

The Effects of Government System Fractionalization on Satisfaction with Democracy⁺

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Consensual-pluralistic institutional features of representative democracies have traditionally been associated with satisfaction with democracy (SWD). However, more recent studies report contradictory results on the effects of some of these institutional determinants on SWD. This article confirms these puzzling findings by showing that electoral proportionality increases SWD while other pluralistic factors such as government fractionalization produce the opposite effect. We illustrate this duality of counteracting effects by expanding the number of cases under study to different regions of the world in a comprehensive TSCS sample of 58 democracies between 1990 and 2012. In the second part of the paper, we are able to reconfirm these findings at the individual level by employing survey data from the Comparative Study of Electoral Systems.

Keywords: satisfaction with democracy - electoral system - proportionality - party system - government fractionalization

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This study analyses how different institutional settings influence individual and cross-national differences in satisfaction with democracy (SWD). The dominant theoretical paradigm is that pluralistic or consensual features of representative democracies should foster higher SWD among the citizenry. As Lijphart (2012) argues, all the features that characterize consensual democracies which seek to maximize representation and the plurality of decision-making majorities should tend to produce more positive citizen evaluations of their functioning. However, more recent analyses find no empirical evidence of a positive effect of consensual democracies on SWD (Bernauer and Vatter 2011), prompting some to argue that the “difference between majoritarian and consensus institutions is not particularly important for popular perceptions of a regime” (Peffley and Rohrschneider 2014, 16). Moreover, the literature on SWD returns inconsistent results regarding the effects of electoral, party and governmental systems – i.e. of the arguably most important defining characteristics of the consensual-majoritarian dichotomy.

So, do institutions that promote consensualism have any positive impact on SWD? As this study will show, strong linkages exist but their relationships do not always work in the same expected positive direction. This article discusses and shows the consistency of these apparently contradictory results through a comprehensive cross-regional analysis, and also provides individual-level evidence for the logic behind aggregate-level results. Our empirical results strongly support the view that countries with greater electoral proportionality tend to have higher levels of SWD, while at the same time government fractionalization is associated with lower SWD. Our analysis further suggests that people are capable of valuing both good representation and also a concentrated government system where parties can be held accountable – a combination of electoral outcomes that has been described by some as an electoral “sweet spot” (Carey and Hix 2011).

In the first part of this paper, we test these essentially aggregate-level arguments by relying on a time-series cross-sectional (TSCS) panel dataset covering 58 democracies, 300 elections and 833 country years between 1990 and 2012 based on aggregate survey information. This is in stark contrast to the body of research whose analysis usually hinges on many fewer cases, usually ranging from 15 to 30 countries, with a bias towards established Western democracies. This makes it not only hard to generalize the empirical findings but also difficult to disentangle the often highly collinear variables at the aggregate level (Ar-

cenaux and Huber 2007). Our panel dataset also allows us to conduct a more complex longitudinal analysis of the causes of changes in SWD at the national level.

In the second part of the study, we replicate the analysis at the individual level by employing survey data from the Comparative Study of Electoral Systems (CSES). For this purpose, we merge information from the four existing rounds of the CSES, which provides us with information from 38 democracies, 96 elections, and 84,000 voters. Through analysis of this comprehensive dataset, we are able to reconfirm our initial aggregate-level findings. With regard to electoral proportionality, we are able to show that voters whose parties receive a lower seat share than their vote share are more dissatisfied, demonstrating and confirming once more that representational deficits have direct repercussions on SWD at the individual level (Blais et al. 2015). But at the same time, we can also observe that these individual effects of the representational deficits get amplified in highly fractionalized government contexts.

1. Arguments and Hypotheses

In this study, we analyze how different institutional features are related to individual and cross-national differences in SWD. An influential discussion on this topic was framed by Lijphart (2012), who differentiated between consensual and majoritarian types of democracy. According to Lijphart, consensual democracies seek to maximize decision-making majorities and can be characterized in terms of inclusiveness, bargaining and compromise. Majoritarian democracies, on the other hand, concentrate political power and can be described as exclusive, competitive and adversarial. This divide is especially relevant to those features that belong to the ‘executive-parties dimension’ of Lijphart's classification: electoral proportionality, party system fragmentation and a concentration of executive power. These variables are expected to be interconnected and are therefore considered to have similar effects on SWD.

In our study, we unbundle the effect of this set of ‘institutions’ and argue that electoral proportionality and party/government fractionalization are distinct outcomes of the electoral rules (Lijphart 1994; Taagepera 2003) that have different effects on SWD. In important aspects, this argument parallels a puzzle posed to research on electoral turnout.

While PR-systems and electoral proportionality are positively associated with turnout rates empirically, the presence of a higher number of parties appears to decrease participation in elections (Blais 2006; Blais and Aarts 2006; Blais and Dobrzynska 1998; Grofman and Selb 2011; Jackman 1987). The positive effects of PR systems are attributed to their ability to mobilize and to provide a more effective representation of small parties and of minority groups. Voting itself could also be more “satisfying” because fewer votes are wasted (Karp and Banducci 2008, 330). Yet, as Jackman (1987) has pointed out, multiparty systems also tend to produce coalition governments. These in turn endanger the decisiveness of elections since electoral outcomes no longer determine the final composition of governments.

