the sample (see Online Appendix Table 5), and the three are presented in an effort to demonstrate the robustness of findings across particular measurements of party nationalization. Results, as we will summarize, are marginally sensitive to which measure is used in any particular estimation technique, but the directional findings are mostly consistent across measures.[5]

In addition to the main independent and dependent variables of interest, we add measures of federalism, electoral system, district magnitude, and a variety of other controls that have been analyzed in previous research (for instance, regional controls for Latin American and EU countries). Institutional features and country characteristics may drive the level of centralization or the structure of the party system. These, and other details about the data, are discussed in the Online Appendix.[6]

Variable	Mean	Std. Dev.	Min.	Max.	N
RAI	14.089	10.558	0	36.951	437
Cox Inf.	0.158	0.143	-0.076	0.698	465
PSNS	0.796	0.104	0.206	0.96	456
K&M Inf.	0.487	0.238	0.133	1.392	454

Table 1: Summary statistics for key variables

4. We discuss computation in Online Appendix A.2.
5. We discuss some causes of these differences in the appendix.
6. A full summary table (Table 4) and cross-correlation matrix (Table 5) is provided in the Online Appendix.

Estimation Strategy

Due to space limitations, we summarize the results of the first set of analyses, presented in the Online Appendix Section B and C. We also include in the appendix discussion of coefficients on control variables. This first set of analyses represents a broad attempt to replicate the kinds of analyses conducted in previous studies. We estimated a simple cross-sectional model on the means across across country-cases, then examined the relationships using panel data and a trio of models: dummy variable least squares, random effects, and Arellano-Bond GMM models. In these analyses, we examined models with centralization as the main dependent variable and then with nationalization — all three measures — as the main dependent variable. Findings confirm, as much research to date has found, a positive relationship between nationalization and centralization controlling for other factors. Depending on the specification and the dependent variable, results are consistent with a party-centric or a government-centric approach. Given that one can find models that support both, it is also reasonable to conclude from this first set of analyses that a reciprocal relationship might be at work. On balance, results suggest a dynamic relationship which should be examined with techniques better designed for such patterns in data; results also help explain why there are disparate conclusions in the literature.

Cross-Lagged Model

These analyses cannot, however, investigate a potential reciprocal relationship directly. A cross-lagged model directly tests the potential reciprocal relationship between the variables.[7] These take the form of structural equation models. A simplified example of a two-period model is presented below. This method is analogous to estimating a pair of linear regressions of the form

$$RAI_{it} = \beta_1 RAI_{it-1} + \beta_2 Inf_{it-1} + \epsilon_1 \tag{1}$$

$$Inf_{it} = \gamma_1 Inf_{it-1} + \gamma_2 RAI_{it-1} + \epsilon_2 \tag{2}$$

where the errors are correlated.[8]

Because the source of the missingness in our data is not random, we estimate a cross-lagged model with a transformation that better accommodates the observed data-generating process. We transform the data to fit the more parsimonious two-period model shown above. In this analysis, a country-election and the election which immediately preceded it are a single observation. Limiting the lag structure to a single inter-election

7. Such models are occasionally used in political science, mostly in the study of public opinion.
8. It is the estimation with correlated errors which differentiates this model from single-equation regressions, and thus allows simultaneous modeling of both hypothesized relationships.

period ensures the most cases from the dataset can be included in the analysis. Also, this restriction brings the cross-lagged model in line with the structure of our initial models, which focused on contemporaneous or single-period-lag relationships. It also places a high bar for finding any of the hypothesized relationships.

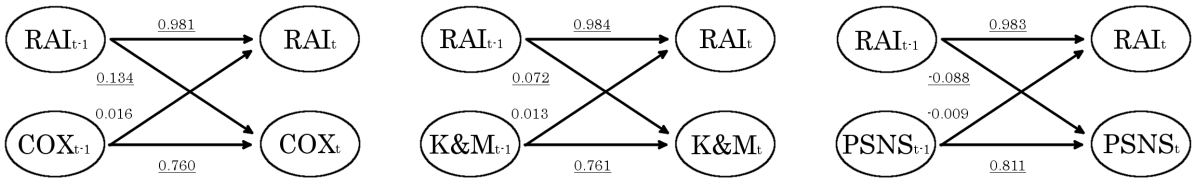

Figure 1: Cross-lagged Models for Cox's Inflation, PSNS, and K&M Inflation, with additional controls, Underlining indicates $p < .05$

The regression coefficients in the figures are presented in standardized form for ease of interpretation. In Figure 1, the results for the coefficients on the paths from the lagged variables to the current period's observation of the RAI indicate that the "stability" coefficients (between the lagged and current observation) are near unity (1), and highly significant. The coefficients of interest (between the lagged observation of the nationalization variables and the present observation of RAI) are of moderate size, but there is a clear effect of centralization on the nationalization measures in the next election. Across all three measures, the null can be rejected at the .05 level. In contrast, the lagged party nationalization measures (all three) show the correct signs but are not significant by standard levels.

These findings build on the findings from the cross-sectional and multiple panel models. There have been situations where regional parties proceed decentralization, and one can find evidence for specific cases consistent with reciprocal, feedback effects. But a systematic analysis of our global data shows that the most common dynamic pattern is that centralization moves first and nationalization moves thereafter. These results indicate that nationalization levels react to centralization changes and those new levels of nationalization persist.

Deeper Examination of the Types of Regional Authority

The RAI covers a variety of political and institutional changes, and may obscure the primacy of one type of autonomy in this relationship. The framework presented in Falleti (2005) is especially helpful here, focusing on three types of decentralization — fiscal, administrative, and political — for investigating the kinds of decentralization that matter for party regionalization. We use components of the RAI "Self-Rule" measures which reflect each of the three types of decentralization and repeat the analysis above.[9] Institutional depth and and policy scope, the independence and scope of policymaking at the regional level, are measures of

9. A complete set of results with all of the re-estimated models and results is in the Appendix.

administrative decentralization. Measures of fiscal and borrowing autonomy indicate the degree of fiscal decentralization. Measures of executive and legislative independence are used for political decentralization. A correlation matrix for these measures and the RAI index is presented in Table 2. Each of these is strongly and positively correlated with RAI, as one would expect.

	RAI	Admin	Fiscal	Political
RAI	1			
Admin	0.957	1		
Fiscal	0.881	0.825	1	
Political	0.900	0.941	0.794	1

Table 2: Correlation of Components with RAI

We can summarize the results of all of the analyses described above, including dummy variable least squares, random effects, and Arellano-Bond GMM models. We show directly the cross-lagged model results. Our reanalysis with these more specific measures for political, fiscal, and administrative autonomy reveals that the relationship between regional autonomy and party regionalization mostly comes from administrative decentralization and political decentralization, not from fiscal decentralization. Across a variety of models, the consistent result is that increases in administrative autonomy — the devolution of administration independent of central government veto to regional bodies along with increases in autonomy over economic, educational and cultural, welfare or other policies — is associated with increased party regionalization. Similarly, as regional political units gain legislative and executive autonomy — the creation of indirectly or directly elected regional bodies — party regionalization increases. As with the RAI index results, for these measures, the association in initial analyses appears to go both ways. For fiscal autonomy, the null hypothesis of no relationship cannot be rejected with any significant degree of confidence. We again turn to the cross-lagged model that most directly tests the potential for reciprocal relationships.

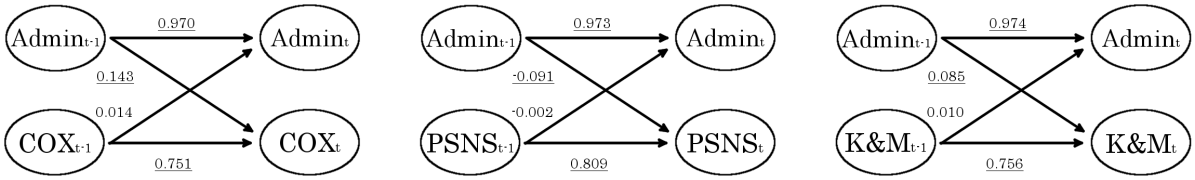

Figure 2: Cross-lagged Models for Cox's Inflation, PSNS, and K&M Inflation, with additional controls, Underlining indicates $p < .05$

We can see in Figures 2 through 4 the consistent pattern. Again, it is administrative and political autonomy which is associated with, and which precedes, increases in the regionalization of party systems. In the transitions between elections observed in this sample, when administrative or political autonomy increases, party regionalization (at the national level) increases, but the opposite does not appear to occur.

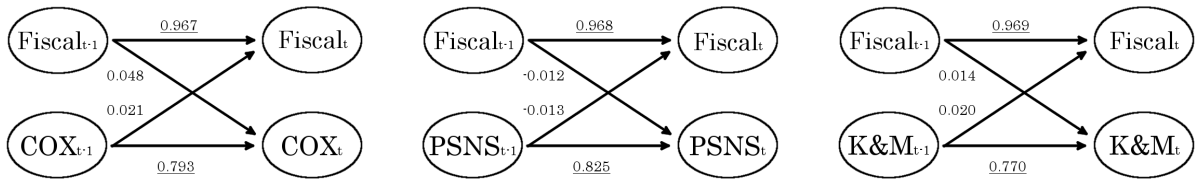

Figure 3: Cross-lagged Models for Cox's Inflation, PSNS, and K&M Inflation, with additional controls, Underlining indicates $p < .05$

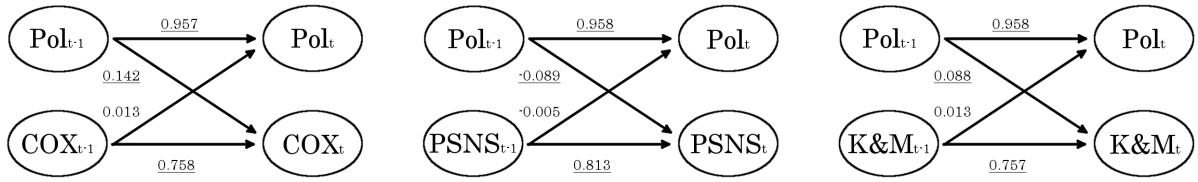

Figure 4: Cross-lagged Models for Cox's Inflation, PSNS, and K&M Inflation, with additional controls, Underlining indicates $p < .05$

Again, for fiscal autonomy, there does not appear to be a consistent relationship with party regionalization.

Taken together, these results suggest that, when examining a variety of countries over time, it is devolution of administrative tasks to independent regional bodies or the creation of independent legislative or executive bodies which precedes the rise of regional parties. It is not fiscal authority that moves the rise the regional parties, a finding that challenges both the reliance on fiscal measures in empirical research and theoretical accounts that mostly focus on levels of fiscal autonomy.

Discussion and Interpretation

Our results suggest that the relationship between decentralization and the rise of regional parties, while complex, does have discernible, global patterns. We confirm that indeed, nationalization and centralization are positively correlated with each other, using cross-sectional and panel data. We find little evidence of a reciprocal relationship. On balance the data give the most support for the state-centered approach, and especially for the role which administrative and political decentralization play in this relationship.

What about other findings that are more mixed in the literature? For instance, how do we account for Lublin (2014), who concludes that party regionalization often precedes decentralization in many countries? Or Lago-Peñas and Lago-Peñas (2011), who find little to no relationship in cross-national analyses, and a negative correlation between regionalization and decentralization in some countries (e.g., France)? Compared with Lublin and with Lago-Peñas and Lago-Peñas, we use different measures and different samples. Lublin, for instance, uses a more specific dependent variable — ethnoregional party success as opposed to a broader

measure of nationalization (regionalization) — and his results often show positive correlations between decentralization and regionalized party success across most of his analyses. In supplemental analyses (shown in the Online Appendix F), we split our sample and exclude those countries Lublin identifies as having decentralized for the purposes of appeasing local ethnic groups and look only to those that have decentralized for other reasons. Results for that sub-sample are mixed (as Lublin's work suggests), but the results remain consistent for the cross-lagged model we discussed previously. Finally, our sample is more comprehensive than Lago-Peñas and Lago-Peñas.

While our findings are robust and break new ground, we welcome additional research on the topic. It would be valuable, for instance, to examine what Morgenstern, Swindle, and Castagnola (2009) call "dynamic" nationalization patterns as they relate to political centralization. And a deeper dive into specific cases, much as Lublin has done, would be worthwhile for this broader set of countries in our data.

Our findings also raise the delicate normative issue about whether decentralization is worthwhile. Comprehensive national policy solutions can be valuable and often preferred over policies that result from cross-regional bargaining, but decentralization can lead to innovations and local accountability. Many countries face instability over secession and violence related to regional conflicts. The main results here, that administrative and political decentralization tends to lead to regionalized party systems, might cause worry about starting the chain of events by decentralizing. The benefits and costs of decentralization of political institutions should be acknowledged, and this research contributes to knowledge on consequences of major changes in power relationships across levels of government. At the least decentralization ought to be nuanced and considered carefully across various policy domains.

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Biographical Statements

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Online Appendix/Supplemental Material for "Party Systems and Political Centralization and Decentralization"

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A Data Sources, Measures, and Summary Statistics

In addition to measures of decentralization and party system nationalization from existing publications, we add measures of federalism, electoral system, district magnitude, and a variety of other controls, discussed below. Our specification approach follows from the viewpoint that there is no single correct empirical model for examining our set of questions. The particular challenges of our empirical task—testing an equilibrating, reciprocal relationship in the presence of confounders and limited variation within units across time—mean that there is no single model which captures all our needs. We use several techniques and estimate multiple models with different measures because each modeling approach illuminates distinct aspects of covariances among key variables and connects to the existing literature. Moreover, using multiple approaches demonstrates robustness of the main findings.

The sample of country-elections in our data are presented in Table 1. As some of the models presented in this work require repeated observations, the sample presented in Table 1 is not necessarily the sample present in all models. Countries with only one or two elections in our dataset are not included in models which require two, three, or more repeated observations. We advise the reader to consult the information on sample size for each model and adjust expectations accordingly.

Table 1: Summary of Elections in Data

	Min Year	Max Year	Number of Elections
Albania	2001	2009	3
Argentina	1983	2007	10
Australia	1951	1984	15
Austria	1956	2008	17
Bahamas	2007	2007	1
Bangladesh	1973	1973	1

	Min Year	Max Year	Number of Elections
Barbados	2008	2008	1
Belgium	1950	1995	15
Bolivia	1985	1997	4
Bosnia and Herzegovina	2006	2006	1
Botswana	1969	1999	5
Brazil	1962	1994	4
Bulgaria	1991	1997	3
Cameroon	1997	1997	1
Canada	1953	2008	19
Costa Rica	1994	2010	2
Croatia	2007	2007	1
Czech Republic	1996	2006	4
Denmark	1950	2007	23
Estonia	1992	2003	4
Finland	1951	2007	16
France	1973	2002	8
Germany	1953	2009	16
Greece	1951	2000	17
Guyana	1953	1997	4
Hungary	1990	2010	6
Iceland	1953	1995	14
India	1977	1999	10
Ireland	1951	2007	17
Israel	2009	2009	1
Italy	1953	1996	12
Jamaica	1949	1997	12
Japan	1952	2009	18
Kenya	1961	1997	4
Latvia	1998	2006	3
Mexico	1991	2009	4
Netherlands	1952	2010	18
New Zealand	1966	2008	5
Norway	1953	2009	15
Peru	1990	1990	1
Philippines	1992	2010	4
Poland	1991	2005	5
Portugal	1976	2009	12
Romania	1992	2000	3
Russian Federation	2003	2007	2
South Korea	2008	2008	1
Spain	1979	2008	9
Sri Lanka	1989	1994	2
Sweden	1952	2006	18
Switzerland	1951	1995	12
Thailand	1983	1992	3
Turkey	1961	2007	12
United Kingdom	1950	2010	17
United States	1950	2010	31
Total	1949	2010	466

A.1 Decentralization Measures

HMS (2015) created categorical measures of regional authority on two dimensions. The first is the degree to which sub-national units ("regions") have autonomy to set policy independent from the central authority. This self-rule measure captures the degree to which powers are devolved to democratic authority in the subunits. The second dimension measures the degree to which subunits participate in shared rule of national-level government, capturing the influence regional authorities have in shaping national-level policies. Combining the self-rule/autonomy measure and the shared-rule/influence measure provides a single measure, the a Regional Authority Index (RAI). Across the sample used in this paper, this RAI measure ranges from 0 (Ireland in the 1950s-1970s) to approximately 30 (West Germany in the 1980s).[1]

A.1.1 Consideration of Varieties of Regional Authority

We also examine different combinations of the components of RAI which reflect decentralization in administrative, political, and fiscal authority. As discussed in the text, we create three indices which use components from the self-rule portion of RAI to focus more on varieties of regional authority. Each of these componsent reflects different features of regional authority, and the particular coding is explained (including illustrative examples) in Chapter 3 of Hooghe, Marks, Schakel, et al. (2010)[p.60-80]. In describing how our variables are created, we summarize that discussion here.

	RAI	Administrative	Fiscal	Political
RAI	1			
Administrative	0.957	1		
Fiscal	0.881	0.825	1	
Political	0.900	0.941	0.794	1

Table 2: Cross-correlation table of Regional Authority measures

The first, administrative autonomy, is the sum of scores for institutional depth and policy scope. The institutional depth is, "a continuous dimension ranging from 'no autonomy from the central government' to 'complete autonomy'." At the low end of the scale are cases where there is no functioning "general purpose" regional administration. Then, deconcentrated general purpose administrations in regions are one step above, outposts of the central government. Non-deconcentrated administrations which face central government veto are considered to have more authority, and the lack of that veto represents the top end of this scale. Policy scope measures the degree to which regional authorities have control over five categories of policy: economic policy (investment and infrastructure), cultural-educational policy (schooling and cultural centers),

1. We also tested the models presented in the paper using each component of RAI for robustness. The results are consistent, and interestingly, work for either measure, shared-rule or self-rule. Those estimates are presented in Section E.

welfare policy (health policy and social welfare, such as housing), institutional-coercive policy (police, local government), and policy on community membership (immigration, citizenship, right of domicile). As regional authorities have control over more of these policy areas, they are given a higher score on this measure. Only regional authorities with control over institutional-coercive policy AND community membership receive the highest score in this category.