We argue here that from a citizen’s perspective both electoral proportionality and government system fragmentation can have independent and contradictory effects on SWD. Theoretically, a case can be made in favor of a positive effect on SWD for both majoritarian and consensual systems: “If we argue that a consensual system is better for support [...], we are using the representation argument [...]. If we stress the accountability argument we would be more likely to argue that majoritarian systems would be better since such systems allow us to know whom we can reward or punish for performance in office [...].” (Listhaug et. al. 2009, 318). For many people, there is no contradiction in valuing both aspects at the same time: fair and pluralistic electoral representation but also concentrated party and government systems where single parties can be held accountable. Citizens may be especially happy with electoral “sweet spots”, characterized by a low-magnitude PR electoral system that tends to produce highly representative governments but limits party and government fractionalization (Carey and Hix 2011). It is this duality of *counteracting* consequences of electoral systems that is likely to be responsible for a considerable degree of confusion in the literature on SWD.¹

1.1. Aggregate-Level Hypotheses

Findings with respect to electoral proportionality are far from uniform. There are a number of studies reporting that countries with greater proportionality tend to have higher levels of

¹ As Lijphart (1994) shows, electoral proportionality and party/government system fractionalization are moderately correlated. Because both variables potentially have opposite effects on SWD, we decided to account for both variables jointly in our models. Otherwise, as we can see in Table F and G in the Appendix, omitting one variable leads to an underestimation of the other variable.

SWD (Anderson et. al. 2005; Berggren et al. 2004; Farrell and McAllister 2006), but studies that analyze the effects of electoral proportionality over time report no relationship between the two variables (Ezrow and Xezonakis 2011; Martini and Quaranta 2014; Quaranta and Martini 2016a). This discussion leads us to our two first hypotheses:

H1a: Countries with a more disproportional electoral system tend to have lower levels of SWD.

H1b: Decreasing electoral proportionality leads to decreasing SWD within countries over time.

Somewhat paradoxically, other studies report that countries with majoritarian electoral systems (Aarts and Thomassen 2008; Berggren et al. 2004; Farrell and McAllister 2006; Singh 2014; Karp and Bowler 2001), and concentrated party and government systems (Anderson et. al. 2005; Martini and Quaranta 2014; Karp and Bowler 2001; Quaranta and Martini 2016a; Weil 1989) tend to have higher levels of SWD. Here, the accountability argument together with clarity of responsibility can serve as plausible theoretical explanations for these findings (Manin et al. 1999). Accountability is only possible if it is clear in citizens' eyes which party is responsible for policies. Single-party government provides the most clarity, while coalition governments make it more difficult for voters to assign blame and responsibility or to vote incumbents out of office (Lundell 2011; Powell 2000). This leads us to our next pair of hypotheses:

H2a: Countries with a more fractionalized government composition tend to have lower levels of SWD.

H2b: Increasing fractionalization of the government composition erodes SWD within countries over time.

1.2. Individual and Cross-Level Hypotheses

There is already some evidence at the individual level for the beneficial/negative effects of representation/under-representation on SWD. First, it has been consistently reported that

having voted for parties that won an election substantially increases SWD (Anderson and Tverdova 2001; Anderson et al. 2005; Blais and Gélinau 2007; Curini et. al. 2011; Singh et al. 2011). More recently, Blais et. al. (2015) have demonstrated that SWD decreases if the seat share of the party that respondents prefer falls short of its vote share.

On the other hand, losers might be more dissatisfied when the policies implemented do not match their preferences. Following this logic, we can also assume that the positive effect on SWD of voting for the winner can be conditioned by the relative positions of each party in the cabinet. Thus, we further distinguish electoral winners between those who have voted for the party of the Prime Minister (PM) or president – therefore the party that leads the government – and those winners who have voted for the other government parties. Our expectation is that winners who have voted for the party of the PM/president derive much more satisfaction from their electoral victory than those whose party ends up as only a minor coalition partner:

H3: Electoral winners who voted for the party of the PM/president have more SWD than electoral winners who voted for a minor coalition partner and the latter have more SWD than electoral losers.

Additionally, we can utilize these individual findings to test our argument with the help of cross-level hypotheses, since the party and government systems can be expected to have important repercussions on the degree of representation of voters. This argument is inspired by a study by Anderson and Guillory (1997) that showed that the nature of democratic institutions – whether they are consensual or majoritarian in Lijphart's terms – should mediate the effects of winning and losing. These same authors argued that electoral winners in majoritarian democracies will be more satisfied since there will be fewer obstacles against the winning parties enacting their policies. By the same token, we expect that fractionalization of the government should condition the effects of winning and losing an election. Although this argument was devised with the consensual-majoritarian dichotomy in mind, we find this cross-level interaction more plausible when applied to the government system since this variable directly captures the extent of power-sharing.

Furthermore, we expect that the modifying effect of fractionalization will not be limited to conditioning the effect of winning and losing, but it should also apply more generally to the quality of representation: whether voters are adequately represented in the legislature. Our expectation is that the assumed negative effects of a representation deficit on SWD are amplified in strongly fragmented systems with a multitude of parties and complicated coalition dynamics. Thus, it should be more important in such systems to be adequately represented than in concentrated two-party systems, where the losing side is in any case doomed to opposition.

H4a: Electoral winners, in general, tend to be more dissatisfied with democracy in fragmented government situations.

H4b: The individual negative effects of representational deficits are amplified in more fractionalized government situations.

2. Data and Measurement

This study only covers countries that fulfil a number of minimal democratic criteria. To approximate these standards, all the countries in our study need to be classified as ‘Electoral Democracies’ and at least as ‘partly free’ by Freedom House. In addition, they must be classified as democracies by Cheibub et. al (2010). We use two different sources of data in our analysis: a time-series cross-sectional panel (TSCS) dataset at the national level and an individual-level dataset based on the Comparative Study of Electoral Systems (CSES).

2.1. Aggregate TSCS Panel Dataset

We are able to retrieve data for 58 countries between 1990 and 2012 that match the above democratic criteria and can thus compile a widely-encompassing time-series cross-sectional (TSCS) panel dataset. This empirical sample exceeds those of previous studies in a number of respects. First, its regional coverage extends to democracies in Europe, North, South and Central America and South-East Asia, and thus overcomes the ‘Western’ democracy bias that is inherent in most SWD studies. Second, it covers 300 election periods and information from 833 country-years, with an average of 14.4 observations per country,

aggregating public opinion data from about a million respondents. We only include in our analysis those democracies where we can collect information on at least three consecutive elections. This dataset not only allows for the first longitudinal analysis on SWD outside Western Europe but also increases our confidence in the cross-sectional results because we are able to compare country means for a longer period of time and not only single snapshots. Third, the sample neatly balances new democracies against established ones: 395 country years come from established democracies while 438 country years come from third-wave democracies. Fourth, there is a clear temporal ordering in our dataset. We make sure that SWD is always measured after an election. Thus unlike most survey research, where cause and effect are usually measured simultaneously, in our dataset the electoral variables (the causes) precede SWD.

In order to construct the TSCS dataset, we rely on opinion data from 13 different sources, most of them international survey programs: *Eurobarometer*, *Candidate Countries Eurobarometer*, *Central and Eastern Eurobarometer*, the *European Value Study*, the *New Democracies Barometer*, the *Comparative Study of Electoral Systems*, the *Americas Barometer* by the *Latin American Public Opinion Project*, the *Latinobarómetro* and the *Asian Barometer*. Furthermore, we rely on a number of national election studies too: the *Australian Election Study*, the *Canadian Election Study*, the *American National Election Studies* and the *New Zealand Election Study*.² We only include representative surveys in our sample that use the same question wording and employ the same four-point scale ranging from not at all satisfied with the way democracy works (1) to very satisfied (4). When aggregating individual survey data, we weight all the data according to the post-stratification, design or demographic weight as necessary. We choose to calculate the percentage satisfied with democracy. SWD at the aggregate level is normally distributed with a grand mean of 50.1 percent and a standard deviation of 19.6.

² More information on the used datasets can be found in Table A in the Appendix.

2.2. Explanatory Context-Level Variables

The degree of electoral *disproportionality* is measured using the well-known Gallagher Index.³ Higher values reflect a higher degree of disproportionality. As discussed, we expect higher levels of SWD in contexts with more proportional electoral outcomes (and therefore better representation and fewer wasted votes). All the information about the aggregate-level variables is summarized in Table B in the Appendix.

Government fractionalization measures the extent to which the executive power is homogeneous.⁴ It reflects the level of party plurality in the composition of the cabinet. It ranges from 0 (every deputy from among the government parties belongs to the same party) to 1 (every deputy from among the government parties belongs to a different party). We expect that countries with single-party and small coalition governments will tend to have higher levels of SWD than countries with heterogeneous coalition governments.

2.3. Context-Level Controls

Currently, the most prominent alternative explanation links SWD with the economic outputs of the political system. For crisis-ridden countries such as Portugal, Ireland, Italy, Spain or Greece, the literature mainly attributes the declining levels of SWD to the Great Recession (Armingeon and Guthmann 2014; Cordero and Simón 2016; Quaranta and Martini 2016b; Sousa et. al 2014). But also, in general, there exists comparative evidence that economic performance is strongly related with SWD (Armingeon and Guthmann 2014; Halla et al. 2013; Quaranta and Martini 2016a). While economic growth might have a positive effect on satisfaction due to benefits from the improving economic situation, the erosion of disposable income might diminish people's SWD (Clarke et. al. 1993, 1000f.). Closely related, the level of economic development has been shown to be positively associated with SWD as well (Anderson and Tverdova 2003; Guldbrandtsen and Skaaning 2010; Schäfer 2012), while income inequality and poverty appear to depress SWD (Ander-

³ The data come from Gallagher (2015). Missing values are replaced with data from Carey and Hix (2011) and from the Democracy Barometer (Merkel et. al. 2016).

⁴ The data come from the Database of Political Institutions (Cruz et. al. 2016).

son and Singer 2008; Schäfer 2012; Lühiste 2014). In our model, we control for these factors by adding *GDP per capita* and *GDP growth rate* and, finally, *income inequality*.⁵

A second category of hypotheses links SWD with various aspects of the quality of governance. A number of comparative studies have shown that corruption, rule of law and effective public administration are strongly related with SWD at the national level (Anderson and Tverdova 2003; Ariely 2013; Dahlberg and Holmberg 2014; Guldbrandsen and Skaaning 2010; Peffley and Rohrschneider 2014). In our study, we employ a measure that taps into all three dimensions, the *Quality of Government Index*, provided by the International Country Risk Guide (ICRG). It is based on the rescaled average of three component variables “Corruption”, “Law and Order” and “Bureaucracy Quality”, where higher values express higher quality of government. Unlike any available alternative, the ICRG provides information up to 1985, so it covers the complete time-span of our dataset. Data come from the Quality of Governance Standard Dataset (Teorell et. al. 2015).

We control for two important institutional characteristics that might affect the analysis as well: type of government and structure of the state (federalism). *Type of government* is measured as a categorical variable distinguishing between parliamentary, semi-presidential and presidential regimes.⁶ Second, we control for the *structure of the state*, i.e. whether there exist independent sub-national tiers of government with certain areas of autonomy which are formally guaranteed, commonly in a written constitution (1) or not (0).⁷

Party fractionalization/supply is measured using *the effective number of electoral parties* (ENEP).⁸ We include this variable to distinguish the effect of plurality of party supply from government fractionalization. According to existing evidence and similar to electoral proportionality, we expect that countries with greater party fractionalization will tend to exhibit higher levels of SWD since multi-party systems provide more choices and might be better equipped to handle discontent among the electorate (Miller and Listhaug 1990). Additionally, rising ENEP should cause SWD to increase within a country over time. Another

⁵ Data for GDP per capita and GDP growth rates are taken from the World Bank, accessed at <http://data.worldbank.org/> and from the IMF, accessed at <https://www.imf.org/external/data.htm>. Data for income inequality come from imputations by Solt (2016).