The second, fiscal autonomy, is the sum of the HMS scores for two parts of the self-rule measure related to borrowing and expenditure. The first, fiscal autonomy, is squarely focused on the regional government's ability to set rates of taxation. The scale considers scenarios where central government sets the base and rate of all regional taxes, through ones where regional governments set base and/or rate of minor taxes, to situations where the regional government sets the base and rate of at least one major tax: personal or corporate income, value added, or sales tax. This fiscal autonomy measure, then reflects the regional government's ability to set rates and grant allowances on tax which raise revenue for the regional body independent of the central government. The second part of this fiscal autonomy measure comes from the HMS index of regional government borrowing autonomy. Here, regional governments without the ability to borrow in any fashion are given the lowest scores. Governments which must obtain prior authorization, or those which need no authorization but which are bound by centrally-imposed restrictions, occupy the middle scores of the scale. Only governments which may borrow without authorization and without restriction are given the maximum score in this category.

The final measure, the political autonomy index, is the score HMS give regions (and thus countries) for political institutional independence. HMS are focused on representational autonomy, and thus the selection or election of regional office holders is the feature of interest. Two separate scores are given for legislative and executive offices. For regional assemblies, regions with no independent regional assembly are given the lowest score. Indirectly-elected regional assemblies are a midpoint in the scale, and regions with directly-elected assemblies are given the highest regional authority score. For executive institutions, regions with no independent executive, or those where the executive is elected directly by the central government, are given the lowest score. Regions with dual executives, selected both by regional assembly and the central government, are scored in the midpoint of the range. Regions which have executives selected solely by the regional assembly or directly elected are given the highest score in this category. Thus, it is only regional governments which have directly elected assemblies which nominate regional executives, or those which directly elect both an assembly and a regional executive, which receive the highest score in this index.

Each of these three indices measure different areas of regional authority, although they are related. In Table 2, we present the bivariate correlations of each of the three indices and the RAI overall[2]. Clearly, the

2. Recall that these three indices are constructed from measures on only one "half" of the RAI.

measures are correlated, as expected. However, there are important differences among the three measures, reflecting varieties of regionalization among the countries in our sample.

A.2 Nationalization Measures

We analyze models with three measures of regionalization, drawing on data from the Kollman et al. (2014) database. The models are estimated using the Inflation measure in Cox (1999), the Kasuya and Moenius (2008) inflation and dispersion score, and the standardized and weighted nationalization measure from Bochsler (2010).

Variables	RAI	Cox Inf.	PSNS	K&M Inf.
RAI	1			
Cox Inf.	0.402	1		
PSNS	-0.182	-0.805	1	
K&M Inf.	0.355	0.816	-0.633	1

Table 3: Cross-correlation table of key variables

These three measures are correlated across the sample (see Table 5), and the three are presented in an effort to demonstrate the robustness of findings across particular measurements of party nationalization. Results, as we will summarize, are marginally sensitive to which measure is used in any particular estimation technique, but the directional findings are mostly consistent across measures.

A.2.1 Inflation Measures and Identifying Parties

In the models, we rely on three measures of inflation which are computed from CLEA election data. These measures are computed using code from Kollman et al. (2014). The codebook for the supplemental database on party nationalization contains Stata and R code for recomputing the data directly, as well as other measures not used in this project. For the three measures we use—Cox's Inflation, Bochsler's PSNS, and Kasuya and Moenius's Inflation—we provide a brief summary of the coding.

Cox's inflation measure captures the aggregation of parties from the constituency level to the national level, and the discrepancy between the two using a difference-ratio measure. Specifically:

$$Inf_{Cox} = \frac{ENP_{nat} - ENP_{avg}}{ENP_{nat}}, \tag{1}$$

where

$$ENP_{nat} = \frac{1}{\sum_1^n p_i^2} \tag{2}$$

$$ENP_{avg} = \frac{\sum_1^d ENEP_{cst}}{d} \tag{3}$$

$$ENEP_{cst} = \frac{1}{\sum_1^n p_i^2} \tag{4}$$

Here, $ENEP_{cst}$ is effective number of parties constituency level, with parties n obtaining vote share p_i within the district. ENP_{nat} is computed similarly, but with n parties and vote share p_i at the national level. ENP_{avg} is average number of parties across all electoral districts d. This, then, captures the divergence in fortunes at the district versus national levels.

Bochsler's PSNS measure is an alternative measure which captures party nationalization. We use the recommended version of the standardized and weighted version of the measure, which is calculated using a Gini-based measure of vote share inequality. The calculation of this measure is quite complex, so we refer the reader to the original Bochsler (2010) text or the CLEA manual which outlines the computation of this and all prerequisite measures.

Kasuya and Moenius's inflaton and dispersion measure (as we use in our models) is somewhat more complex. This measure captures both weighting of districts by vote share and dispersion across districts in terms of variance and kurtosis of effective number of parties. It is calculated using some of the measures introduced above and additional components presented below.

$$Inf_{K\&M} = (inf3)^{0.5}(D)^{0.5}, \tag{5}$$

where

$$D = CV(inf5)^{0.5}k(inf5)^{0.5} \tag{6}$$

$$inf5 = \frac{ENP_{nat} - ENP_{cst}}{ENP_{cst}} \tag{7}$$

$$inf3 = \frac{ENP_{nat} - ENP_{wght}}{ENP_{wght}} \tag{8}$$

$$ENP_{wght} = \sum_1^d ENP_{cst}\frac{vot_{cst}}{vot_{nat}} \tag{9}$$

Here, CV is the coefficient of variation and k is kurtosis. For ENP_{wght}, d is the number of electoral

districts within the country, vot_{cst} is the number of votes cast in the constituency and vot_{nat} is the number of votes cast nationwide.

As a final, important note: the CLEA database looks specifically to how parties list themselves on ballots, and therefore regional subparties (if they have a different title) are treated differently in these data. We understand that there is some debate within scholarship on this topic, and among experts in particular democracies, about when to group and when to separate these sorts of parties. The behavior of referent parties or consistent coalition partners is idiosyncratic, and changes over time. We are sympathetic to concerns that multiple parties should be considered as one in some circumstances. However, without conducting case studies for every country-election, we would be unable to implement a coding rule which accurately satisfies this concern. To do so would require experts on every country in the sample and would introduce additional complexity to the data (and thus the computation of the above measures) which might make the measures inscrutable. We instead follow the CLEA convention and treat these smaller parties, even when they are part of a larger electoral coalition, as independent parties.

A.2.2 Differences among the nationalization measures

One may note that, in the results presented, there are differences in the substantive and statistical significance of relationships across the three measures. This was one motivation for using all three, rather than looking to only one metric. Each of these measures treats features of party politics within countries a bit differently. The Cox and K & S measures are "inflation" measures, while the Boschler PSNS measures are based on a Gini method. Further, the PSNS measure we use is further transformed (standardized and weighted) to correct for differences in both number of constituencies and relative differences in sizes of constituencies within a country. This is the preferred measure for international comparisons because it reduces differences in the measure which arise out of differences in districting. However, this also has the consequence of changing the degree of cross-national difference in the data. As the majority of the variation in our sample comes from cross-national differences, not intertemporal ones, this also affects the relationship between PSNS and RAI (which does not have similar corrections). Looking to Table 3, one can see the bivariate correlation between PSNS and RAI is much weaker than for either of the inflation measures.

A.3 Other Variables

In addition to the main independent and dependent variables of interest, we also capture institutional features and country characteristics that may drive the level of centralization or the structure of the party system. Federations, it stands to reason, are expected to be more decentralized than other countries. RAI

and measures of federalism bear this out (see Table 5). And in fact, many researchers, when testing the relationship between centralization and nationalization simply use a dummy for federalism as their measure of decentralization. We are wary of this approach, but recognize that federalism itself might matter. A federalism measure roughly captures some of the variation among cases which is measured by RAI. For these models, we use a binary variable where countries are coded as federal if they were listed as either federal or quasi-federal by Bednar 2008. Clearly, the relationship among federalism, decentralization, and party system nationalization is complex, and debates over this relationship are set aside for this paper. However, including federalism as a control provides a degree of confidence that it is the effective level of decentralization, not just the presence of sub-national units, which is shaping the dynamics of interest. Federations, it is important to note, themselves centralize and decentralize over time, as do non-federations.

Variable	Mean	Std. Dev.	Min.	Max.	N
RAI	14.089	10.558	0	36.951	437
Cox Inf.	0.158	0.143	-0.076	0.698	465
PSNS	0.796	0.104	0.206	0.96	456
K&M Inf.	0.487	0.238	0.133	1.392	454
Post-1991	0.341	0.475	0	1	466
EU Member	0.294	0.456	0	1	466
NATO Member	0.524	0.5	0	1	466
Latin Amer.	0.047	0.212	0	1	466
Presidential	0.148	0.356	0	1	466
Federal	0.417	0.494	0	1	465
Years of Dem	51.259	37.373	1	139	436
Majoritarian	0.306	0.461	0	1	431
Dist. Mag.	12.179	29.294	1	150	431

Table 4: Summary statistics

Two features of elections, the electoral system and the magnitude of districts, also play important roles in shaping party systems. We thus code cases as majoritarian or proportional using a binary variable transformation of Bormann and Golder (2013) measure of lower house legislative electoral systems. Mixed cases are treated as proportional, although findings are robust to alternative coding schemes. The mean district magnitude in lower house legislative elections also comes from the same data source, and is computed by dividing the total number of seats allocated within an electoral tier by the number of districts in that tier. (Findings using the median district magnitude are robust.) We discuss this coding and decision in more detail below.

The separation of powers within a country may also shape centralization and party system. To capture this, we include a variable separating presidential system from parliamentary systems. This coding comes from Cheibub, Gandhi, and Vreeland (2010). Presidential systems are coded as having separated powers, while mixed and purely parliamentary systems are not. Results are robust to specifications with mixed cases

coded as separated. The coding presented here reflects when $regime = 2$ in the Cheibub, Gandhi, and Vreeland (2010) data, with the alternate coding including $regime = 1$. We discuss this further below.

We also include dummy variables to address regional heterogeneity among countries. Because many studies of nationalization focus solely on Latin American countries, we assign Latin American countries a dummy variable. (This reflects Przeworski (2000) coding.) Membership in NATO or the European Union (or its predecessor bodies) is also captured by a dummy variable, coded 1 starting with the first year of full membership. We also include a dummy variable for elections occurring after 1991 when the Soviet empire collapsed.

Finally, because some countries in the sample are relatively new democracies, and thus more likely to undergo institutional change, we also include a measure of the age of the democracy. This is the number of years since the regime was first coded a democracy in the Cheibub et al dataset.

For models where the outcome variable is centralization, we include controls for federalism, the age of democratic institutions, electoral institutions, presidentialism, and the regional, international organization, and time dummies discussed above. These are the covariates which we, and others in the literature, believe are likely to affect the level of centralization in meaningful ways.

For models where the outcome variable is party nationalization, we control for federalism, presidentialism, electoral institutions, the age of democratic institutions, and district magnitude. Again, these represent our beliefs, sometimes motivated by the literature, about what covariates may affect the rise or decline of regional parties.

The resulting dataset covers 54 cases over 60 years. For some measures, coverage of all countries in the sample is incomplete, and these are omitted from model estimates when those measures are included. This causes variation in the number of observations across models. Also, because the unit of observation is the country-election, the panel is unbalanced, which reflects differences both in the length of time which a country has been a democracy and the frequency of elections in different regimes. For the 54 countries in the sample, we observe between 1 and 31 elections. For analyses incorporating time variation, there are 45 country-cases.

Variables	RAI	Cox Inf.	PSNS	K&M Inf.	Post-91	EU	NATO	LA	Pres	Fed	Yr Dem	Maj	Dist. Mag.
RAI	1												
Cox Inf.	0.402	1											
PSNS	-0.182	-0.805	1										
K&M Inf.	0.355	0.816	-0.633	1									
Post-1991	-0.013	0.107	-0.035	0.041	1								
EU	0.123	0.024	-0.018	-0.137	0.152	1							
NATO	0.198	-0.061	0.153	-0.086	-0.066	0.399	1						
LA.	0.060	0.226	-0.227	0.084	0.075	-0.144	-0.233	1					
Pres	0.389	0.267	-0.169	0.395	0.057	-0.269	-0.062	0.448	1				
Fed	0.791	0.391	-0.126	0.344	-0.073	0.037	0.133	0.120	0.334	1			
Yr Dem	0.445	0.012	0.083	0.092	0.071	0.224	0.295	-0.229	0.257	0.225	1		
Maj	0.282	0.180	0.162	0.320	-0.102	-0.245	0.031	-0.154	0.163	0.374	0.239	1	
Dist. Mag.	0.008	-0.170	-0.016	-0.135	0.004	0.281	0.154	-0.024	-0.116	-0.207	0.274	-0.245	1

Table 5: Cross-correlation table

A.3.1 Electoral System Measures

As a control for the effect of electoral system on the inflation measures, we rely on the data from Bormann and Golder (2013). In their database, electoral systems are coded as purely majoritarian, purely proportional, or a mixture of both systems. We present analysis where we group mixed systems with proportional electoral systems for simplicity. To some, this may appear a curious choice. However, our decision in this matter is motivated by the district magnitude logic discussed in our review of extant theory.

There are a variety of mixed electoral systems, some where the proportional vote is parallel to the district-level majoritarian one, others where PR is used to "correct" for national imbalances in vote share in the district-level majoritarian elections. While some of the outcomes (and voter motivations) in these systems differ, what is consistent is that seats are allocated (or reallocated) at a level above the single district level. One can then consider the variable to represent "systems where districts are winner-take-all" versus "all others". This ties back to our focus on the Duvergerian logic of party systems, as well. More specifically, one can consider the comparison to be between systems where the minimum number of parties within a district is 2 (majoritarian systems) and ones where the minimum number of parties within a district may be higher, thanks to proportional representation voting (or some aspects thereof).

A.3.2 Presidential Systems

The separation of powers between a legislature and an executive can have profound effects on party incentives within a country. However, some countries have "figurehead" presidencies, where the executive has relatively few (if any) powers. The codebook which accompanies Cheibub, Gandhi, and Vreeland (2010) does not indicate whether these cases are treated as having separated powers or not. However, an investigation into the data, looking at notable cases of "figurehead presidencies", suggests that the authors do not consider these true presidential systems.[3] If readers are concerned with the coding of a specific case, we encourage them to look directly at the data, which are available online.

B Replication of Standard Models Using Expanded Panel Data

As discussed in the body of the manuscript, we first estimated a series of models which replicated existing work in model structure. We begin with a familiar cross-national model with pooled observations across time. We then leverage the full data by estimating panel models. To address some econometric concerns related to the dynamic nature of the relationship, we retest the models using an Arellano-Bond GMM estimator. Each of these estimation strategies addresses particular aspects of the data and the hypothesized relationships.

3. We thank a helpful reviewer for suggesting we look to Israel and Ireland, both of which are coded as non-presidential.

They were excluded from the body text for reasons of space and research focus, but are presented here for the reader's information. The results from these models motivated, in part, the estimation strategies employed in the main article.

B.1 Pooled Data Analysis

Let us answer a simple question with these data: what is the basic, cross-sectional relationship between nationalization and political centralization? The original hypothesis (the government institutions explanation) from Chhibber and Kollman (2004) (Ch. 8) was tested in this manner, and was common before the release of the RAI measure. Returning to this test with new data allows us to consider new evidence against old.

The most straightforward answer comes from estimating the correlation between the measures pooled across time for each country. We estimate a simple regression model where country means, rather than individual election data, are the observation of interest. These models take the form

$$\overline{RAI_i} = \beta_0 + \beta_1 \overline{Inf_i} + \epsilon_i \tag{10}$$

$$\overline{RAI_i} = \beta_0 + \beta_1 \overline{Inf_i} + \beta_2 Fed_i + \epsilon_i \tag{11}$$

$$\overline{Inf_i} = \gamma_0 + \gamma_1 \overline{RAI_i} + \kappa_i \tag{12}$$

and are estimated separately, with robust standard errors. Inf refers to any of the three measures of nationalization, and Fed is the dummy variable for federalism as described above. The results from these models are presented in Tables 6, 7, and 8.

	DV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	30.869		
	(0.006)		
Mean PSNS		-26.496	
		(0.031)	
Mean K&M Inf.			16.482
			(0.036)
Constant	6.423	32.119	3.134
	(0.002)	(0.001)	(0.393)
Adj R^2	0.164	0.063	0.107
Num Obs	47	47	46

Table 6: Country Means, OLS

Tables 6 and 7 present results from a univariate regression of RAI on the three measures of party nationalization, testing cross-nationally the party explanation. There are differences in scale of the three

	DV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	12.688		
	(0.020)		
Mean PSNS		-13.250	
		(0.048)	
Mean K&M Inf.			7.649
			(0.041)
Federal	15.754	16.439	16.225
	(0.000)	(0.000)	(0.000)
Constant	4.475	16.646	2.663
	(0.000)	(0.003)	(0.172)
Adj R^2	0.681	0.673	0.672
Num Obs	46	46	45

Table 7: Country Means, OLS

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Mean RAI	0.006	-0.003	0.008
	(0.001)	(0.086)	(0.004)
Constant	0.096	0.815	0.406
	(0.000)	(0.000)	(0.000)
Adj R^2	0.164	0.063	0.107
Num Obs	47	47	46

Table 8: Country Means, OLS

variables.[4] We therefore rescale the K&M measure to be approximately the same range and distribution across values. With this rescaling, the three measures are roughly comparable. The magnitude of the coefficients and statistical significance suggests that there is some relationship between the measures of parties and the measure of decentralization. This is not a novel finding, but corroborates the findings suggested by other work, with ours using a a global sample and a variety of measures. This relationship remains even after including a measure of federalism, which is closely linked to regional authority.