⁶ The data are taken from Cheibub et al. (2010).

⁷ The data mainly come from the Democracy Barometer (Merkel et. al. 2016), and also from Norris (2008).

⁸ The data come from Bormann and Golder (2013). Missing data is replaced with information from Gallagher (2015).

potentially relevant control variable is *ethnic fractionalization* (Alesina et al. 2003) since social diversity can be expected to impact on party fractionalization, probably in combination with the country's electoral system (Ordeshook and Shvetsova 1994; Neto and Cox 1997).

Finally, democratic elections might enhance people's feelings about their political institutions and the political process (Banducci and Karp 2003; Blais and Gélinau 2007; Blais et. al. 2015; Esaiasson 2011). We, therefore, include in our model a variable *temporal distance to elections*, which is the difference between the year of observation and the election year for a given country.⁹

2.4. *Comparative Studies of Electoral Systems (CSES)*

The second part of our research analyses individual-level data from 96 post-electoral surveys from the Comparative Study of Electoral Systems (CSES). We only include those surveys that cover parliamentary elections for the lower house – although they might have taken place in presidential or semi-presidential systems. For this dataset, we merge all four existing waves of the CSES. It covers 38 countries between 1996 and 2013 that match the democratic criteria noted above. The sample includes information from all over the world, although most cases come from Europe. Outside Europe, it covers Australia, Brazil, Canada, Chile, Israel, Mexico, New Zealand, Peru, South Korea, Taiwan, Turkey, the US and Uruguay. At the individual level, the database includes cross-sectional information on 84,000 respondents.

2.5. *Explanatory Individual-Level Variables*

Winning elections matters to voters when evaluating their democracy and its institutions. Previous studies usually rely on a categorical variable that distinguishes between electoral losers and electoral winners. Yet are all winners alike? Especially in the fragmented party and government systems, voters are often faced with the situation in which they have voted for a party that is part of a coalition but does not lead the government. For this reason, we

⁹ A value of 0 indicates that an election has taken place in a given year. The values of this variable increases on a yearly basis until a new election takes place.

further distinguish *electoral winners* between voters who have voted for the party of the prime minister or president and voters who have voted for another party in government.

We measure *representation deficit* at the individual level as the difference between the vote shares minus the seat shares of the parties respondents have voted for.¹⁰ Thus, positive values reflect under-representation while negative values reflect over-representation of the respective party. For example, a value of 5 on the representation deficit indicator implies that the proportion of seats in the legislature is 5 percentage points lower than the proportion of votes for a given party. Relying on a similar measure, Blais et. al. (2015) report that SWD decreases if the seat share of respondents' preferred parties falls short of their vote shares.

2.6. Individual-Level Controls

At the individual level, we control for important sociological variables such as *age* (in years), *gender* (reference category: male), *education level* (primary, secondary or tertiary) and *household income* (constructed as income quintiles for each country). We also include *left-right self-placement* since there is documented evidence of a relationship with SWD (Anderson and Just 2013; Anderson and Singer 2008; Lühiste 2014; Schäfer 2012). Furthermore, we control for respondents' perceptions of *political efficacy* or accountability. For this, we rely on two survey items from which we create an additive index (Huang et. al. 2008).¹¹ Our expectation is that greater political efficacy is associated with greater SWD.

Another factor compounding with the winning effect on SWD is ideological proximity with the ideological content of the policies adopted by the government. To test this possibility, we calculate a measure of respondent's left-right proximity to the parties in government. Here, we expect *ideological congruence* with the government to increase SWD (Cur-

¹⁰ The data for both variables come primarily from the CSES but sometimes it was also necessary to rely on other sources, such as the Parline database: <http://www.ipu.org/parline-e/parlinesearch.asp>. To replace missing values or to determine which party heads a government we use the ParlGov database: <http://www.parlgov.org/static/static-2014/stable/data.html>.

¹¹ The first question taps into the concept of internal efficacy ("Some people say that no matter who people vote for, it won't make any difference to what happens. Others say that who people vote for can make a difference to what happens"); while the second question covers the concept of external efficacy ("Some people say it makes a difference who is in power. Others say that it doesn't make a difference who is in power").

ini et al. 2011; Dahlberg and Holmberg 2014; Kim 2009). Departing from Curini et al., we calculate congruence as:

$$ideological\ congruence_{ij} = (|x_{ij} - \bar{p}_j|) * (-1), \quad (1)$$

where x_{ij} is respondent i 's left-right self-placement in country j and p is the left-right position of the cabinet. More in detail, p is calculated as the mean position of government parties weighted by the vote share each party has received. Information about the individual-level variables is summarized in Table C in the Appendix.

3. Method and Model Specification

3.1. TSCS Aggregate Panel Model

For the TSCS aggregate panel dataset we estimate a three-level multilevel regression where country-years (k) are nested within election cycles (i), which in turn are nested within countries (j):

$$y_{kij} = \beta_0 + \beta_1 t_{kij} + \beta_2 x_{kij} + \beta_3 x_{ij} + \beta_4 x_i + \mu_i + \mu_{ij} + e_{tij}, \quad (2)$$

where y_{kij} is the response variable of country j measured at election i , on occasion k . x_{kij} is a time-varying covariate such as GDP growth, while x_{ij} refers to a variable that varies between elections such as ENEP but does not vary within a given election cycle. x_j denotes time- and election-cycle invariant covariates such as the type of the executive or the degree of ethnic fractionalization. Finally, t_{kij} refers to a linear time trend variable that captures the measurement occasion.¹²

The above model is also referred to as a random effects (RE) model. It makes the exogeneity assumption that the errors μ_j are uncorrelated with the explanatory variables for all time periods. For this reason, it is sometimes argued that a fixed effects (FE) model should be preferred when dealing with time-series data since it allows for a correlation

¹² As Fairbrother (2014: 124f.) notes, the need for a time term arises from the possibility of simultaneous but unrelated time trends in time-varying variables x and y .

between the residuals and the explanatory variables. However, with a FE model it is impossible to test the effects of time-invariant variables. A similar problem arises in the context of rarely changing variables (Plümper and Troeger 2007). In consequence, a FE model makes use of only a small part of the variation in a time-varying variable since any higher-level variance is eliminated. Only the ‘within’ effects can be estimated and nothing is known about cross-sectional ‘between’ effects.

Building on the work of Mundlak (1978), Bell and Jones (2015) and Schmidt-Catran and Fairbrother (2015) solve this problem by simultaneously modeling the cross-sectional and longitudinal relationships by adding a group mean and a de-meaned term together in the model. Fairbrother (2014, 124) neatly summarizes the procedure thus: “Separate longitudinal and cross-sectional associations between x_{ij} and y can be identified by calculating the mean of x_{ij} across all relevant years for each country. The coefficient on the country mean \bar{x}_j captures the effect on y of enduring cross-national differences in x_{ij} . To capture the effect on y of variation over time within each country, \bar{x}_j can then be subtracted from x_{ij} . The resulting longitudinal component x_{ijM} (a country-year level variable) is group-mean centred, and is orthogonal to \bar{x}_j , such that the two coefficients can be estimated separately.” This leads to the following ‘within-between’ random effects model:

$$y_{ij} = \beta_0 + \beta_1 t_{kij} + \beta_2 x_{kijM} + \beta_3 \bar{x}_j + \beta_4 x_{ijM} + \beta_5 \bar{x}_j + \beta_6 x_j + \mu_i + \mu_{ij} + \epsilon_{kij}, \quad (3)$$

where the original time-varying variable x_{kij} and the election-varying variable x_{ij} are included twice in the model, decomposed into \bar{x}_j and x_{kijM} and x_{ijM} respectively. A benefit of this approach is that the ‘within’ coefficients will return the same results as in an FE model. Therefore, we can exclude the possibility that some unobserved time-invariant variables at the higher level are biasing the ‘within’ coefficients. Of equal importance is that this approach allows estimation of the cross-sectional association between a time-varying variable x on and y , while it enables us to include time-invariant variables simultaneously in the model.

3.2. CSES Individual-Level Model

The model with which we analyze the CSES survey data is similar to the previous one. We again estimate a three-level model, but this time individuals (k) are at the lowest level. The respondents are nested within elections/surveys (i), which in turn are nested within countries (j). At the aggregate level, there also exists some longitudinal variation (less than 3 percent of the total variance) since some countries are repeatedly observed over time. Nevertheless, there are also many countries that are only covered once or twice, and so we choose to disregard this limited longitudinal information and focus on a cross-sectional comparison. For this reason, we only include the group mean component \bar{x}_j of variables x_{ij} that vary between elections/surveys, such as ENEP or GDP per capita. This leads us to the following ‘between’ random effects model¹³:

$$y_{ij} = \beta_0 + \beta_1 x_{kij} + \beta_2 \bar{x}_j + \beta_3 x_j + \mu_i + \mu_{ij} + e_{kij}, \quad (4)$$

where x_{kij} is an individual-level covariate such as gender, \bar{x}_j the cross-sectional term for a time-varying variable x_{ij} such as ENEP, and x_j is a time-invariant variable such as the type of executive. Second, we also estimate a number of models with cross-level interactions between individual-level covariates and contextual variables, which take the following form:

$$y_{ij} = \beta_0 + \beta_1 x_{kij} + \beta_2 \bar{x}_j + \beta_3 x_{kij} * \bar{x}_j + \beta_4 x_j + \mu_i + \mu_{ij} + e_{kij}. \quad (5)$$

3.3. Estimation

In order to analyze the TSCS aggregate panel dataset, the first step is to estimate a null or empty model, which serves as a point of reference (model 1). The second model adds the Gallagher Index and government fractionalization, while model 3 replaces government fractionalization with a measure for party system fractionalization (ENEP), along with all the economic, cultural and institutional control variables. To facilitate interpretation, we

¹³ Estimating ordered probit multilevel regressions instead do not substantively change the results of our analysis.

standardize all continuous variables before estimating our models so they have a mean of zero and a standard deviation of one. We choose not to fit a model which includes the terms for ENEP and government fractionalization jointly since the latter is a direct outcome of the former and as such the two variables are highly correlated.¹⁴

We include both the cross-sectional and the longitudinal terms of the aggregate variables in the models whenever sensible. While government fractionalization and the social and economic covariates vary at the country-year level, the institutional and cultural control variables are time- and election-period-invariant. ENEP and the Gallagher index, on the other hand, vary only at the election level but not at the country-year level. For this reason, we estimate their cross-sectional terms by calculating the means of all the election periods in a given country (\bar{x}_j), weighted by the number of observations for each election so as to not give one election more weight in the estimation. The temporal (within) terms are calculated by subtracting the country means ($x_{ij} - \bar{x}_j$). Put simply, the differenced terms capture electoral fluctuations around each country's long-term average.