The relationship is consistent when regressing party nationalization on RAI (the government institutions explanation), as presented in Table 8. Here, the RAI does not exhibit a strong relationship with Bochsler's nationalization measure (PSNSsw), but does appear to exhibit a clear relationship with the two inflation measures.[5]

In sum, the correlation between RAI, the measure of decentralization, and each of the three measures of nationalization/regionalization of parties is moderate. The two concepts are not the same, so they do not

4. The Cox Inflation measure is between -0.1 and .7 in this sample, PSNS between 0.2 and 1, and K&M Inflation between 1.3 and 14.

5. It is worth noting that testing other measures of centralization and decentralization, including all the ones compared in the appendix of HMS (2010), leads to the same conclusion. Nearly all of these measures besides RAI are static. Nevertheless, across a global, cross-national database, decentralization is positively associated with more party system regionalization. The complete results are available from the authors.

covary strongly. However, the two are also not independent.

These country mean regressions suppress information about change in the measures over time, and thus arguments about sequence and other intertemporal relationships cannot be be tested with these models. We now move to analysis of the panel data.

B.2 Panel Data Analysis

Most recent analyses of the relationship between party systems and centralization of political authority have used panel data methods on within-country and typically small-sample cross-national datasets (e.g., Lago-Peñas and Lago-Peñas 2009). Using panel analysis with our large sample allows us to test for changes in both key dependent and independent variations, conditioning on potential confounders. The data are country-election observations (it), where i is the country and t is the election in the sample. As with all panel data, heterogeneity between countries (cases) will matter; differences between countries in the dependent variables of interest are for reasons which go beyond the variables included in the model.

A Dummy Variable Least Squares (DVLS) model, using OLS and robust standard errors, can address some of these concerns by including variables uniquely identifying each unit across the observations.[6] Our DVLS take the form

$$RAI_{it} = \beta_0 + \beta_1 Inf_{it} + \boldsymbol{\beta}\mathbf{X_{it}} + \boldsymbol{\beta_{DV}}\mathbf{DV_i} + \epsilon_{it} \tag{13}$$

$$Inf_{it} = \gamma_0 + \gamma_1 RAI_{it} + \boldsymbol{\gamma}\mathbf{X_{it}} + \boldsymbol{\gamma_{DV}}\mathbf{DV_i} + \kappa_{it} \tag{14}$$

Coefficients from the DVLS models presented in Tables 9 and 10 include all of the country-election observations in the sample, and capture the relationship among the variables while also accounting for country-specific effects on the outcome. The results reinforce the relationship between the variables suggested by the pooled analysis above. Here, the relationship between party regionalization and regional authority appears strong and in the expected direction, even when controlling for a number of covariates of interest and country-specific factors. The null hypothesis of no relationship between the Kasuya and Moenius measure of party regionalization and decentralization cannot be rejected at traditional critical values, but the sign of the coefficient is consistent. Similarly, the regressions where measures of party regionalization are the dependent variable show the same relationship as in the country-means estimates. Again, the relationship

6. An alternative to use of the dummy-variable specification is the use of a fixed effects model. However, the inclusion of a fixed effect parameter prevents the inclusion of any time-invariant parameters. This was the impetus behind the DVLS, rather than FE, specification. The vector of country dummies is (multi)collinear with the vectors of time-invariant variables. This presents a problem for the assumptions of OLS, which motivated further specifications. We present the DVLS results here for comparison, with that caveat.

between RAI and party regionalization is weak with the Kasuya and Moenius measure.

While the dummy variable models have appealing features, such as ease of interpretation, capturing the unobserved differences between countries, which manifest as differences in the level of regional authority or party regionalization, can be done in other ways. A random effects model, where the individual unobserved effects are assumed to be uncorrelated with the observed included covariates, provides an alternative. Because of the assumption of little or no correlation between unobserved effects and observed covariates, it is possible to include time-invariant variables in random effects models and still recover parameter estimates. [7] These random effects models take the form

$$RAI_{it} = \beta_0 + \beta_1 Inf_{it} + \boldsymbol{\beta}\mathbf{X_{it}} + \nu_i + \epsilon_{it} \tag{15}$$

$$Inf_{it} = \gamma_0 + \gamma_1 RAI_{it} + \boldsymbol{\gamma}\mathbf{X_{it}} + \xi_i + \kappa_{it} \tag{16}$$

where ν_i and ξ_i are the country random effects for each model. Because of the unknown parameters included in the random effects model, it is estimated using generalized least squares, but we still report robust standard errors. This is a demanding set of tests, and the directions of the relationship are consistent, as seen in the figures, but they fail in several of the models to reach critical values of significance for the random effects models.

We see in the tables some differences between the random effects estimation and the DVLS estimation. First, while many of the estimated parameters are similar in magnitude and direction, the larger standard errors in the GLS estimation of the random effects model where RAI is the dependent variable mean that confidence in those parameters representing a "true" effect is weaker. Second, the additional fit statistics also shed light on the pattern already described: there is more difference among the countries than within them. Finally, the estimates for the effect of RAI on the various party regionalization measures remain largely consistent with expectations.

Estimated coefficients for the random effects models are presented in Tables 11 and 12 below. In general, controlling for other factors including the two main variables, nationalization and centralization, federalism and presidentialism correlate in sometimes expected and sometimes unexpected ways. Federalism correlates with more decentralization, but when controlling for the RAI measure, it is negatively correlated with regionalized political parties. We believe is this is because some of the federated cases (e.g., U.S. and the

7. A fixed-effects model, with the time-invariant covariates removed, was compared to a random effects model using the Hausman test, which allows us to confidently reject the concern about consistency in the estimator. In addition to being theoretically reasonable and desirable for the ability to include relevant time-invariant regressors, the random effects model is at least as efficient as the FE model, if not more.

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	7.841		
	(0.000)		
PSNS		-10.943	
		(0.000)	
K&M Inf.			1.785
			(0.040)
Post-1991	0.269	0.502	0.280
	(0.540)	(0.239)	(0.533)
EU Member	1.340	1.377	1.175
	(0.004)	(0.004)	(0.018)
NATO Member	4.305	4.100	4.326
	(0.020)	(0.024)	(0.020)
Latin Amer.	-4.034	-5.737	-0.701
	(0.117)	(0.027)	(0.794)
Presidential	3.061	2.822	3.504
	(0.189)	(0.193)	(0.197)
Federal	13.805	15.177	13.092
	(0.000)	(0.000)	(0.000)
Years of Dem	0.033	0.030	0.044
	(0.009)	(0.020)	(0.004)
Majoritarian	-2.455	-2.824	-2.220
	(0.020)	(0.004)	(0.062)
Constant	5.956	16.410	4.853
	(0.000)	(0.000)	(0.002)
Adj R2	0.950	0.948	0.948
Num Obs	406	397	398

Table 9: DVLS Estimates

U.K.) have small district magnitude and also are a large portion of the sample given the many elections. Presidentialism, when controlling for RAI, is positively related to regionalization of the party system. Being an EU member or a NATO member relates to more decentralization. Older democracies are more decentralized, while majoritarian democracies are more centralized. Somewhat surprisingly, when controlling for RAI and other factors, higher district magnitude is associated with more nationalized party systems (i.e., fewer regionalized parties). This result for district magnitude has similarities to the Morgenstern (2017) findings that indicate an interactive relationship between the number of districts in a country and the relationship between centralization and nationalization.[8]

Our main focus, however, is on nationalization and centralization. By and large, to this point our initial panel data analyses offer support for either the party explanation or the government institutions explanation, with the random effects estimation having large enough errors to pose uncertainty about the strength of the partial correlations, especially those weighting within country changes over time.

8. Morgenstern's results and our results appear to us to be consistent. A full exploration comparing his findings and ours is beyond the scope of this present paper. His book was being released as this paper was being finalized.

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
RAI	0.007	-0.005	0.003
	(0.001)	(0.000)	(0.210)
Federal	-0.234	0.242	-0.266
	(0.000)	(0.000)	(0.014)
Presidential	0.104	-0.076	0.307
	(0.001)	(0.020)	(0.000)
Dist. Mag.	-0.006	0.002	-0.012
	(0.048)	(0.027)	(0.005)
Majoritarian	0.037	-0.053	0.053
	(0.436)	(0.062)	(0.467)
Years of Dem	0.001	-0.000	-0.001
	(0.004)	(0.201)	(0.396)
Constant	-0.029	0.951	0.529
	(0.363)	(0.000)	(0.000)
Adj R2	0.693	0.667	0.610
Num Obs	406	397	398

Table 10: DVLS Estimates

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	8.018		
	(0.085)		
PSNS		-11.079	
		(0.093)	
K&M Inf.			2.000
			(0.277)
Post-1991	0.212	0.415	0.271
	(0.730)	(0.457)	(0.656)
EU Member	1.317	1.327	1.210
	(0.138)	(0.136)	(0.163)
NATO Member	3.741	3.582	3.717
	(0.057)	(0.063)	(0.049)
Latin Amer.	0.421	-0.039	1.071
	(0.896)	(0.990)	(0.760)
Presidential	2.877	2.797	3.202
	(0.009)	(0.015)	(0.007)
Federal	14.113	14.733	14.543
	(0.000)	(0.000)	(0.000)
Years of Dem	0.037	0.036	0.045
	(0.128)	(0.141)	(0.121)
Majoritarian	-2.164	-2.271	-2.016
	(0.042)	(0.018)	(0.087)
Constant	2.522	12.428	2.261
	(0.125)	(0.020)	(0.255)
R^2 Between	0.707	0.708	0.698
R^2 Within	0.274	0.276	0.226
R^2 Overall	0.677	0.661	0.692
ρ	0.849	0.846	0.843
$P > \chi^2$	0.000	0.000	0.000
Num Obs	406	397	398

Table 11: GLS Estimates, Country Random Effects

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
RAI	0.007	-0.006	0.006
	(0.041)	(0.033)	(0.136)
Federal	-0.062	0.073	-0.062
	(0.305)	(0.078)	(0.411)
Presidential	0.107	-0.079	0.233
	(0.029)	(0.029)	(0.003)
Dist. Mag.	-0.003	0.001	-0.003
	(0.121)	(0.251)	(0.183)
Majoritarian	0.024	-0.005	0.111
	(0.472)	(0.836)	(0.037)
Years of Dem	0.000	0.000	-0.001
	(0.385)	(0.856)	(0.604)
Constant	0.087	0.831	0.427
	(0.003)	(0.000)	(0.000)
R^2 Between	0.269	0.191	0.290
R^2 Within	0.149	0.089	0.057
R^2 Overall	0.157	0.041	0.204
ρ	0.658	0.654	0.567
$P > \chi^2$	0.006	0.020	0.000
Num Obs	406	397	398

Table 12: GLS Estimates, Country Random Effects

C Arellano-Bond GMM Analysis

The above panel models do not fully address a potential dynamic relationship among our key variables. Simply including an autoregressive component (such as a lagged dependent variable) into a mixed model yields inconsistent parameter estimates. One alternative is to specify a model which includes a dynamic component while also addressing unit-specific effects. The Arellano-Bond (Arellano and Bond 1991) estimator uses a first-differenced specification with a lagged dependent variable (instrumented through use of higher-order lags) to address both dynamics and country specific heterogeneity.

The models estimated use the Generalized Method of Moments, and their specification is:

$$\Delta RAI_{it} = \alpha \Delta RAI_{it-1} + \beta_1 \Delta Inf_{it} + \boldsymbol{\beta} \boldsymbol{\Delta} \mathbf{X_{it}} + \Delta \epsilon_{it} \tag{17}$$

$$\Delta Inf_{it} = \alpha \Delta Inf_{it-1} + \gamma_1 \Delta RAI_{it} + \boldsymbol{\gamma} \boldsymbol{\Delta} \mathbf{X_{it}} + \Delta \kappa_{it} \tag{18}$$

The A-B method does, however, put the spotlight on temporal as opposed to cross-national variation. Because this is a first-differenced specification, the only information which is used in estimation of parameters in the model is from the "within-country" variation. In the specifications in the previous section, the use of demeaning, rather than differencing, still retains information about the differences between the cases over time. It should be noted that, for many countries in our sample, the inflation measures (our measures of regional parties) do not change a great deal, and measures of regional autonomy, which require institutional changes within countries, change even less frequently. For this reason, the Arellano-Bond estimator represents a very stringent test of the hypothesized relationships, as it omits a great deal of the between-case variation in the data. However, it does allow us to examine the hypothesized relationships between regional parties and decentralization without concerns about differences between cases overshadowing changes within cases.

Moreover, because the A-B estimator uses first-differences, time invariant variables such as federalism and region dummies cannot be included. Thus, the controls included in our A-B estimates are a subset of those included in the previous panel data analysis. Also, the lagged instruments method means that countries must have at least three elections to be included in the analysis.[9] The sample from which these parameter estimates are derived is a subset (and an "older democracies" subset) of the entire panel. These models are estimated using the "two-step" estimator and heteroskedasticity-consistent standard errors as recommended by Windmeijer (2005).

From Tables 13 and 14, we can see that the Arellano-Bond estimator models suggest a weak relationship

9. One lag is required for the first-differencing, the second for the lag-as-instrument.

when the focus is solely on within-country over time changes, and the relations estimated depend on measures used. In the models where regional autonomy is the dependent variable, the contemporaneous level of party regionalization is near or within the traditional threshold for rejection of the null hypothesis. In models where party regionalization is the outcome variable, the same pattern also arises. The A-B estimators are again weakly consistent with either a partisan explanation or a government institutions explanation.

While the A-B estimator addresses the dynamic relationship between variables, through the instrumented lagged dependent variable, and the concerns about unobserved country-specific variation, through the first-differencing method, it fails to address two final concerns which arise with the hypothesized relationship between decentralization and the rise of regional parties. First, the A-B estimator does not allow us to consider what effect time invariant correlates may have on the dependent variables. There is no way to observe, for example, what if any effect federalism or regional differences have in the dynamic model. Second, because the model only estimates residuals for regression of one variable on a set of covariates, a single model cannot be used to test whether X causes Y, Y causes X, or both. The models estimated above only test for the presence of a relationship in one direction, either from decentralization to regionalization or vice versa. However, it is possible, and sometimes argued in the literature, that party system changes change the degree of centralization, which in turn causes further change in the party system. Since there remains the possibility that each causes the other simultaneously within periods in our data, we apply a model design which allows the inclusion of time-invariant controls *and* the estimation of a reciprocal dynamic relationship.

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	1.980		
	(0.198)		
PSNS		-6.201	
		(0.030)	
K&M Inf.			0.378
			(0.693)
Lag RAI	0.397	0.371	0.402
	(0.000)	(0.000)	(0.000)
Majoritarian	-2.985	-3.624	-2.721
	(0.187)	(0.100)	(0.245)
EU Member	-0.317	-0.216	-0.337
	(0.492)	(0.652)	(0.474)
NATO Member	2.484	2.743	3.285
	(0.338)	(0.276)	(0.281)
Years of Dem	0.020	0.026	0.024
	(0.136)	(0.227)	(0.262)
$P > \chi^2$	0.000	0.000	0.000
Num Obs	328	315	316
AR(1) Test	-2.310	-2.102	-2.242
	(0.021)	(0.036)	(0.025)
AR(2) Test	0.676	0.842	0.650
	(0.500)	(0.400)	(0.518)

Table 13: Arellano-Bond GMM Estimator

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Lag Cox Inf.	-0.169		
	(0.276)		
Lag PSNS		0.066	
		(0.744)	
Lag K&M Inf.			0.391
			(0.032)
RAI	0.002	-0.003	-0.003
	(0.522)	(0.147)	(0.644)
Dist. Mag.	-0.010	0.001	-0.014
	(0.182)	(0.758)	(0.178)
Majoritarian	0.010	-0.050	-0.143
	(0.901)	(0.533)	(0.294)
Years of Dem	0.001	-0.001	0.000
	(0.086)	(0.288)	(0.989)
$P > \chi^2$	0.339	0.229	0.021
Num Obs	329	313	314
AR(1) Test	-0.879	-1.814	-2.017
	(0.379)	(0.070)	(0.044)
AR(2) Test	0.580	-0.538	1.300
	(0.562)	(0.590)	(0.194)

Table 14: Arellano-Bond GMM Estimator

D Cross-Lagged Model

We present here estimates of the cross-lagged models with only the covariates of interest. The results in the paper include a variety of controls which are omitted here. Again, the figure shows standardized coefficients, for ease of interpretation. These results are consistent with those presented in the text which include the controls.