For the individual models, we rely on the CSES survey data. We again estimate a null model for comparison (model 4). Second, we add all the individual-level covariates (model 5). In model 6 we add all the contextual control variables, the Gallagher Index, and government fractionalization. We choose to only include the controls that we have found significant in the analysis of the TSCS aggregate panel dataset. Finally, model 7 adds the cross-level interactions between government fractionalization on the one hand and winning an election and representational deficits on the other.

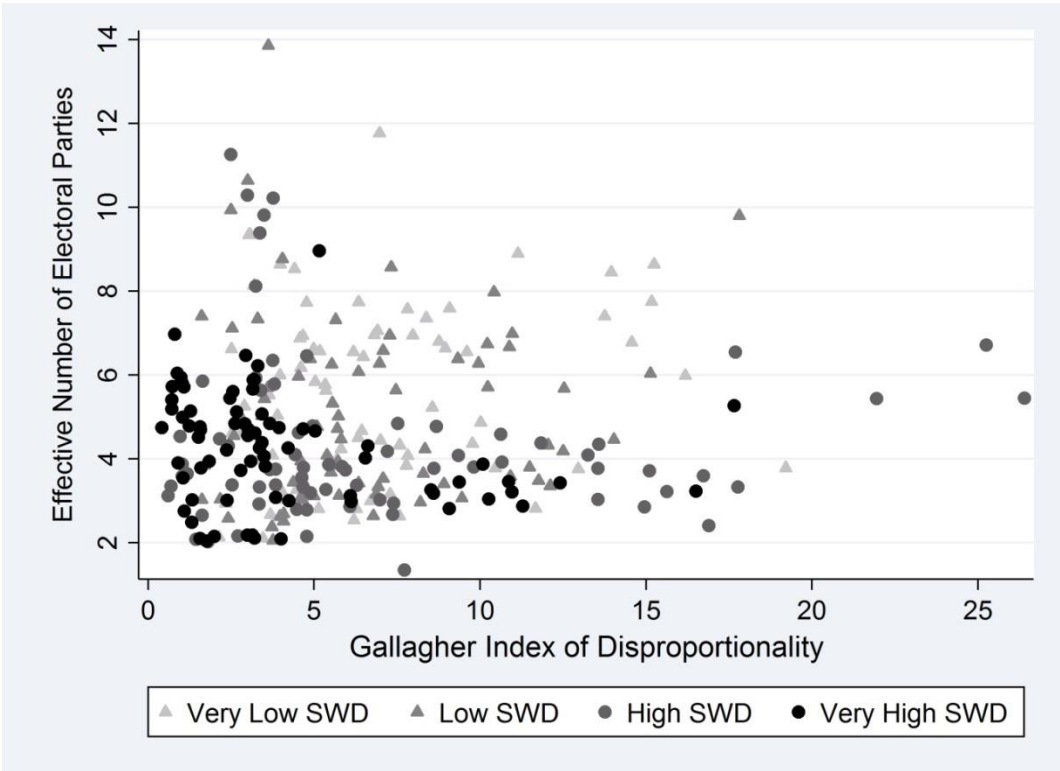
4. Results

We begin our discussion by presenting a scatter plot of the effective number of electoral parties and the Gallagher Index for the 300 elections in our TSCS aggregate dataset (Figure 1). Its first purpose is to show that, contrary to common wisdom, a low number of political parties *and* high electoral proportionality is indeed a somewhat frequent outcome. Second, it illustrates the fact that citizens appear to be most satisfied after elections that produce low party fragmentation but also low disproportionality. Third, the empirical distribution

¹⁴ ENEP and government fractionalization are cross-sectionally correlated with coefficient $R=0.68$ ($N=58$ democracies, country-means).

shows that the “sweet spot” hypothesis is not an interactive argument; the negative effect of party system fragmentation on SWD appears not to be conditional on high electoral disproportionality (compare also Table F and Table G in the Appendix). This is illustrated by the considerable number of cases with high levels of SWD lying close to either of the axes. It appears that reasonably high levels of SWD can still be obtained as long as an electoral system successfully limits either party system fragmentation or electoral disproportionality.

Figure 1: ENEP and Gallagher Index by SWD-Quartiles (N=300 Elections)



Furthermore, our argument predicts that electoral systems that successfully limit either party/ government fractionalization or minimize electoral disproportionality should tend to have higher levels of SWD *in the long run*. In fact, countries as diverse as Sweden, Iceland, Ireland, New Zealand, the US, Uruguay or Luxembourg score well on both dimensions and are also in the top quartile of countries with the most satisfied citizens, when we compare country averages for the whole time period under consideration. Other countries in the top quartile, such as Denmark, Norway, Switzerland, Netherland or Finland do a remarkable job in limiting electoral disproportionality but combined with a more fraction-

alized party/ government system. Finally, countries with very large electoral disproportionality (UK, Australia, and Canada) but a highly concentrated party and government system can also be found among the countries with the highest satisfaction. On the contrary, countries with a fractionalized party/government system and high levels of disproportionality such as Bulgaria, Croatia, Hungary, Slovakia, Lithuania, Peru or countries with extreme levels of party system fractionalization such as Brazil, Guatemala, Israel, Italy or Columbia are among the countries with the lowest SWD.

4.1. Analysis of the TSCS Dataset

Table 1 shows the results of the multilevel analysis of the TSCS aggregate panel dataset of SWD. The table is divided into four sections. At the top, the ‘within’ coefficients are presented. This is followed by a section with the cross-sectional predictors. Below this is a section with the random effects of the models (variance components). As can be seen from model 1, the null model, about 69 percent of the variance can be attributed to the country level, 14 percent to time variation (the election level) and 16 percent to the country-year level (occasions). These figures not only tell us that there is a sizeable amount of variation at every level but also that the largest part of the variation in SWD lies between countries and not within countries over time.

Model 2 includes all the economic, cultural and institutional control variables together with government fractionalization and the Gallagher Index of *dis*proportionality. As hypothesized in H1a, we find that countries with a more disproportional electoral system tend to have lower SWD.¹⁵ The strength of the cross-sectional effect is considerable, comparable to that of GDP growth. Interestingly, we find no longitudinal effect (hypothesis H1b). We believe the most plausible explanation for this is that there is very little time-varying information in the Gallagher Index for the great majority of countries in our sample, meaning that the same electoral rules tend to produce similar levels of proportionality within a country over time (see the time trends in the Appendix). Nevertheless, the absence of a

¹⁵ We also tested for curvilinear relationships between electoral disproportionality and SWD but found only inconsistent effects (compare Table F and Table G in the Appendix).

longitudinal finding does not undermine the cross-sectional results.¹⁶ In the case of the Gallagher Index, one can reasonably expect to find much larger effects when comparing between countries (different electoral systems).

With respect to the fragmentation of the government system, we find that countries with greater fractionalization tend to have lower levels of SWD cross-sectionally (hypothesis H2a).¹⁷ This negative effect is substantial: an increase of one standard deviation in government fractionalization results in a decrease of 3 percent in SWD.¹⁸ However, although the longitudinal coefficient points in the same direction, it fails to reach significance (hypothesis H2b). As for the Gallagher Index, we believe that there might not be sufficient longitudinal information in the measure to find an effect.

There is a surprising finding regarding fragmentation of the party system. Although both the cross-sectional and the longitudinal terms of ENEP are strong and highly significant predictors, they point in the same *negative* direction. First, we find that countries with greater legislative party fractionalization tend to have *lower* levels of SWD. Second, increasing party fractionalization leads to decreases in SWD within countries over time. Both effects are substantive, although the cross-sectional predictor appears to be stronger. An increase of one standard deviation in ENEP results in a decrease of 4.06 percent in SWD.

The longitudinal effect of ENEP on SWD can also be clearly observed when looking at the time-line plots of these two variables by country (Figure 2). As we can see, many of the time trends of these two variables appear to run parallel and are almost perfectly correlated (Israel, Belgium, and Venezuela). At this point, we should also point out that the regression coefficient in our model is likely to be dampened by the fact that in about half of the countries there was little or almost no variation in the number of political parties, such as in Australia, Canada, Cyprus, Iceland, the UK and the USA, to mention just a few, despite which we are still able to detect a substantive relationship with SWD. This is a robust but

¹⁶ It also illustrates a major problem in the use of conventional RE models to analyze this type of panel data, because these models rely on the assumption that the longitudinal and cross-sectional effects are equal. If they are not, the RE coefficients are likely to be biased (Bell and Jones 2015, 137).

¹⁷ We also tested for curvilinear relationships between party system fractionalization and SWD but found no significant effects (compare Table F and Table G in the Appendix).

¹⁸ As a robustness test we replicated all models, excluding presidential and semi-presidential systems, but found the effects of government fractionalization to remain highly significant (compare Table H and I in the Appendix).

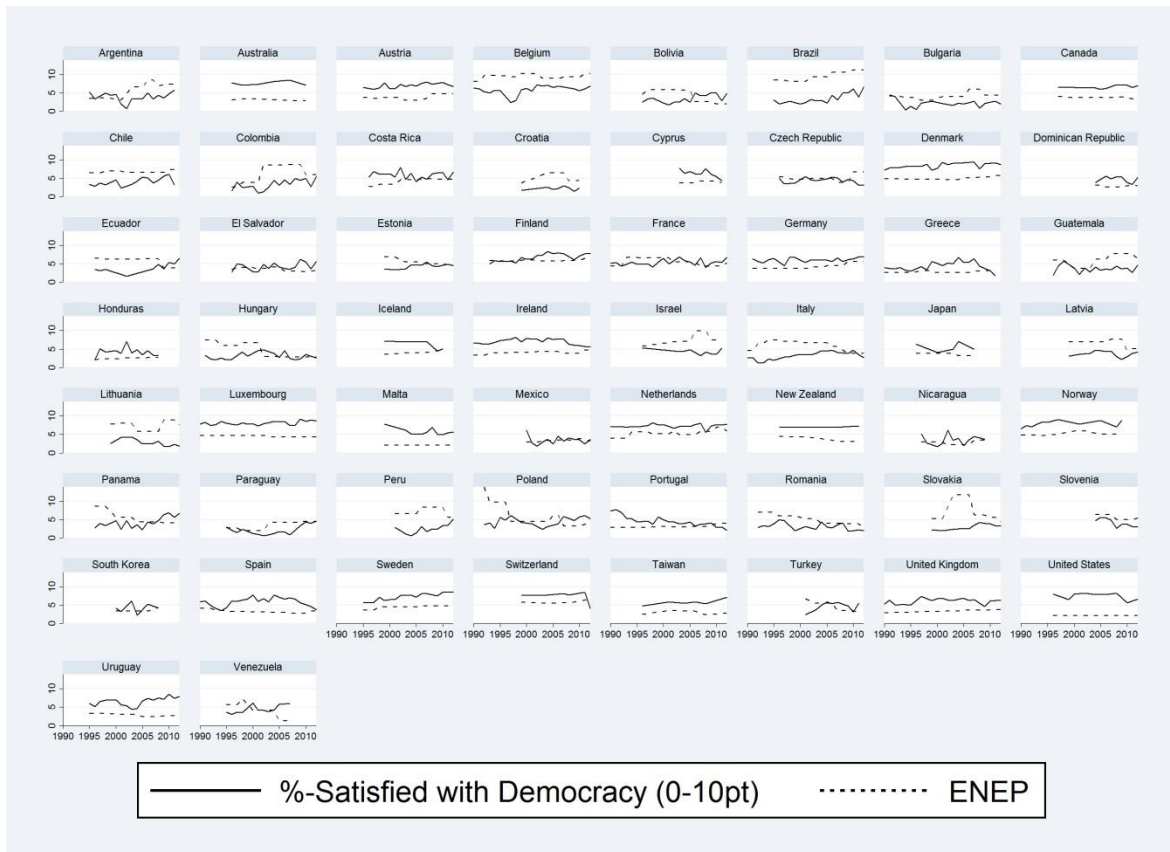
controversial finding and it shows that increasing the plurality of the party supply does, in fact, have negative effects on SWD.