A cross-lagged model directly tests the potential reciprocal relationship between the variables. Such models are occasionally used in political science, mostly in the study of public opinion. (Highton and Kam 2011, Finkel 1985, Kegley and Hook 1991). These take the form of structural equation models where a unit is sampled on one or more covariates at two points in time. In the structure of the model, each of the covariates is assumed to affect the same covariate in the next period, as well as the other covariate in the next period. Additionally, the covariates in each period are assumed to covary, with error. A simplified example of a two-period model is presented below. This method is analogous to estimating a pair of linear regressions of the form

$$RAI_{it} = \beta_1 RAI_{it-1} + \beta_2 Inf_{it-1} + \epsilon_1 \tag{19}$$

$$Inf_{it} = \gamma_1 Inf_{it-1} + \gamma_2 RAI_{it-1} + \epsilon_2 \tag{20}$$

where the errors are correlated.[10]

A fully-specified model would include lagged parameters for all elections, to fully capture the dynamics of the relationship, and would be estimated using full-information maximum likelihood to address missing data issues. However, the nature of the imbalance in our panel makes this impossible to estimate. Some countries in the sample only have a handful of elections, while others have many. The missing observations are clearly not missing at random. Estimation with FIML in the presence of non-random missingness yields biased parameter estimates.[11]

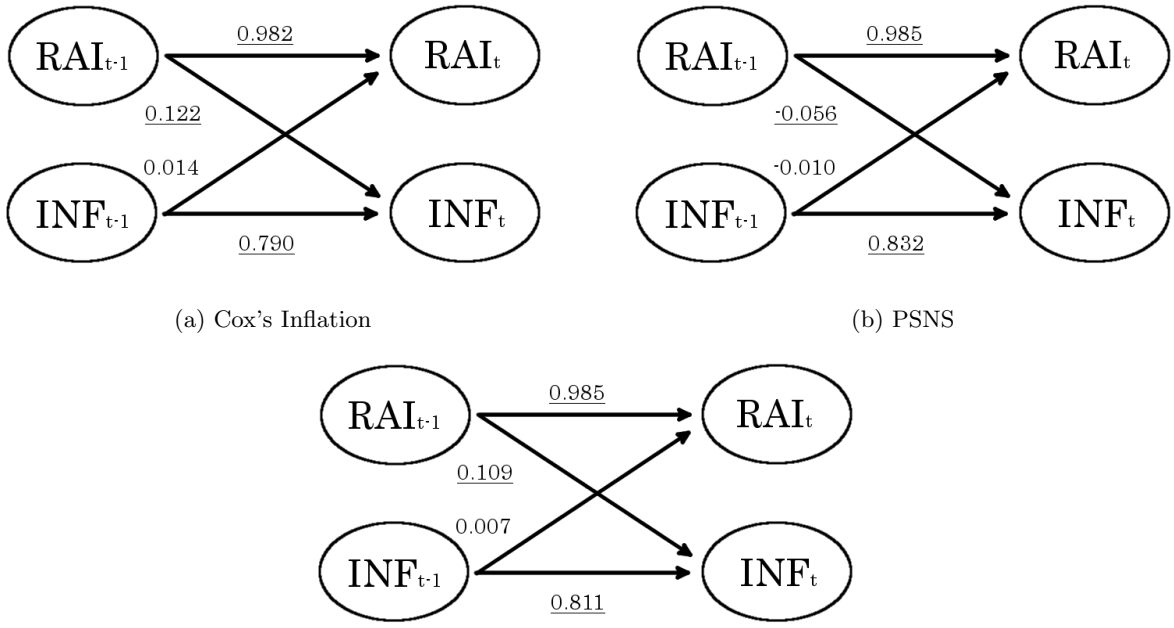
Because the source of the missingness is not random, we estimate a cross-lagged model with a transformation that better accommodates the observed data-generating process. Rather than specify a model which treats all countries as if they had 30 elections in the sample, we transform the data to fit the more parsimonious two-period model shown above. In this analysis, a country-election and the election which immediately preceded it are a single observation. For instance, Canada held parliamentary elections in 1980,

10. It is the estimation with correlated errors which differentiates this model from single-equation regressions, and thus allows simultaneous modeling of both hypothesized relationships.

11. While better than other estimators, FIML cannot overcome the problem completely, as this missingness itself contains information.

1984, and 1988. The 1980-1984 pair would be one observation, while the 1984-1988 pair would be another. Limiting the lag structure to a single inter-election period ensures the most cases from the dataset can be included in the analysis without the need for inappropriate projection from the sample observations. Also, this restriction brings the cross-lagged model in line with the structure of our initial models, which focused on contemporaneous or single-period-lag relationships. It also places a high bar for finding any of the hypothesized relationships. Thus, this test biases against finding a temporal relationship between centralization and nationalization.

The regression coefficients in the figure within the paper were presented in standardized form for ease of interpretation. A similar figure for the model without controls (within the manuscript, the results were from models with controls) is Figure 1. Results with unstandardized coefficients are consistent with those presented here in Tables 15 and 16.



(a) Cox's Inflation

(b) PSNS

(c) K&M Inflation

Figure 1: Cross-lagged Model, w/o additional controls, Underlining indicates $p < .05$

	b/p	b/p	b/p
$RAI_t \leftarrow$			
RAI_{t-1}	0.982	0.986	0.985
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	1.155		
	(0.178)		
$PSNS_{t-1}$		-1.185	
		(0.323)	
$K\&MInf._{t-1}$			0.348
			(0.342)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.839		
	(0.000)		
RAI_{t-1}	0.001		
	(0.000)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.847	
		(0.000)	
RAI_{t-1}		-0.000	
		(0.055)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.844
			(0.000)
RAI_{t-1}			0.002
			(0.001)
N	389	375	376

Table 15: Unstandardized Coefficients, Cross-Lagged Model w/o Controls

	b/p	b/p	b/p
$RAI_t \leftarrow$			
RAI_{t-1}	0.979	0.982	0.982
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	1.323		
	(0.239)		
$PSNS_{t-1}$		-1.092	
		(0.405)	
$K\&MInf._{t-1}$			0.613
			(0.257)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.818		
	(0.000)		
RAI_{t-1}	0.002		
	(0.001)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.835	
		(0.000)	
RAI_{t-1}		-0.001	
		(0.035)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.803
			(0.000)
RAI_{t-1}			0.002
			(0.030)
N	365	351	353

Table 16: Unstandardized Coefficients, Cross-Lagged Model w/ Controls

E Robustness Check: Disaggregating the Regional Authority Index

As a robustness check, we examine whether one component of the Regional Authority Index, either the "self-rule" measure or the "shared-rule" one, was driving the results. This is a straightforward exercise. We re-estimate all of the models with only one component of RAI. After presenting the results, we compare to the full RAI models and discuss differences.

E.1 Self-Rule Measure

As a reminder, the self-rule measure from HMS captures the degree to which powers are devolved to democratic authority in the subunits. These models examine the relationship between that devolution of power and the presence or absence of regional parties. The salient comparison is to models with the complete RAI index presented above. To that end, Table 17 should be compared to Table 6, Table 18 to Table 7, and so on. Apart from the change from RAI to the self-rule component, the models are the same.

	DV: Mean Self Rule Index		
	b/p	b/p	b/p
Mean Cox Inf.	24.098		
	(0.002)		
Mean PSNS		-21.183	
		(0.020)	
Mean K&M Inf.			13.397
			(0.019)
Constant	5.088	25.536	2.331
	(0.001)	(0.001)	(0.378)
Adj R^2	0.196	0.083	0.140
Num Obs	47	47	46

Table 17: Country Means, OLS

In the country means models, in Tables 17, 18, and 19, the results largely reflect those of the entire RAI measure. The positive relationship between inflation measures (greater regional party vote share) is associated with higher degrees of regional/sub-national autonomy. In general, although the coefficient estimates are smaller (this reflects the numerically-smaller range of the Self Rule Index compared to RAI), we have good confidence that there is a non-zero relationship between the two measures. With the exception of Self Rule as independent variable, PSNS as dependent variable, we can reject a hypothesized null relationship at the .05 level. Further, this exception reflects our findings from the complete index.

In the panel data models (DVLS and GLS-RE, Tables 20, 21, 22, and 23), the switch to looking only at measures of regional self-rule is a bit more consequential. In the DVLS models, parameter estimates are less

	DV: Mean Self Rule Index		
	b/p	b/p	b/p
Mean Cox Inf.	12.567		
	(0.016)		
Mean PSNS		-12.398	
		(0.041)	
Mean K&M Inf.			7.636
			(0.026)
Federal	9.834	10.537	10.397
	(0.000)	(0.000)	(0.000)
Constant	3.931	15.414	2.108
	(0.000)	(0.003)	(0.211)
Adj R^2	0.580	0.560	0.578
Num Obs	46	46	45

Table 18: Country Means, OLS

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Mean Self Rule Index	0.009	-0.005	0.012
	(0.000)	(0.072)	(0.001)
Constant	0.083	0.823	0.386
	(0.001)	(0.000)	(0.000)
Adj R^2	0.196	0.083	0.140
Num Obs	47	47	46

Table 19: Country Means, OLS

precise but consistent. However, the larger errors on those parameter estimates mean we cannot confidently reject the null in a number of cases we could before. Namely, there does not appear to be a discernable relationship between self-rule and Kasuya and Moenius's measure of inflation. In the random effects GLS models, the relationship between regionalization and decentralization cannot be discerned with a great degree of confidence. While in the full RAI models, we could reject the null hypothesis of no relationship, we cannot do so when looking only to self-rule measures.

The results from models estimated using the Arellano-Bond GMM estimator are consistent with the models in the main paper. (The results are presented in Tables 24 and 25.) There are some minor differences, but substantively, these results reflect the general indeterminacy of the models in the main paper. As we stated there, the variation in the measures of interest is largely cross-sectional, and this is a stringent test of a relationship between regionalization and decentralization.

In the cross-lagged models (Tables 26 and 27), the pattern identified in the main paper with RAI is largely consistent here with only self-rule measures. However, we would need to accept a lower standard for rejecting the null hypothesis than we did in the original RAI estimates. Whether with or without controls, our confidence in the link from previous levels of self-rule to future levels of party regionalization is lower

	DV: Self Rule Index		
	b/p	b/p	b/p
Cox Inf.	3.733		
	(0.005)		
PSNS		-4.662	
		(0.026)	
K&M Inf.			0.604
			(0.362)
Post-1991	0.248	0.362	0.190
	(0.480)	(0.305)	(0.587)
EU Member	0.870	0.875	0.713
	(0.023)	(0.023)	(0.062)
NATO Member	3.408	3.320	3.407
	(0.002)	(0.002)	(0.002)
Latin Amer.	-3.890	-4.511	-2.019
	(0.038)	(0.022)	(0.304)
Presidential	1.060	0.999	1.397
	(0.443)	(0.455)	(0.371)
Federal	9.226	9.820	8.672
	(0.000)	(0.000)	(0.000)
Years of Dem	0.041	0.040	0.047
	(0.000)	(0.000)	(0.000)
Majoritarian	-2.335	-2.543	-2.139
	(0.027)	(0.015)	(0.062)
Constant	5.696	10.164	5.173
	(0.000)	(0.000)	(0.000)
Adj R2	0.936	0.932	0.937
Num Obs	406	397	398

Table 20: DVLS Estimates

than it was for Regional Authority more generally. Our rejection of a link between prior levels of party regionalization and decentralization of authority to regional or local authorities remains.

With this robustness check, we sought to test whether only one part of the RAI measure was driving our findings. In looking only to the self-rule measure, we are confident it is not self-rule alone which is driving the relationships we identify in the paper. While the findings are largely consistent, there are some differences. In fact, there are significant enough differences to warrant future study. That, however, is beyond the scope of this project.

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
Self Rule Index	0.005	-0.004	0.001
	(0.022)	(0.027)	(0.886)
Federal	-0.185	0.198	-0.217
	(0.004)	(0.000)	(0.036)
Presidential	0.125	-0.093	0.322
	(0.001)	(0.020)	(0.000)
Dist. Mag.	-0.007	0.003	-0.012
	(0.045)	(0.021)	(0.005)
Majoritarian	0.034	-0.050	0.047
	(0.480)	(0.096)	(0.514)
Years of Dem	0.001	-0.000	-0.000
	(0.001)	(0.080)	(0.601)
Constant	-0.025	0.945	0.540
	(0.458)	(0.000)	(0.000)
Adj R2	0.683	0.654	0.608
Num Obs	406	397	398

Table 21: DVLS Estimates

	DV: Self Rule Index		
Cox Inf.	4.058		
	(0.089)		
PSNS		-4.960	
		(0.185)	
K&M Inf.			0.823
			(0.449)
Post-1991	0.245	0.356	0.221
	(0.600)	(0.447)	(0.612)
EU Member	0.861	0.855	0.740
	(0.330)	(0.332)	(0.391)
NATO Member	2.968	2.897	2.950
	(0.035)	(0.037)	(0.031)
Latin Amer.	0.841	0.650	1.156
	(0.791)	(0.837)	(0.730)
Presidential	1.302	1.290	1.540
	(0.221)	(0.239)	(0.173)
Federal	8.740	9.084	8.940
	(0.000)	(0.000)	(0.000)
Years of Dem	0.041	0.041	0.047
	(0.012)	(0.014)	(0.011)
Majoritarian	-1.883	-1.988	-1.753
	(0.058)	(0.034)	(0.100)
Constant	2.739	7.217	2.671
	(0.022)	(0.017)	(0.052)
R^2 Between	0.591	0.586	0.576
R^2 Within	0.289	0.287	0.270
R^2 Overall	0.611	0.590	0.641
ρ	0.858	0.857	0.857
$P > \chi^2$	0.000	0.000	0.000
Num Obs	406	397	398

Table 22: GLS Estimates, Country Random Effects

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Self Rule Index	0.006	-0.004	0.005
	(0.091)	(0.124)	(0.317)
Federal	-0.007	0.028	-0.010
	(0.879)	(0.406)	(0.875)
Presidential	0.119	-0.089	0.244
	(0.014)	(0.015)	(0.002)
Dist. Mag.	-0.002	0.001	-0.003
	(0.163)	(0.358)	(0.221)
Majoritarian	0.020	0.000	0.107
	(0.560)	(0.996)	(0.041)
Years of Dem	0.000	-0.000	-0.000
	(0.273)	(0.912)	(0.673)
Constant	0.093	0.825	0.432
	(0.002)	(0.000)	(0.000)
R^2 Between	0.258	0.176	0.281
R^2 Within	0.118	0.047	0.050
R^2 Overall	0.146	0.029	0.205
ρ	0.646	0.640	0.556
$P > \chi^2$	0.016	0.077	0.000
Num Obs	406	397	398

Table 23: GLS Estimates, Country Random Effects

	DV: Self Rule Index		
	b/p	b/p	b/p
Cox Inf.	0.953		
	(0.311)		
PSNS		-3.217	
		(0.246)	
K&M Inf.			-0.208
			(0.727)
Lag Self Rule Index	0.376	0.391	0.358
	(0.003)	(0.001)	(0.003)
Majoritarian	-2.756	-3.977	-2.962
	(0.148)	(0.024)	(0.229)
EU Member	0.006	-0.171	-0.364
	(0.992)	(0.707)	(0.576)
NATO Member	2.692	3.092	3.465
	(0.318)	(0.165)	(0.079)
Years of Dem	0.019	0.028	0.023
	(0.112)	(0.045)	(0.087)
$P > \chi^2$	0.000	0.000	0.002
Num Obs	328	315	316
AR(1) Test	-1.851	-1.750	-1.663
	(0.064)	(0.080)	(0.096)
AR(2) Test	0.813	0.852	0.800
	(0.416)	(0.394)	(0.424)

Table 24: Arellano-Bond GMM Estimator

	DV: Cox Inf. b/p	DV: Bochsler PSNS b/p	DV: K&M Inf. b/p
Lag Cox Inf.	-0.167		
	(0.290)		
Lag PSNS		0.086	
		(0.670)	
Lag K&M Inf.			0.452
			(0.005)
Self Rule Index	0.000	-0.002	-0.015
	(0.930)	(0.262)	(0.031)
Dist. Mag.	-0.009	0.001	-0.014
	(0.183)	(0.763)	(0.111)
Majoritarian	0.010	-0.055	-0.259
	(0.901)	(0.500)	(0.048)
Years of Dem	0.001	-0.001	0.001
	(0.074)	(0.325)	(0.366)
$P > \chi^2$	0.379	0.420	0.002
Num Obs	329	313	314
AR(1) Test	-0.856	-1.846	-2.330
	(0.392)	(0.065)	(0.020)
AR(2) Test	0.592	-0.517	1.498
	(0.554)	(0.605)	(0.134)

Table 25: Arellano-Bond GMM Estimator

	b/p	b/p	b/p
$SelfRule_t \leftarrow$			
$SelfRule_{t-1}$	0.974	0.978	0.976
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.696		
	(0.238)		
$PSNS_{t-1}$		-0.676	
		(0.392)	
$K\&MInf._{t-1}$			0.219
			(0.443)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.847		
	(0.000)		
$SelfRule_{t-1}$	0.002		
	(0.000)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.853	
		(0.000)	
$SelfRule_{t-1}$		-0.001	
		(0.102)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.845
			(0.000)
$SelfRule_{t-1}$			0.003
			(0.001)
N	389	375	376

Table 26: Unstandardized Coefficients, Cross-Lagged Model w/o Controls

	b/p	b/p	b/p
$SelfRule_t \leftarrow$			
$SelfRule_{t-1}$	0.969	0.973	0.971
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.902		
	(0.255)		
$PSNS_{t-1}$		-0.537	
		(0.548)	
$K\&MInf._{t-1}$			0.462
			(0.267)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.829		
	(0.000)		
$SelfRule_{t-1}$	0.002		
	(0.005)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.842	
		(0.000)	
$SelfRule_{t-1}$		-0.001	
		(0.091)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.805
			(0.000)
$SelfRule_{t-1}$			0.002
			(0.064)
N	365	351	353

Table 27: Unstandardized Coefficients, Cross-Lagged Model w/ Controls

E.2 Shared-Rule Measure

To complete this check, we turn attention to the other component of RAI: the shared-rule measure. The shared-rule measure from HMS measures the degree to which subunits participate in shared rule of national-level government. These models examine the relationship between regional goverments' influence on policymaking at the national level and the presence or absence of regional parties. The salient comparison is to models with the complete RAI index presented above. Again, Table 28 should be compared to Table 6, Table 29 to Table 7, and so on.

	DV: Mean Shared Rule Index		
	b/p	b/p	b/p
Mean Cox Inf.	6.770		
	(0.106)		
Mean PSNS		-5.314	
		(0.238)	
Mean K&M Inf.			3.085
			(0.214)
Constant	1.335	6.583	0.802
	(0.075)	(0.070)	(0.497)
Adj R^2	0.047	0.004	0.014
Num Obs	47	47	46

Table 28: Country Means, OLS

	DV: Mean Shared Rule Index		
	b/p	b/p	b/p
Mean Cox Inf.	0.121		
	(0.945)		
Mean PSNS		-0.852	
		(0.772)	
Mean K&M Inf.			0.012
			(0.988)
Federal	5.920	5.902	5.828
	(0.000)	(0.000)	(0.000)
Constant	0.544	1.232	0.555
	(0.209)	(0.599)	(0.307)
Adj R^2	0.604	0.604	0.586
Num Obs	46	46	45

Table 29: Country Means, OLS

The country-mean level models (Tables 28 to 30), when estimated with the shared rule index, give quite different results than when estimated with the full RAI measure. Of note is the very strong and statistically significant relationship between federalism and shared rule. (See Table 29) Given the nature of each concept, this should be unsurprising. However, we cannot claim the existence of any of the hypothesized relationships when looking only to the shared rule measure. However, once we move away from these country-mean

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Mean Shared Rule Index	0.010	-0.005	0.011
	(0.059)	(0.236)	(0.140)
Constant	0.139	0.791	0.466
	(0.000)	(0.000)	(0.000)
Adj R^2	0.047	0.004	0.014
Num Obs	47	47	46

Table 30: Country Means, OLS

models, the relationships we identified in the paper can be seen again.

	DV: Shared Rule Index		
	b/p	b/p	b/p
Cox Inf.	4.108		
	(0.000)		
PSNS		-6.281	
		(0.000)	
K&M Inf.			1.181
			(0.001)
Post-1991	0.021	0.140	0.090
	(0.913)	(0.431)	(0.649)
EU Member	0.470	0.502	0.462
	(0.028)	(0.020)	(0.051)
NATO Member	0.896	0.779	0.919
	(0.312)	(0.371)	(0.297)
Latin Amer.	-0.145	-1.226	1.318
	(0.907)	(0.306)	(0.285)
Presidential	2.001	1.823	2.106
	(0.039)	(0.032)	(0.072)
Federal	4.579	5.357	4.420
	(0.001)	(0.000)	(0.003)
Years of Dem	-0.007	-0.009	-0.004
	(0.285)	(0.177)	(0.634)
Majoritarian	-0.120	-0.281	-0.081
	(0.543)	(0.151)	(0.496)
Constant	0.260	6.246	-0.321
	(0.642)	(0.000)	(0.651)
Adj R2	0.921	0.920	0.915
Num Obs	406	397	398

Table 31: DVLS Estimates

In the panel data models presented in Tables 31 to 34, we find largely the same relationships we found in the RAI models in the paper. In the case of the random effects estimator models, we do not have the same confidence in rejecting the null hypothesis, but the direction and magnitude of the parameter estimates is largely consistent with those from the paper, when considering the difference in scale of the shared rule index versus RAI.

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Shared Rule Index	0.016	-0.014	0.013
	(0.000)	(0.000)	(0.005)
Federal	-0.201	0.221	-0.274
	(0.000)	(0.000)	(0.006)
Presidential	0.092	-0.063	0.288
	(0.005)	(0.050)	(0.000)
Dist. Mag.	-0.006	0.002	-0.011
	(0.051)	(0.043)	(0.006)
Majoritarian	0.022	-0.041	0.046
	(0.646)	(0.194)	(0.520)
Years of Dem	0.001	-0.001	-0.000
	(0.000)	(0.008)	(0.569)
Constant	0.003	0.925	0.547
	(0.923)	(0.000)	(0.000)
Adj R2	0.697	0.677	0.613
Num Obs	406	397	398

Table 32: DVLS Estimates

In the Arellano-Bond models, presented in Tables 35 and 36, it may appear that results are stronger for the models where the shared rule index is the dependent variable. However, the Wald test suggests we cannot reject the null hypothesis that all of the coefficients are zero in this model. Thus, while the individual parameter estimates appear large and significant, these appear to be an artifact. In general, the results from the GMM estimator when using the shared rule index are, like those for RAI in the paper, indeterminate.

The cross-lagged model results are largely similar for the shared rule measure as they were for RAI in the paper. Comparing the results in Tables 37 and 38 to the paper models in Tables 15 and 16, the coefficient estimates for the directed paths between the lagged measures and the later measures are similar and similarly statistically significant. This gives us confidence that, despite not being the entire RAI measure, the shared rule index yields consistent, but not identical, results to those in the paper.

Despite some differences, results from looking only to the shared rule index are consistent with those from estimating models using the entire RAI measure. Apart from significant differences in the country-mean models, the remainder of the checks yielded estimates which reflect those in the main paper. In particular, the panel data and cross-lagged models are very similar to the full RAI results.

	DV: Shared Rule Index		
	b/p	b/p	b/p
Cox Inf.	3.901		
	(0.113)		
PSNS		-6.058	
		(0.052)	
K&M Inf.			1.149
			(0.186)
Post-1991	-0.046	0.043	0.035
	(0.888)	(0.879)	(0.916)
EU Member	0.454	0.469	0.468
	(0.050)	(0.054)	(0.073)
NATO Member	0.768	0.694	0.771
	(0.352)	(0.390)	(0.335)
Latin Amer.	-0.365	-0.627	-0.025
	(0.755)	(0.597)	(0.983)
Presidential	1.503	1.445	1.580
	(0.021)	(0.020)	(0.010)
Federal	5.378	5.639	5.604
	(0.000)	(0.000)	(0.000)
Years of Dem	-0.004	-0.005	-0.002
	(0.777)	(0.735)	(0.923)
Majoritarian	-0.348	-0.338	-0.350
	(0.250)	(0.255)	(0.243)
Constant	-0.198	5.167	-0.378
	(0.774)	(0.046)	(0.657)
R^2 Between	0.603	0.612	0.615
R^2 Within	0.110	0.129	0.058
R^2 Overall	0.512	0.517	0.507
ρ	0.814	0.812	0.801
$P > \chi^2$	0.000	0.000	0.000
Num Obs	406	397	398

Table 33: GLS Estimates, Country Random Effects

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Shared Rule Index	0.017	-0.014	0.016
	(0.098)	(0.064)	(0.139)
Federal	-0.048	0.071	-0.061
	(0.478)	(0.154)	(0.417)
Presidential	0.102	-0.073	0.227
	(0.059)	(0.059)	(0.007)
Dist. Mag.	-0.003	0.001	-0.004
	(0.084)	(0.136)	(0.121)
Majoritarian	0.015	-0.002	0.102
	(0.666)	(0.951)	(0.049)
Years of Dem	0.001	-0.000	-0.000
	(0.079)	(0.409)	(0.830)
Constant	0.118	0.810	0.455
	(0.000)	(0.000)	(0.000)
R^2 Between	0.183	0.096	0.227
R^2 Within	0.168	0.123	0.073
R^2 Overall	0.157	0.070	0.192
ρ	0.693	0.690	0.601
$P > \chi^2$	0.006	0.051	0.000
Num Obs	406	397	398

Table 34: GLS Estimates, Country Random Effects

	DV: Shared Rule Index		
	b/p	b/p	b/p
Cox Inf.	1.379		
	(0.040)		
PSNS		-1.986	
		(0.062)	
K&M Inf.			0.744
			(0.021)
Lag Shared Rule Index	-0.077	-0.124	-0.056
	(0.784)	(0.716)	(0.833)
Majoritarian	0.051	-0.112	-0.006
	(0.856)	(0.746)	(0.971)
EU Member	0.232	0.248	0.222
	(0.084)	(0.207)	(0.099)
NATO Member	-0.211	-0.280	-0.172
	(0.215)	(0.321)	(0.384)
Years of Dem	0.001	0.001	0.003
	(0.973)	(0.982)	(0.925)
$P > \chi^2$	0.402	0.270	0.175
Num Obs	328	315	316
AR(1) Test	-0.225	-0.024	-0.256
	(0.822)	(0.981)	(0.798)
AR(2) Test	-0.562	-0.571	-0.012
	(0.574)	(0.568)	(0.991)

Table 35: Arellano-Bond GMM Estimator

	DV: Cox Inf. b/p	DV: Bochsler PSNS b/p	DV: K&M Inf. b/p
Lag Cox Inf.	-0.156		
	(0.301)		
Lag PSNS		0.059	
		(0.686)	
Lag K&M Inf.			0.359
			(0.056)
Shared Rule Index	0.010	-0.006	0.017
	(0.163)	(0.176)	(0.119)
Dist. Mag.	-0.008	0.001	-0.013
	(0.175)	(0.709)	(0.133)
Majoritarian	0.012	-0.013	-0.160
	(0.889)	(0.764)	(0.275)
Years of Dem	0.001	-0.001	-0.001
	(0.062)	(0.182)	(0.628)
$P > \chi^2$	0.138	0.147	0.006
Num Obs	329	313	314
AR(1) Test	-0.917	-2.187	-2.055
	(0.359)	(0.029)	(0.040)
AR(2) Test	0.575	-0.626	1.327
	(0.565)	(0.531)	(0.185)

Table 36: Arellano-Bond GMM Estimator

	b/p	b/p	b/p
$ShareRule_t \leftarrow$			
$ShareRule_{t-1}$	0.991	0.993	0.994
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.514		
	(0.250)		
$PSNS_{t-1}$		-0.489	
		(0.437)	
$K\&MInf._{t-1}$			0.184
			(0.303)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.846		
	(0.000)		
$ShareRule_{t-1}$	0.003		
	(0.002)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.839	
		(0.000)	
$ShareRule_{t-1}$		-0.001	
		(0.043)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.857
			(0.000)
$ShareRule_{t-1}$			0.005
			(0.005)
N	389	375	376

Table 37: Unstandardized Coefficients, Cross-Lagged Model w/o Controls

	b/p	b/p	b/p
$ShareRule_t \leftarrow$			
$ShareRule_{t-1}$	0.987	0.987	0.990
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.462		
	(0.407)		
$PSNS_{t-1}$		-0.555	
		(0.433)	
$K\&MInf._{t-1}$			0.163
			(0.519)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.817		
	(0.000)		
$ShareRule_{t-1}$	0.004		
	(0.003)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.826	
		(0.000)	
$ShareRule_{t-1}$		-0.002	
		(0.016)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.804
			(0.000)
$ShareRule_{t-1}$			0.003
			(0.044)
N	365	351	353

Table 38: Unstandardized Coefficients, Cross-Lagged Model w/ Controls

E.3 Conclusions from splitting the RAI Measure

With each of these checks in mind, it is clear that looking only to self-rule or to shared-rule does not completely capture decentralization. While some of the results are consistent with those in the main paper, the divergence suggests that it is not one or the other which is driving results. We expected this to be the case when specifying the original models, but this robustness check confirms our intuition. What is critical, however, is that looking only to the components does not reveal any contradictory findings, merely indeterminate ones. We believe this to be further evidence (alongside the motivations we outline in the paper) of the soundness of the models we estimate in the paper.

F Robustness Check: Lublin's Ethnoregional Parties

As we discussed in the body text, Lublin's 2014 book represents an important contribution to the discussion of decentralization and regionalization. In light of this, we retested our hypotheses while incorporating Lublin's concept of ethnoregional parties into the analysis. This allows us to check the logic of Lublin's argument in our sample, which overlaps in some cases, but which is neither a subset nor a superset of Lublin's cases. It also improves our confidence in the idea that the relationships between decentralization and political party regionalization is not driven exclusively by states where the concentration and distribution of ethnolinguistic groups encourages the rise of ethnoregional parties.

Lublin idenfifies several countries in our sample which can be considered ethnically decentralized. These are Belgium, United Kingdom, Canada, Spain, Italy, and India. We split our sample, putting these cases in one group and the remainder in the other. We then retest our models on each of these samples. Obviously, with a sample of only six countries, it is not possible to estimate many of the models we specify in the paper. We present results from that reduced sample for illustration where possible, but we believe the more important tests are those on the sample without the cases Lublin identifies as driving the relationship between regional parties and decentralization.

F.1 Tests on Ethnically Decentralized Cases

Of the six ethnically-decentralized cases, only five are used in these tests. Missingness in the key variables for India exclude it from the analysis. The extremely limited sample limits inference from these estimates. In addition, many controls are excluded from the models due to collinearity. The models estimated here cannot be compared to those in the paper with any degree of confidence. They are presented, for illustration/demonstration only, in Tables 39 to 44. While some of the results are consistent with the models in the

paper, we do not place much confidence in these results.

	DV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	42.723		
	(0.340)		
Mean PSNS		-51.921	
		(0.245)	
Mean K&M Inf.			-16.805
			(0.754)
Constant	11.320	60.931	29.820
	(0.382)	(0.107)	(0.355)
Adj R^2	-0.115	0.190	-0.297
Num Obs	5	5	5

Table 39: Country Means, OLS, Ethnically Decentralized Cases

	DV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	42.723		
	(0.340)		
Mean PSNS		-51.921	
		(0.245)	
Mean K&M Inf.			-16.805
			(0.754)
Federal	0.000	0.000	0.000
	(.)	(.)	(.)
Constant	11.320	60.931	29.820
	(0.382)	(0.107)	(0.355)
Adj R^2	0.681	0.673	0.672
Num Obs	5	5	5

Table 40: Country Means, OLS, Ethnically Decentralized Cases

	DV: Cox Inf.	DV: Boclserh PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Mean RAI	0.004	-0.008	-0.002
	(0.293)	(0.082)	(0.767)
Constant	0.144	0.929	0.566
	(0.042)	(0.000)	(0.006)
Adj R^2	-0.115	0.190	-0.297
Num Obs	5	5	5

Table 41: Country Means, OLS, Ethnically Decentralized Cases

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	17.771		
	(0.000)		
PSNS		-32.597	
		(0.000)	
K&M Inf.			11.461
			(0.001)
Post-1991	-3.338	-2.451	-3.273
	(0.045)	(0.104)	(0.069)
EU Member	-0.946	-0.922	-0.292
	(0.513)	(0.529)	(0.862)
NATO Member	18.150	16.982	17.235
	(0.000)	(0.000)	(0.000)
Latin Amer.	0.000	0.000	0.000
	(.)	(.)	(.)
Presidential	0.000	0.000	0.000
	(.)	(.)	(.)
Federal	0.000	0.000	0.000
	(.)	(.)	(.)
Years of Dem	0.106	0.086	0.127
	(0.020)	(0.043)	(0.012)
Majoritarian	5.677	7.702	5.252
	(0.023)	(0.001)	(0.059)
Constant	-7.312	23.762	-10.252
	(0.001)	(0.000)	(0.000)
Adj R2	0.877	0.892	0.853
Num Obs	71	71	71

Table 42: DVLS Estimates, Ethnically Decentralized Cases

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
RAI	0.010	-0.008	0.008
	(0.003)	(0.000)	(0.006)
Federal	0.000	0.000	0.000
	(.)	(.)	(.)
Presidential	0.000	0.000	0.000
	(.)	(.)	(.)
Dist. Mag.	-0.025	0.010	-0.035
	(0.000)	(0.000)	(0.000)
Majoritarian	-0.556	0.314	-0.652
	(0.000)	(0.000)	(0.000)
Years of Dem	0.003	-0.001	0.003
	(0.000)	(0.000)	(0.000)
Constant	0.352	0.817	0.877
	(0.000)	(0.000)	(0.000)
Adj R2	0.795	0.834	0.806
Num Obs	71	71	71

Table 43: DVLS Estimates, Ethnically Decentralized Cases

	b/p	b/p	b/p
$RAI_t \leftarrow$			
RAI_{t-1}	0.957	0.912	0.974
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	1.891		
	(0.492)		
$PSNS_{t-1}$		-7.508	
		(0.054)	
$K\&MInf._{t-1}$			-0.676
			(0.757)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.859		
	(0.000)		
RAI_{t-1}	0.002		
	(0.117)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.945	
		(0.000)	
RAI_{t-1}		-0.001	
		(0.470)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.779
			(0.000)
RAI_{t-1}			0.001
			(0.188)
N	67	67	67

Table 44: Unstandardized Coefficients, Cross-Lagged Model w/o Controls, Ethnically Decentralized Cases

F.2 Sample without Ethnically Decentralized Cases

We replicate the models we presented in the paper, but excluding the six countries which Lublin suggests may different than the rest because of ethnic geography. This sample is sufficiently large to replicate the findings in the paper, albeit with reduced power. These results are presented in Tables 45 to 55.

	DV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	27.363		
	(0.013)		
Mean PSNS		-23.701	
		(0.068)	
Mean K&M Inf.			15.915
			(0.036)
Constant	6.072	28.842	2.315
	(0.003)	(0.006)	(0.498)
Adj R^2	0.142	0.051	0.120
Num Obs	42	42	41

Table 45: Country Means, OLS, w/o Ethnically Decentralized Cases

	cDV: Mean RAI		
	b/p	b/p	b/p
Mean Cox Inf.	11.684		
	(0.035)		
Mean PSNS		-9.517	
		(0.147)	
Mean K&M Inf.			7.659
			(0.044)
Federal	16.938	17.590	17.375
	(0.000)	(0.000)	(0.000)
Constant	4.612	13.705	2.658
	(0.000)	(0.013)	(0.178)
Adj R^2	0.694	0.677	0.689
Num Obs	41	41	40

Table 46: Country Means, OLS, w/o Ethnically Decentralized Cases

Even when excluding the cases Lublin identifies as different from the rest on the basis of ethnic decentralization, the results in Tables 45, 46, and 47 are generally consistent with those estimated in the paper. In these basic tests, we can be confident that the five cases are not the sole source of the relationship seen in the complete-sample estimates. With the exception of PSNS, the variables of interest have the expected relationship.

In the panel data models presented in Tables 48 through 51, we find that the results presented in the paper are sensitive to the removal of the five ethnically-decentralized cases. Those five cases, each a consolidated democracy with regular elections, comprise a non-trivial portion of the sample. Also, when those cases are

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Mean RAI	0.006	-0.003	0.009
	(0.004)	(0.156)	(0.003)
Constant	0.095	0.813	0.398
	(0.000)	(0.000)	(0.000)
Adj R^2	0.142	0.051	0.120
Num Obs	42	42	41

Table 47: Country Means, OLS, w/o Ethnically Decentralized Cases

removed, the remaining cases are less heterogenous. These two factors combine to make the reduced sample robustness checks sensitive to specification. When we replicate the models in the paper, some surprising results appear. In the DVLS models, few coefficients are statistically distinguishable from zero, and while the coefficient on the relationship between RAI and Kasuya and Moenius's inflation measure nearly reaches a conventional threshold ($p < .05$), it is in the "wrong" direction. In general, however, the panel data models on this reduced sample are inconclusive on a relationship between party regionalization and decentralization.

As seen in Tables 52 and 53, estimation of a first-differences model using the Arellano-Bond GMM estimator yields results which are largely uninformative. In the models where RAI is the outcome of interest, it is the lagged RAI variable which is substantively and statistically significant. In models where the inflation measures are the outcomes of interest, there are few strong results. For both Cox's Inflation measure and PSNS, we cannot reject the null hypothesis that all of the coefficients are indistinguishable from zero. For Kasuya and Moenius's inflation measure, it is the lagged measure which behaves as expected. The already-limited sample is trimmed even further by the requirements of the estimator, leaving a fairly small sample. These indeterminate results are similar to those the main findings in the paper, suggesting that removal of Lublin's cases does not significantly change the findings.

In the cross-lagged models, seen in Tables 54 and 55, findings are mixed. The exclusion of the five countries reduces the number of observations by approximately one-fourth. In the model without controls, results remain consistent with the full-sample estimates in the paper. When controls are added, the substantive and statistical significance of the coefficient on the path from lagged RAI to the regional parties measures is reduced. When excluding those countries Lublin identifies as ethnically decentralized, we cannot express confidence in the link between decentralization and regionalization as we can in the full-sample model presented in the paper.

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	-0.527		
	(0.660)		
PSNS		-0.973	
		(0.530)	
K&M Inf.			-1.003
			(0.066)
Post-1991	0.966	0.965	0.884
	(0.009)	(0.010)	(0.014)
EU Member	1.293	1.335	1.117
	(0.005)	(0.004)	(0.013)
NATO Member	2.346	2.328	2.286
	(0.010)	(0.012)	(0.015)
Latin Amer.	-6.007	-6.697	-5.969
	(0.002)	(0.002)	(0.003)
Presidential	3.459	3.304	3.755
	(0.198)	(0.208)	(0.154)
Federal	16.631	16.830	16.378
	(0.000)	(0.000)	(0.000)
Years of Dem	0.011	0.011	0.011
	(0.306)	(0.337)	(0.323)
Majoritarian	-2.523	-2.671	-2.415
	(0.029)	(0.022)	(0.038)
Constant	8.243	9.107	8.727
	(0.000)	(0.000)	(0.000)
Adj R2	0.966	0.964	0.968
Num Obs	335	326	327

Table 48: DVLS Estimates, w/o Ethnically Decentralized Cases

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
RAI	-0.001	-0.000	-0.008
	(0.423)	(0.946)	(0.015)
Federal	-0.055	0.126	0.003
	(0.424)	(0.031)	(0.972)
Presidential	0.123	-0.091	0.337
	(0.009)	(0.051)	(0.000)
Dist. Mag.	-0.003	0.001	-0.007
	(0.029)	(0.111)	(0.000)
Majoritarian	0.003	-0.031	0.002
	(0.950)	(0.287)	(0.974)
Years of Dem	0.000	0.000	-0.002
	(0.719)	(0.839)	(0.026)
Constant	0.107	0.870	0.738
	(0.000)	(0.000)	(0.000)
Adj R2	0.753	0.664	0.641
Num Obs	335	326	327

Table 49: DVLS Estimates, w/o Ethnically Decentralized Cases

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	0.373		
	(0.768)		
PSNS		-1.469	
		(0.294)	
K&M Inf.			-0.573
			(0.347)
Post-1991	0.761	0.774	0.678
	(0.128)	(0.141)	(0.153)
EU Member	1.282	1.304	1.114
	(0.176)	(0.175)	(0.250)
NATO Member	2.373	2.358	2.328
	(0.089)	(0.093)	(0.095)
Latin Amer.	-1.264	-1.349	-1.371
	(0.731)	(0.713)	(0.718)
Presidential	3.080	2.952	3.325
	(0.003)	(0.004)	(0.002)
Federal	17.825	17.872	17.828
	(0.000)	(0.000)	(0.000)
Years of Dem	0.020	0.019	0.021
	(0.358)	(0.368)	(0.357)
Majoritarian	-2.025	-2.153	-1.915
	(0.056)	(0.040)	(0.071)
Constant	4.373	5.628	4.686
	(0.003)	(0.003)	(0.004)
R^2 Between	0.710	0.711	0.703
R^2 Within	0.232	0.234	0.226
R^2 Overall	0.756	0.738	0.767
ρ	0.876	0.876	0.874
$P > \chi^2$	0.000	0.000	0.000
Num Obs	335	326	327

Table 50: GLS Estimates, Country Random Effects, w/o Ethnically Decentralized Cases

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
RAI	0.001	-0.001	0.000
	(0.555)	(0.346)	(0.926)
Federal	0.042	0.005	0.034
	(0.460)	(0.905)	(0.753)
Presidential	0.131	-0.097	0.265
	(0.003)	(0.002)	(0.003)
Dist. Mag.	-0.001	0.000	-0.001
	(0.096)	(0.949)	(0.331)
Majoritarian	0.021	-0.013	0.117
	(0.552)	(0.596)	(0.046)
Years of Dem	-0.000	0.000	-0.001
	(0.730)	(0.426)	(0.281)
Constant	0.126	0.807	0.466
	(0.000)	(0.000)	(0.000)
R^2 Between	0.309	0.237	0.269
R^2 Within	0.027	0.012	0.057
R^2 Overall	0.229	0.079	0.256
ρ	0.745	0.692	0.580
$P > \chi^2$	0.001	0.093	0.000
Num Obs	335	326	327

Table 51: GLS Estimates, Country Random Effects, w/o Ethnically Decentralized Cases

	DV: RAI		
	b/p	b/p	b/p
Cox Inf.	0.920		
	(0.668)		
PSNS		-5.444	
		(0.178)	
K&M Inf.			-0.415
			(0.604)
Lag RAI	0.368	0.351	0.225
	(0.051)	(0.065)	(0.214)
Majoritarian	-3.050	-3.509	-3.136
	(0.236)	(0.130)	(0.099)
EU Member	-0.091	0.096	-0.075
	(0.923)	(0.858)	(0.905)
NATO Member	4.213	2.379	4.992
	(0.174)	(0.531)	(0.075)
Years of Dem	0.005	0.010	0.007
	(0.758)	(0.580)	(0.629)
$P > \chi^2$	0.054	0.023	0.058
Num Obs	267	254	255
AR(1) Test	-1.136	-1.047	-0.534
	(0.256)	(0.295)	(0.594)
AR(2) Test	-1.219	-0.861	-0.889
	(0.223)	(0.389)	(0.374)

Table 52: Arellano-Bond GMM Estimator, w/o Ethnically Decentralized Cases

	DV: Cox Inf.	DV: Bochsler PSNS	DV: K&M Inf.
	b/p	b/p	b/p
Lag Cox Inf.	-0.201		
	(0.269)		
Lag PSNS		0.056	
		(0.796)	
Lag K&M Inf.			0.486
			(0.008)
RAI	0.000	-0.004	-0.009
	(0.922)	(0.173)	(0.253)
Dist. Mag.	-0.002	-0.002	-0.005
	(0.441)	(0.251)	(0.557)
Majoritarian	0.003	-0.046	-0.163
	(0.957)	(0.281)	(0.248)
Years of Dem	0.001	0.000	-0.000
	(0.425)	(0.630)	(0.897)
$P > \chi^2$	0.820	0.415	0.003
Num Obs	268	252	253
AR(1) Test	-0.982	-1.831	-2.021
	(0.326)	(0.067)	(0.043)
AR(2) Test	0.762	-0.319	1.686
	(0.446)	(0.750)	(0.092)

Table 53: Arellano-Bond GMM Estimator, w/o Ethnically Decentralized Cases

	b/p	b/p	b/p
$RAI_t \leftarrow$			
RAI_{t-1}	0.980	0.983	0.981
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.679		
	(0.357)		
$PSNS_{t-1}$		0.526	
		(0.583)	
$K\&MInf._{t-1}$			0.386
			(0.255)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.818		
	(0.000)		
RAI_{t-1}	0.001		
	(0.001)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.796	
		(0.000)	
RAI_{t-1}		-0.000	
		(0.430)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.847
			(0.000)
RAI_{t-1}			0.002
			(0.003)
N	322	308	309

Table 54: Unstandardized Coefficients, Cross-Lagged Model w/o Controls, w/o Ethnically Decentralized Cases

	b/p	b/p	b/p
$RAI_t \leftarrow$			
RAI_{t-1}	0.961	0.959	0.960
	(0.000)	(0.000)	(0.000)
$CoxInf._{t-1}$	0.380		
	(0.750)		
$PSNS_{t-1}$		1.141	
		(0.248)	
$K\&MInf._{t-1}$			0.309
			(0.539)
$CoxInf. \leftarrow$			
$CoxInf._{t-1}$	0.752		
	(0.000)		
RAI_{t-1}	0.001		
	(0.122)		
$PSNS \leftarrow$			
$PSNS_{t-1}$		0.773	
		(0.000)	
RAI_{t-1}		0.000	
		(0.884)	
$K\&MInf. \leftarrow$			
$K\&MInf._{t-1}$			0.781
			(0.000)
RAI_{t-1}			0.001
			(0.557)
N	299	285	287

Table 55: Unstandardized Coefficients, Cross-Lagged Model w/ Controls, w/o Ethnically Decentralized Cases

F.3 Conclusions from splitting sample on Ethnic Decentralization

Considering all of the results from this split-sample check, it is clear that Lublin's argument about the importance of ethnic decentralization is an important one. While data limitations prevent a comprehensive set of tests, the sensitivity of findings in some models to the composition of the sample is illustrative. It is to be expected that changing the sample, especially conditional on important covariates, will change results. These findings suggest that, while ethnically decentralized countries are not the only ones where the relationship between decentralization and regional parties exists, those are the countries where the relationship appears strongest.

G Robustness Check: Deeper Examination of the Types of Regional Authority

In the main text, we introduce additional tests of how different types of regional authority related to regionalization of parties. There, we focus primarily on the cross-lagged model, and summarize the findings presented in this section, which are replications of the original models (where RAI was included as a single measure) for each of the three indices created.[12] As in previous sections, we present and summarize the results for each of the models separately, then draw conclusions for the relationships between the different types of regional authority and regionalization of parties overall.

As discussed in the main paper, our goal is to compare the results from RAI overall to the model estimates for each of the indices created to examine fiscal, administrative, and political authority. We therefore replicate the results from the original analyses in these tables to ease comparison. We present the results separately for each of the three measures of party nationalization for reasons of space. Similarly, we begin with the election-level analysis, paralleling the results in Tables 9 to 12 above.

G.1 Panel Data, Three Types of Regional Authority

In Tables 56 through 58, we present comparisons of the results from RAI to those models where the three regional authority indices are the dependent variable of interest. In these models, we use Dummy Variable Least Squares to address country-specific effects. Across the measures, there is a general pattern where the Administrative and Political indices appear to have results consistent with those for RAI overall. The direction and significance of the parameter estimates is consistent with the expected relationship. However, for Fiscal autonomy, this relationship does not hold. Also for the models where Moenius and Kasuya's

12. The creation of these measures is discussed in section A.1

inflation measure is the dependent variable, none of the more-focused regional authority indices appear to have a distinguishable relationship. For this combination of measures, after removing variance from the various control variables and the country-specific effects, there is no remaining link between decentralization and party nationalization that can be discerned.

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
Cox Inf.	7.841	0.550	1.947	1.236
	(0.000)	(0.280)	(0.001)	(0.010)
Post-1991	0.269	0.041	0.064	0.143
	(0.540)	(0.731)	(0.640)	(0.319)
EU Member	1.340	0.014	0.450	0.406
	(0.004)	(0.916)	(0.002)	(0.013)
NATO Member	4.305	0.338	1.756	1.315
	(0.020)	(0.275)	(0.000)	(0.002)
Latin Amer.	-4.034	-3.325	-0.083	-0.482
	(0.117)	(0.000)	(0.905)	(0.484)
Presidential	3.061	0.153	0.948	-0.041
	(0.189)	(0.838)	(0.160)	(0.720)
Federal	13.805	5.211	2.647	1.368
	(0.000)	(0.000)	(0.003)	(0.036)
Years of Dem	0.033	0.014	0.015	0.012
	(0.009)	(0.000)	(0.000)	(0.001)
Majoritarian	-2.455	-0.691	-0.824	-0.820
	(0.020)	(0.159)	(0.009)	(0.010)
Constant	5.956	2.194	1.192	2.310
	(0.000)	(0.000)	(0.000)	(0.000)
Adj R2	0.950	0.940	0.933	0.880
Num Obs	406	406	406	406

Table 56: Cox Inflation vs measures of centralization, DLVS

In examining these models in the opposite fashion (seen in Tables 59 through 61, with the various nationalization measures as outcome and RAI and the three Authority Indices as independent variables, a similar pattern arises, as expected. The link between fiscal authority and party nationalization remains weak, and for the K&M measure, there is no strong link between any of the more focused authority indices and that outcome.

For the random effects models, we again present the models with regional authority (RAI, administrative, fiscal, and poltiical) as outcome first, then the models where the party nationalization measures are outcomes. Again, a Hausman test was performed to ensure that the use of random effects model is appropriate to use in this case. Here, the weak link between fiscal authority and the various party nationalization measures seen in the other models persists. The results, found in Tables 62 through 64, echo our prior discussion of the cross-national versus intertemporal variation in the data: because countries are generally more different

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
PSNS	-10.943	-0.158	-2.561	-1.942
	(0.000)	(0.832)	(0.004)	(0.010)
Post-1991	0.502	0.058	0.121	0.183
	(0.239)	(0.642)	(0.367)	(0.203)
EU Member	1.377	0.005	0.455	0.415
	(0.004)	(0.973)	(0.002)	(0.011)
NATO Member	4.100	0.333	1.708	1.280
	(0.024)	(0.281)	(0.000)	(0.002)
Latin Amer.	-5.737	-3.251	-0.428	-0.832
	(0.027)	(0.000)	(0.558)	(0.250)
Presidential	2.822	0.197	0.905	-0.102
	(0.193)	(0.798)	(0.159)	(0.504)
Federal	15.177	5.220	2.967	1.633
	(0.000)	(0.000)	(0.001)	(0.013)
Years of Dem	0.030	0.014	0.014	0.011
	(0.020)	(0.000)	(0.000)	(0.002)
Majoritarian	-2.824	-0.716	-0.920	-0.908
	(0.004)	(0.167)	(0.002)	(0.003)
Constant	16.410	2.355	3.640	4.169
	(0.000)	(0.005)	(0.000)	(0.000)
Adj R2	0.948	0.936	0.931	0.877
Num Obs	397	397	397	397

Table 57: PSNS vs measures of centralization, DLVS

from each other than they are to themselves over time, the inclusion of random effects in these models weakens the link between the two core measures in each model. However, the sign of the parameters remains consistent, and despite the weaker confidence in our ability to reject the null, we believe these results do not significantly change our perspective on the link between nationalization and centralization.

In looking to the relationship in the opposite direction, there are no significant changes in the findings, although the null hypothesis of no relationship cannot be rejected for some parameter estimates at canonical levels of significance. Again, the inclusion of random effects, as seen in Tables 65 through 67, weakens the link between the various centralization measures and the party nationalization measures. However, the results are largely consistent with those for RAI overall.

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
K&M Inf.	1.785	0.107	0.273	0.225
	(0.040)	(0.659)	(0.326)	(0.374)
Post-1991	0.280	0.037	0.059	0.094
	(0.533)	(0.761)	(0.669)	(0.493)
EU Member	1.175	-0.003	0.381	0.335
	(0.018)	(0.981)	(0.011)	(0.034)
NATO Member	4.326	0.339	1.754	1.313
	(0.020)	(0.275)	(0.000)	(0.003)
Latin Amer.	-0.701	-3.062	0.815	0.229
	(0.794)	(0.000)	(0.265)	(0.753)
Presidential	3.504	0.195	1.118	0.084
	(0.197)	(0.802)	(0.145)	(0.432)
Federal	13.092	5.144	2.408	1.119
	(0.000)	(0.000)	(0.014)	(0.107)
Years of Dem	0.044	0.015	0.018	0.015
	(0.004)	(0.000)	(0.000)	(0.000)
Majoritarian	-2.220	-0.674	-0.738	-0.727
	(0.062)	(0.179)	(0.028)	(0.038)
Constant	4.853	2.107	0.979	2.088
	(0.002)	(0.000)	(0.018)	(0.000)
Adj R2	0.948	0.940	0.933	0.888
Num Obs	398	398	398	398

Table 58: K&M Inflation vs measures of centralization, DLVS

	(1)	(2)	(3)	(4)
		DV: Cox Inf.		
	b/p	b/p	b/p	b/p
RAI	0.007			
	(0.001)			
Fiscal Autonomy Index		0.006		
		(0.327)		
Administrative Autonomy Index			0.018	
			(0.005)	
Political Autonomy Index				0.011
				(0.052)
Federal	-0.234	-0.158	-0.195	-0.149
	(0.000)	(0.025)	(0.001)	(0.016)
Presidential	0.104	0.133	0.110	0.131
	(0.001)	(0.001)	(0.001)	(0.002)
Dist. Mag.	-0.006	-0.007	-0.007	-0.007
	(0.048)	(0.043)	(0.045)	(0.048)
Majoritarian	0.037	0.027	0.035	0.031
	(0.436)	(0.579)	(0.465)	(0.528)
Years of Dem	0.001	0.001	0.001	0.001
	(0.004)	(0.000)	(0.006)	(0.000)
Constant	-0.029	-0.015	-0.012	-0.021
	(0.363)	(0.668)	(0.688)	(0.534)
Adj R2	0.693	0.679	0.688	0.681
Num Obs	406	406	406	406

Table 59: Measures of centralization vs Cox's inflation, DLVS

	(1)	(2)	(3)	(4)
	DV: PSNS			
	b/p	b/p	b/p	b/p
RAI	-0.005			
	(0.000)			
Fiscal Autonomy Index		-0.001		
		(0.890)		
Administrative Autonomy Index			-0.014	
			(0.004)	
Political Autonomy Index				-0.010
				(0.025)
Federal	0.242	0.159	0.208	0.177
	(0.000)	(0.007)	(0.000)	(0.001)
Presidential	-0.076	-0.100	-0.082	-0.097
	(0.020)	(0.025)	(0.023)	(0.032)
Dist. Mag.	0.002	0.003	0.003	0.003
	(0.027)	(0.020)	(0.022)	(0.026)
Majoritarian	-0.053	-0.042	-0.051	-0.049
	(0.062)	(0.194)	(0.086)	(0.109)
Years of Dem	-0.000	-0.001	-0.000	-0.000
	(0.201)	(0.010)	(0.192)	(0.069)
Constant	0.951	0.931	0.936	0.946
	(0.000)	(0.000)	(0.000)	(0.000)
Adj R2	0.667	0.648	0.659	0.654
Num Obs	397	397	397	397

Table 60: Measures of centralization vs PSNS, DLVS

	(1)	(2)	(3)	(4)
		DV: K&M Inf.		
	b/p	b/p	b/p	b/p
RAI	0.003			
	(0.210)			
Fiscal Autonomy Index		0.003		
		(0.807)		
Administrative Autonomy Index			0.001	0.001
			(0.942)	(0.942)
Political Autonomy Index				
Federal	-0.266	-0.225	-0.214	-0.214
	(0.014)	(0.034)	(0.037)	(0.037)
Presidential	0.307	0.322	0.322	0.322
	(0.000)	(0.000)	(0.000)	(0.000)
Dist. Mag.	-0.012	-0.012	-0.012	-0.012
	(0.005)	(0.005)	(0.006)	(0.006)
Majoritarian	0.053	0.048	0.047	0.047
	(0.467)	(0.506)	(0.518)	(0.518)
Years of Dem	-0.001	-0.000	-0.000	-0.000
	(0.396)	(0.613)	(0.609)	(0.609)
Constant	0.529	0.537	0.542	0.542
	(0.000)	(0.000)	(0.000)	(0.000)
Adj R2	0.610	0.608	0.608	0.608
Num Obs	398	398	398	398

Table 61: Measures of centralization vs K&M inflation, DLVS

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
Cox Inf.	8.018	0.582	2.067	1.433
	(0.085)	(0.378)	(0.115)	(0.091)
Post-1991	0.212	-0.019	0.087	0.172
	(0.730)	(0.908)	(0.668)	(0.376)
EU Member	1.317	-0.041	0.467	0.430
	(0.138)	(0.924)	(0.094)	(0.169)
NATO Member	3.741	0.294	1.550	1.103
	(0.057)	(0.454)	(0.006)	(0.056)
Latin Amer.	0.421	-0.296	0.423	0.686
	(0.896)	(0.718)	(0.751)	(0.604)
Presidential	2.877	0.677	0.737	-0.054
	(0.009)	(0.160)	(0.073)	(0.909)
Federal	14.113	3.337	3.268	2.117
	(0.000)	(0.000)	(0.000)	(0.000)
Years of Dem	0.037	0.017	0.014	0.011
	(0.128)	(0.004)	(0.035)	(0.063)
Majoritarian	-2.164	-0.463	-0.736	-0.637
	(0.042)	(0.305)	(0.009)	(0.045)
Constant	2.522	0.659	1.034	1.028
	(0.125)	(0.089)	(0.021)	(0.023)
R^2 Between	0.707	0.628	0.595	0.402
R^2 Within	0.274	0.117	0.348	0.264
R^2 Overall	0.677	0.544	0.647	0.508
ρ	0.849	0.831	0.864	0.837
$P > \chi^2$	0.000	0.000	0.000	0.000
Num Obs	406	406	406	406

Table 62: Cox's Inflation versus measures of centralization, GLM w random effects

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
PSNS	-11.079	-0.129	-2.703	-2.146
	(0.093)	(0.884)	(0.158)	(0.101)
Post-1991	0.415	-0.002	0.141	0.211
	(0.457)	(0.993)	(0.455)	(0.272)
EU Member	1.327	-0.052	0.467	0.432
	(0.136)	(0.906)	(0.094)	(0.165)
NATO Member	3.582	0.290	1.511	1.076
	(0.063)	(0.455)	(0.006)	(0.061)
Latin Amer.	-0.039	-0.295	0.316	0.603
	(0.990)	(0.723)	(0.810)	(0.644)
Presidential	2.797	0.718	0.722	-0.092
	(0.015)	(0.135)	(0.082)	(0.847)
Federal	14.733	3.393	3.438	2.236
	(0.000)	(0.000)	(0.000)	(0.000)
Years of Dem	0.036	0.017	0.014	0.010
	(0.141)	(0.004)	(0.040)	(0.072)
Majoritarian	-2.271	-0.478	-0.779	-0.678
	(0.018)	(0.306)	(0.001)	(0.020)
Constant	12.428	0.816	3.463	2.935
	(0.020)	(0.321)	(0.023)	(0.006)
R^2 Between	0.708	0.624	0.594	0.404
R^2 Within	0.276	0.115	0.347	0.269
R^2 Overall	0.661	0.527	0.628	0.488
ρ	0.846	0.830	0.864	0.836
$P > \chi^2$	0.000	0.000	0.000	0.000
Num Obs	397	397	397	397

Table 63: PSNS versus measures of centralization, GLM w random effects

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
K&M Inf.	2.000	0.140	0.358	0.347
	(0.277)	(0.664)	(0.502)	(0.421)
Post-1991	0.271	-0.019	0.098	0.142
	(0.656)	(0.911)	(0.610)	(0.418)
EU Member	1.210	-0.054	0.416	0.377
	(0.163)	(0.902)	(0.119)	(0.217)
NATO Member	3.717	0.294	1.533	1.088
	(0.049)	(0.450)	(0.005)	(0.053)
Latin Amer.	1.071	-0.243	0.559	0.811
	(0.760)	(0.774)	(0.694)	(0.555)
Presidential	3.202	0.697	0.863	0.016
	(0.007)	(0.136)	(0.063)	(0.975)
Federal	14.543	3.367	3.392	2.177
	(0.000)	(0.000)	(0.000)	(0.000)
Years of Dem	0.045	0.018	0.016	0.013
	(0.121)	(0.003)	(0.042)	(0.044)
Majoritarian	-2.016	-0.460	-0.672	-0.575
	(0.087)	(0.323)	(0.024)	(0.099)
Constant	2.261	0.639	1.034	0.981
	(0.255)	(0.146)	(0.054)	(0.051)
R^2 Between	0.698	0.627	0.573	0.376
R^2 Within	0.226	0.114	0.316	0.251
R^2 Overall	0.692	0.571	0.655	0.538
ρ	0.843	0.834	0.857	0.831
$P > \chi^2$	0.000	0.000	0.000	0.000
Num Obs	398	398	398	398

Table 64: K&M Inflation versus measures of centralization, GLM w random effects

	(1)	(2)	(3)	(4)
		DV: Cox Inf.		
	b/p	b/p	b/p	b/p
RAI	0.007			
	(0.041)			
Fiscal Autonomy Index		0.005		
		(0.530)		
Administrative Autonomy Index			0.021	
			(0.067)	
Political Autonomy Index				0.017
				(0.071)
Federal	-0.062	0.034	-0.025	0.014
	(0.305)	(0.495)	(0.593)	(0.724)
Presidential	0.107	0.122	0.117	0.127
	(0.029)	(0.016)	(0.012)	(0.006)
Dist. Mag.	-0.003	-0.003	-0.002	-0.002
	(0.121)	(0.154)	(0.166)	(0.169)
Majoritarian	0.024	0.011	0.024	0.019
	(0.472)	(0.749)	(0.471)	(0.564)
Years of Dem	0.000	0.001	0.000	0.000
	(0.385)	(0.087)	(0.397)	(0.257)
Constant	0.087	0.116	0.081	0.092
	(0.003)	(0.000)	(0.014)	(0.001)
R^2 Between	0.269	0.183	0.282	0.287
R^2 Within	0.149	0.117	0.128	0.107
R^2 Overall	0.157	0.125	0.169	0.164
ρ	0.658	0.674	0.644	0.631
$P > \chi^2$	0.006	0.031	0.006	0.009
Num Obs	406	406	406	406

Table 65: Measures of centralization versus Cox's Inflation, GLM w random effects

	(1)	(2)	(3)	(4)
	DV: PSNS			
	b/p	b/p	b/p	b/p
RAI	-0.006			
	(0.033)			
Fiscal Autonomy Index		-0.000		
		(0.949)		
Administrative Autonomy Index			-0.015	
			(0.082)	
Political Autonomy Index				-0.013
				(0.070)
Federal	0.073	-0.011	0.044	0.018
	(0.078)	(0.749)	(0.220)	(0.550)
Presidential	-0.079	-0.093	-0.087	-0.094
	(0.029)	(0.012)	(0.014)	(0.007)
Dist. Mag.	0.001	0.001	0.001	0.001
	(0.251)	(0.300)	(0.380)	(0.392)
Majoritarian	-0.005	0.005	-0.004	0.000
	(0.836)	(0.859)	(0.876)	(0.999)
Years of Dem	0.000	-0.000	0.000	-0.000
	(0.856)	(0.389)	(0.880)	(0.913)
Constant	0.831	0.808	0.834	0.828
	(0.000)	(0.000)	(0.000)	(0.000)
R^2 Between	0.191	0.090	0.208	0.223
R^2 Within	0.089	0.039	0.063	0.047
R^2 Overall	0.041	0.026	0.044	0.043
ρ	0.654	0.664	0.642	0.629
$P > \chi^2$	0.020	0.202	0.042	0.038
Num Obs	397	397	397	397

Table 66: Measures of centralization versus PSNS, GLM w random effects

	(1)	(2)	(3)	(4)
	DV: K&M Inf.			
	b/p	b/p	b/p	b/p
RAI	0.006			
	(0.136)			
Fiscal Autonomy Index		0.005		
		(0.715)		
Administrative Autonomy Index			0.013	
			(0.349)	
Political Autonomy Index				0.016
				(0.246)
Federal	-0.062	0.018	-0.013	-0.003
	(0.411)	(0.783)	(0.848)	(0.962)
Presidential	0.233	0.245	0.245	0.251
	(0.003)	(0.003)	(0.002)	(0.001)
Dist. Mag.	-0.003	-0.003	-0.003	-0.003
	(0.183)	(0.203)	(0.219)	(0.236)
Majoritarian	0.111	0.098	0.110	0.111
	(0.037)	(0.061)	(0.035)	(0.036)
Years of Dem	-0.001	-0.000	-0.000	-0.000
	(0.604)	(0.823)	(0.660)	(0.660)
Constant	0.427	0.452	0.428	0.424
	(0.000)	(0.000)	(0.000)	(0.000)
R^2 Between	0.290	0.233	0.286	0.313
R^2 Within	0.057	0.061	0.048	0.043
R^2 Overall	0.204	0.187	0.212	0.221
ρ	0.567	0.593	0.550	0.531
$P > \chi^2$	0.000	0.000	0.000	0.000
Num Obs	398	398	398	398

Table 67: Measures of centralization versus K&M Inflation, GLM w random effects

G.2 Arellano-Bond GMM Analysis, Three Types of Regional Authority

We return to dynamic panel models by looking to models where the various regional authority indices are the outcome of interest. This reflects the analysis in the initial models for RAI. These results are presented in Tables 68 through 70. One complication arose in this analysis, due in part to the relatively time-invariant nature of the political authority index across the sample. For the political authority measure, it was not possible to calculate estimates of variance for the model parameters when considering Cox's inflation, and thus we omit the results here. The same limited time variation in that measure is likely part of the reason for the weaker results in the models where it was possible to estimate errors. One difference between these models and the previous findings is that there appears to be a link between the various nationalization measures and fiscal centralization in some of the models, which we had not observed to this point. However, these are just a few models in a much larger analysis. The broad takeaway from these models is that, in a dynamic sense, there is not a strong relationship between party nationalization and subsequent centralization.

Looking to a relationship in the opposite direction, the weak results persist. When nationalization is the outcome of interest, there is generally no persistent relationship between the two. Again, the relative stability of individual regional institutions over time is likely the cause of the difference between these findings and others seen previously. In results presented in Tables 71 through 73, we see largely indeterminate findings for the relationship of interest.

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p
Lag RAI	0.397		
	(0.000)		
Lag Fiscal Autonomy Index		0.266	
		(0.000)	
Lag Administrative Autonomy Index			0.476
			(0.000)
Cox Inf.	1.980	1.331	0.256
	(0.198)	(0.022)	(0.555)
Majoritarian	-2.985	-0.868	-1.340
	(0.187)	(0.262)	(0.123)
EU Member	-0.317	0.141	-0.111
	(0.492)	(0.379)	(0.626)
NATO Member	2.484	0.044	1.680
	(0.338)	(0.979)	(0.147)
Years of Dem	0.020	-0.000	0.008
	(0.136)	(0.991)	(0.108)
$P > \chi^2$	0.000	0.000	0.000
Num Obs	328	328	328
AR(1) Test	-2.310	-1.838	-2.400
	(0.021)	(0.066)	(0.016)
AR(2) Test	0.676	0.960	1.271
	(0.500)	(0.337)	(0.204)

Table 68: Cox Inflation versus measures of centralization, A-B GMM estimates

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
Lag RAI	0.371			
	(0.000)			
Lag Fiscal Autonomy Index		0.378		
		(0.001)		
Lag Administrative Autonomy Index			0.425	
			(0.000)	
Lag Political Autonomy Index				0.326
				(0.025)
PSNS	-6.201	-2.111	-1.052	0.400
	(0.030)	(0.002)	(0.194)	(0.542)
Majoritarian	-3.624	-1.351	-1.631	-0.978
	(0.100)	(0.142)	(0.047)	(0.170)
EU Member	-0.216	0.203	-0.109	0.179
	(0.652)	(0.530)	(0.596)	(0.597)
NATO Member	2.743	0.067	1.290	1.479
	(0.276)	(0.896)	(0.369)	(0.187)
Years of Dem	0.026	0.002	0.011	0.007
	(0.227)	(0.744)	(0.017)	(0.241)
$P > \chi^2$	0.000	0.000	0.000	0.000
Num Obs	315	315	315	315
AR(1) Test	-2.102	-1.521	-2.230	-1.725
	(0.036)	(0.128)	(0.022)	(0.085)
AR(2) Test	0.842	0.873	1.260	0.889
	(0.400)	(0.383)	(0.208)	(0.374)

Table 69: PSNS versus measures of centralization, A-B GMM estimates

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
Lag RAI	0.402			
	(0.000)			
Lag Fiscal Autonomy Index		0.289		
		(0.000)		
Lag Administrative Autonomy Index			0.421	
			(0.002)	
Lag Political Autonomy Index				0.300
				(0.123)
K&M Inf.	0.378	0.247	-0.131	-0.358
	(0.693)	(0.704)	(0.602)	(0.075)
Majoritarian	-2.721	-1.032	-1.149	-0.464
	(0.245)	(0.183)	(0.275)	(0.418)
EU Member	-0.337	0.130	-0.156	0.176
	(0.474)	(0.611)	(0.596)	(0.521)
NATO Member	3.285	0.088	1.886	1.743
	(0.281)	(0.830)	(0.103)	(0.332)
Years of Dem	0.024	0.003	0.010	0.006
	(0.262)	(0.572)	(0.084)	(0.294)
$P > \chi^2$	0.000	0.000	0.000	0.001
Num Obs	316	316	316	316
AR(1) Test	-2.242	-1.854	-2.073	-1.416
	(0.025)	(0.064)	(0.038)	(0.157)
AR(2) Test	0.647	0.694	1.244	0.968
	(0.518)	(0.488)	(0.214)	(0.333)

Table 70: K&M Inflation versus measures of centralization, A-B GMM estimates

	(1)	(2)	(3)	(4)
		DV: Cox Inf.		
	b/p	b/p	b/p	b/p
RAI	0.002			
	(0.522)			
Fiscal Autonomy Index		-0.002		
		(0.822)		
Administrative Autonomy Index			0.001	
			(0.915)	
Political Autonomy Index				-0.002
				(0.748)
Lag Cox Inf.	-0.169	-0.165	-0.167	-0.161
	(0.276)	(0.294)	(0.278)	(0.286)
Dist. Mag.	-0.010	-0.009	-0.008	-0.007
	(0.182)	(0.227)	(0.212)	(0.300)
Majoritarian	0.010	0.026	0.011	0.004
	(0.901)	(0.734)	(0.889)	(0.953)
Years of Dem	0.001	0.002	0.001	0.001
	(0.086)	(0.051)	(0.074)	(0.073)
$P > \chi^2$	0.339	0.331	0.442	0.547
Num Obs	329	329	329	329
AR(1) Test	-0.879	-0.846	-0.841	-0.863
	(0.379)	(0.398)	(0.400)	(0.388)
AR(2) Test	0.580	0.588	0.592	0.613
	(0.562)	(0.556)	(0.554)	(0.540)

Table 71: Measures of centralization versus Cox Inflation, A-B GMM estimates

	(1)	(2)	(3)	(4)
	DV: PSNS			
	b/p	b/p	b/p	b/p
RAI	-0.003			
	(0.147)			
Fiscal Autonomy Index		-0.010		
		(0.040)		
Administrative Autonomy Index			-0.005	
			(0.324)	
Political Autonomy Index				-0.003
				(0.595)
Lag PSNS	0.066	0.106	0.080	0.080
	(0.744)	(0.615)	(0.666)	(0.679)
Dist. Mag.	0.001	0.001	0.001	0.001
	(0.758)	(0.832)	(0.655)	(0.661)
Majoritarian	-0.050	-0.086	-0.049	-0.049
	(0.533)	(0.323)	(0.428)	(0.537)
Years of Dem	-0.001	-0.001	-0.001	-0.001
	(0.288)	(0.452)	(0.354)	(0.256)
$P > \chi^2$	0.229	0.159	0.441	0.658
Num Obs	313	313	313	313
AR(1) Test	-1.814	-1.823	-1.893	-1.865
	(0.070)	(0.068)	(0.058)	(0.062)
AR(2) Test	-0.538	-0.500	-0.558	-0.488
	(0.591)	(0.617)	(0.577)	(0.625)

Table 72: Measures of centralization versus PSNS, A-B GMM estimates

	(1)	(2)	(3)	(4)
		DV: K&M Inf.		
	b/p	b/p	b/p	b/p
RAI	-0.003			
	(0.644)			
Fiscal Autonomy Index		-0.025		
		(0.069)		
Administrative Autonomy Index			-0.016	
			(0.493)	
Political Autonomy Index				-0.022
				(0.196)
Lag K&M Inf.	0.391	0.401	0.402	0.422
	(0.032)	(0.019)	(0.028)	(0.026)
Dist. Mag.	-0.014	-0.014	-0.013	-0.015
	(0.178)	(0.165)	(0.203)	(0.122)
Majoritarian	-0.143	-0.165	-0.166	-0.197
	(0.294)	(0.220)	(0.307)	(0.192)
Years of Dem	0.000	0.000	0.000	0.000
	(0.989)	(0.860)	(0.832)	(0.768)
$P > \chi^2$	0.021	0.016	0.021	0.017
Num Obs	314	314	314	314
AR(1) Test	-2.017	-2.040	-2.059	-2.084
	(0.044)	(0.041)	(0.040)	(0.037)
AR(2) Test	1.300	1.323	1.364	1.373
	(0.194)	0.186	(0.173)	(0.170)

Table 73: Measures of centralization versus K&M Inflation, A-B GMM estimates

G.3 Cross-lagged Models, Three Types of Regional Authority

As a final check of these variations of regional authority, we return to the cross-lagged models introduced in the paper. As in the other sections of this appendix, we present the unstandardized coefficients. In these unstandardized results, it is useful to look to the stability parameters (from a variable's lagged value to the present value) versus the parameters which link the lagged values of the opposite measure. In the results, presented in Tables 74 to 76, the stability of the various regional authority indices is quite high. Also, the link between those indices (for RAI, Administrative Authority, and Political Authority) and the centralization measures is distinquishable from zero.[13] As we see in the other models, the relationship appears to be from changes in those regional authority measures to subsequent changes in party structure. However, the opposite relationship, from party regionalization to changes in regional authority[14] does not appear distinguishable. While this does not significantly change our understanding from the RAI-only results, the added complexity of the weak findings on fiscal authority does suggest future avenues for inquiry.

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
$AuthorityIndex_t \leftarrow$				
$CoxInf._{t-1}$	1.323	0.481	0.295	0.207
	(0.239)	(0.165)	(0.368)	(0.440)
RAI_{t-1}	0.979			
	(0.000)			
$Fiscal_{t-1}$		0.964		
		(0.000)		
$Admin_{t-1}$			0.965	
			(0.000)	
$Political_{t-1}$				0.956
				(0.000)
$CoxInf._t \leftarrow$				
$CoxInf._{t-1}$	0.818	0.854	0.809	0.816
	(0.000)	(0.000)	(0.000)	(0.000)
RAI_{t-1}	0.002			
	(0.001)			
$Fiscal_{t-1}$		0.002		
		(0.166)		
$Admin_{t-1}$			0.007	
			(0.001)	
$Political_{t-1}$				0.009
				(0.002)
Num Obs	365	365	365	365

Table 74: Cross-lagged model, Cox Inflation and Regional Authority, unstandardized

13. This is seen in the "bottom half" of the results tables.
14. This is presented in the topmost line of the results tables.

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
$AuthorityIndex_t \leftarrow$				
$PSNS_{t-1}$	-1.092	-0.426	-0.048	-0.107
	(0.405)	(0.314)	(0.888)	(0.770)
RAI_{t-1}	0.982			
	(0.000)			
$Fiscal_{t-1}$		0.967		
		(0.000)		
$Admin_{t-1}$			0.970	
			(0.000)	
$Political_{t-1}$				0.959
				(0.000)
$PSNS_t$				
$PSNS_{t-1}$	0.835	0.849	0.833	0.837
	(0.000)	(0.000)	(0.000)	(0.000)
RAI_{t-1}	-0.001			
	(0.035)			
$Fiscal_{t-1}$		-0.000		
		(0.737)		
$Admin_{t-1}$			-0.003	
			(0.035)	
$Political_{t-1}$				-0.004
				(0.033)
Num Obs	351	351	351	351

Table 75: Cross-lagged model, PSNS and Regional Authority, unstandardized

	(1) DV: RAI b/p	(2) DV: Fiscal b/p	(3) DV: Admin b/p	(4) DV: Political b/p
$AuthorityIndex_t \leftarrow$				
$K\&MInf._{t-1}$	0.613	0.254	0.116	0.116
	(0.257)	(0.126)	(0.465)	(0.411)
RAI_{t-1}	0.982			
	(0.000)			
$Fiscal_{t-1}$		0.967		
		(0.000)		
$Admin_{t-1}$			0.968	
			(0.000)	
$Political_{t-1}$				0.956
				(0.000)
$K\&MInf._t \leftarrow$				
$K\&MInf._{t-1}$	0.803	0.812	0.797	0.798
	(0.000)	(0.000)	(0.000)	(0.000)
RAI_{t-1}	0.002			
	(0.030)			
$Fiscal_{t-1}$		0.001		
		(0.664)		
$Admin_{t-1}$			0.007	
			(0.020)	
$Political_{t-1}$				0.010
				(0.025)
Num Obs	353	353	353	353

Table 76: Cross-lagged model, K&M Inflation and Regional Authority, unstandardized

G.4 Conclusions from examining Three Types of Regional Authority

Taken together, these additional models give a richer picture of the relationship between nationalization and centralization in these countries. Among the most striking results from these models is the one we highlight in the paper: fiscal authority seems not to have the same relationship, if any at all, as the others. With these more focused measures, the existing challenges of limited variation over time within countries, which we discussed in the RAI-only results, is even more salient. However, through a variety of models, a general picture comes together: Regionalization appears associated with the rise of regional parties generally, but the relationship appears to come from changes in administrative and political authority.

H Robustness Check: Alternative Measures of Decentralization

As a final check of the results, we return to the alternative measures of decentralization discussed in the paper. These measures generally are time-invariant, or at the most change only occassionally. Further, many of these measures are not present for the entire sample presented here. This missingness poses a particular problem for the kind of analysis we aim to present, and requires we transform the data to improve coverage.

The following is an attempt, given the availability of data, to demonstrate the robustness of the claim that, using multiple measures of centralization and decentralization, the overall cross-sectional relationship with nationalization is as expected and consistent with the over-time claims made in the main body of the paper. That is, more centralization is correlated with more nationalization.

These other measures of centralization and decentralization are only useful for cross sectional analysis because they essentially do not vary over time. They also are for earlier periods of history. Here are some measures first used by in Hooghe, Marks, Schakel, et al. (2010). We need to use these because they all correspond roughly to the same time period and all attempt to capture similar concepts.

We created an index of all these measures to try to cover more cases and also to correct for measurement error in any one of them. Since the measures do not cover the same countries, using only one measure at a time would enable the use of only a very limited sample.

Arzaghi and Henderson (2005) have a decentralization index based on an average of six dimensions, each ranging between 0 and 4 where 4 is most decentralized. The intent is to capture decentralization as "the assignment of fiscal, political, and administrative responsibilities to lower levels of government." It's for a small group of mostly OECD countries. While they measure at five year intervals between 1960 and 1995, there is virtually no variation over time for any of the countries.

Brancati (2006) has a measure of "political decentralization" scaling from 0 to 5, where 5 is most decen-

tralized. The score is based on satisfying a set of five criteria, one point awarded for each, totaling 5. There data are from 1985 to 2000. For all but two countries, the decentralization score does not vary over time.

Lane, Ersson, and Ersson (1999) have an index measuring decentralization (although the authors call it the 'Institutional Autonomy Index') for West European countries. Each score is composed of 4 dimensions that sum to total of 10 possible points, where 10 is the highest degree of decentralization. There is one score per country and thus no variation over time. Though the authors do not specifically identify the time period observed in this index, it is assumed to span from 1945 to 1995 since it is the interval of time analyzed in their book.

Hooghe, Marks, and Marks (2001) presents an early index (prior to the authors' later RAI with Schakel) as a measure of regional autonomy rather than decentralization. There are points of evaluation for each country, one for each 1950, 1970, 1990, and 2000. There is some variation over time but it is slight.

Lijphart (1999) has an index combining both federalism and decentralization. The five categories are viewed as ordinal. Each country is broken down into either being formally Unitary or Federal by constitution, with those countries having an ambiguous distiction defined as semi-federal. He then divided the Unitary and Federal countries in centralized and decentralized. There is one score for each country indicating an average evaluation for the years 1945-1996, with no variation over time.

Treisman (2002) has an index of decentralization based on decisionmaking power. The measure focuses on who has the authority to make political decisions within government. A nation whose central government has full decisionmaking authority is most centralized, where as a nation whose lowest-tiers of government have full decisionmaking authority is most decentralized. The index is the sum of three dimenstions of decentralization ranging from 0 to 3, where 3 is the most decentralized. SeeTreisman (2002)[p. 8-9] for more details. Each country has one score for "mid-1990s." Thus, there is no variation over time.

Woldendorp, Keman, and Budge (2000) have an index of autonomy measuring the discretionary powers of non-central governments. The score is the sum of four parts and ranges between 0 and 8, where 8 is the most autonomous: There is one score for years 1945 to 1998 (post World War II). There is no variation over time.

DecenIndex was created as follows. We standardized scores of all the above indices on a scale from 0 to 1. For the conversion, we used $\frac{N-min}{max-min}$, where for a particular country and min/max represent the range of the observed scores for the particular index. We then took the average of the available scores for each country over a single election.

For some the index includes only one measure of decentralization because the one measure is all that is available. For most other countries in the data, multiple measures are included in the index. The U.K is the only country listed for all of the measures. Using this index we created a measure of the average level

	(1)				
	DecenIndex	RAI	Cox Inf.	PSNS	K&M Inf.
DecenIndex	1				
RAI	0.840	1			
Cox Inf.	0.356	0.402	1		
PSNS	-0.158	-0.182	-0.805	1	
K&M Inf.	0.391	0.355	0.816	-0.633	1

Table 77: Correlation of Decentralization Scores, election-year level

	(1)				
	AvgDecenIndex	Mean RAI	Mean Cox Inf.	Mean PSNS	Mean K&M Inf.
AvgDecenIndex	1				
Mean RAI	0.848	1			
Mean Cox Inf.	0.338	0.426	1		
Mean PSNS	-0.172	-0.288	-0.849	1	
Mean K&M Inf.	0.300	0.356	0.875	-0.746	1

Table 78: Correlation of Decentralization Scores, Country Means

of decentralization for 40 to 43 countries. The index itself is distributed with a right skew and bears strong resemblance in distribution to the RAI.

We need to stick to the years of measures of nationalization that correspond roughly to the measures in DecenIndex and thus average nationalization scores for time periods up to 2004. The Pearson correlation coefficients reveal the expected directional linear relationships. When compared both to RAI and the three nationalization measures, as seen in Table 77, the relationships are roughly consistent.

However, some concerns arise that the change in scores may be due to the inclusion or exclusion of certain measures as missingness arises across the sample. We therefore average the DecenIndex over all elections for each country, creating the AverageDecenIndex. The correlation between that measure and the others in the paper can be found in Table 78. Of note: while the null of no correlation can be rejected for nearly all the pairwise comparisons here, we cannot reject this null hypothesis for the relationship between mean PSNS (standardized and weighted) and the Average Decentralization Index. This will arise again in replicating the pooled analysis from the paper with the DecenIndex in place of RAI.[15]

For the pooled country-level AverageDecenIndex, we return to the first analysis in the paper: the country-level comparisons of decentralization and the three measures of party nationalization. These regressions are presented in Tables 79 through 81, and include each measure as independent and dependent variable. These results largely reflect those in the paper, although the models with the AverageDecentralizationIndex generally fit the data less well. With the exception of the models with PSNS, the relationships are consistent

15. We include RAI in those tables for easier comparison for the reader.

	(1) Mean RAI b/p	(2) AvgDecen b/p	(3) Mean RAI b/p	(4) AvgDecen b/p	(5) Mean RAI b/p	(6) AvgDecen b/p
Mean Cox Inf.	30.869	0.691				
	(0.006)	(0.026)				
Mean PSNS			-26.496	-0.493		
			(0.031)	(0.324)		
Mean K&M Inf.					16.482	0.379
					(0.036)	(0.063)
Constant	6.423	0.272	32.119	0.774	3.134	0.202
	(0.002)	(0.000)	(0.001)	(0.051)	(0.393)	(0.036)
Adj R2	0.164	0.094	0.063	0.008	0.107	0.069
Num Obs	47	46	47	46	46	46

Table 79: Comparison of Mean RAI and Mean Decentralization Index, Country Means

	(1) DV: Cox Inf. b/p	(2) DV: Cox Inf. b/p	(3) DV: PSNS b/p	(4) DV: PSNS b/p	(5) DV: K&M b/p	(6) DV: K&M b/p
Mean RAI	0.006		-0.003		0.008	
	(0.001)		(0.086)		(0.004)	
AvgDecenIndex		0.165		-0.060		0.237
		(0.017)		(0.327)		(0.033)
Constant	0.096	0.112	0.815	0.793	0.406	0.413
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Adj R2	0.164	0.094	0.063	0.008	0.107	0.069
Num Obs	47	46	47	46	46	46

Table 80: Comparison of Mean RAI and Mean Decentralization Index, Country Means

in direction and the presence of a statistically distinguishable point estimate. This consistency is heartening for the more general topic of a relationship between nationalization and centralization, which persists despite the invariant nature of the underlying measures which are used to create the AverageDecentIndex. While a more complete extension, with time-varying and more comprehensive samples of these measures would be preferable, this exercise does at least suggest that it is not simply something about the RAI measure which is driving the relationship observed in the analysis above.

	(1) Mean RAI b/p	(2) AvgDecen b/p	(3) Mean RAI b/p	(4) AvgDecen b/p	(5) Mean RAI b/p	(6) AvgDecen b/p
Mean Cox Inf.	12.688	0.230				
	(0.020)	(0.305)				
Mean PSNS			-13.250	-0.317		
			(0.048)	(0.353)		
Mean K&M Inf.					7.649	0.211
					(0.041)	(0.092)
Federal	15.754	0.427	16.439	0.443	16.225	0.430
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	4.475	0.224	16.646	0.504	2.663	0.157
	(0.000)	(0.000)	(0.003)	(0.071)	(0.172)	(0.012)
Adj R2	0.681	0.533	0.673	0.534	0.672	0.549
Num Obs	46	46	46	46	45	46

Table 81: Comparison of Mean RAI and mean Decentralization Index, Country Means

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