Table 1: Multilevel Analysis of TSCS Dataset

	Model 1		Model 2		Model 3	
	β	(se)	β	(se)	β	(se)
<i>Longitudinal</i>						
Gallagher Index			0.34	(0.46)	0.57	(0.46)
Government Fractionalization			-0.26	(0.43)		
ENEP					-0.96*	(0.45)
Years since last election			-1.65***	(0.29)	-1.65***	(0.29)
GPD growth rate			1.95***	(0.32)	1.99***	(0.32)
Gini Index			-2.23***	(0.39)	-2.23***	(0.39)
Quality of Government Index			0.48	(0.44)	0.54	(0.44)
Linear Time Trend			2.48***	(0.52)	2.45***	(0.51)
<i>Cross-Sectional</i>						
Gallagher Index			-3.77**	(1.25)	-2.70**	(1.05)
Government Fractionalization			-3.00*	(1.30)		
ENEP					-4.06***	(1.06)
GPD per capita			7.79***	(2.34)	6.60**	(2.19)
GPD growth rate			3.82**	(1.38)	4.21**	(1.28)
Gini Index			-0.5	(2.67)	0.16	(2.39)
Quality of Government Index			8.19**	(2.70)	9.08***	(2.51)
Semi-Presidential			-3.00	(2.91)	-3.09	(2.70)
Presidential			2.70	(4.33)	2.15	(4.04)
Federal			2.18	(3.26)	3.15	(3.05)
Ethnic fractionalization			-1.62	(1.37)	-1.14	(1.27)
<i>Constant</i>	49.92***	(2.20)	48.93***	(2.02)	48.84***	(1.88)
<i>Variance components</i>						
Country intercept	263.58***	(52.00)	48.64***	(11.42)	40.69***	(9.86)
Election intercept	54.56***	(7.57)	34.59***	(5.70)	33.33***	(5.57)
Residuals	61.60***	(3.78)	58.26***	(3.59)	58.39***	(3.59)
Log Likelihood	-3158.00		-3061.89		-3055.79	
AIC	6324.00		6165.78		6153.58	
ICC Country years	0.16		0.41		0.44	
ICC Election	0.14		0.24		0.25	
ICC Country	0.69		0.34		0.31	
Number of country years	833		833		833	
Number of elections	300		300		300	
Number of countries	58		58		58	

Notes: Multilevel regression with ML-Integration; standardized β for continuous variables; standard errors in parentheses; significance (two-tailed) *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.

Figure 2: Time Evolution of ENEP and SWD by Country



We also find evidence that democratic elections temporarily cause SWD to increase. This finding is consistent with democratic theory, which posits a link between electoral participation and the legitimacy of the political system (Przeworski 1991). In principle, democratic elections might enhance people's feelings about their political institutions and the political process (Esaiasson 2010). A similar relationship has already been shown in studies comparing individual-level pre- and post-electoral survey data (Banducci and Karp 2000; Blais and Gélinau 2007; Blais et al. 2015). Furthermore, our analysis reinforces recent findings, connecting greater levels of quality of governance with higher levels of SWD (Anderson and Tverdova 2003; Ariely 2013; Dahlberg and Holmberg 2014; Gulbrandsen and Skaaning 2010; Peffley and Rohrschneider 2014). Finally, we find a substantial longitudinal and cross-sectional effect of economic growth on SWD, confirm-

ing once more the importance of economic explanations (Armingeon and Guthmann 2014; Clarke et. al. 1993; Halla et al. 2013; Quaranta and Martini 2016a). Consistently, we find the level of economic development to be one of the most important predictors to explain lasting differences in SWD between countries.

It is also noteworthy that models 2 and 3 can explain a huge amount of the variation in the dependent variable, especially at the country level but to a lesser extent also at the election level. While 68 percent of the variation in the empty model 1 is due to differences between countries, the ICC for the country level decreases to a mere 0.34 in model 2 – indicating a huge effect of the independent variables included in the model.

4.2. Individual-Level Analysis with the CSES Data

Table 2 shows the results of the analysis of the CSES post-electoral survey data. As model 4 shows, about 82 percent of the variance belongs to the individual level, 14 percent to the country level and only 4 percent to the time-varying election level. This is a very sizeable degree of clustering and underlines the necessity of a method that models these variances distinctively. We again make use of the multi-level toolkit and specify our models as shown in equations 4 and 5.

To summarize, we have estimated a series of multilevel models where respondents are clustered within surveys/elections, which are clustered within countries. Furthermore, we have decided to discard any longitudinal information at the aggregate level by including only the cross-sectional terms in our analysis. As we can see from model 5, which includes the individual-level variables, all the variables are highly significant, which is hardly a surprise given the large sample size of 84,000 respondents. For this reason, in the interpretation, we will focus more on the strength of each coefficient.

As discussed above, we have two measures of electoral support to test our arguments at the individual level. The first one captures the difference between the vote- and the seat-share of the parties respondents have voted for, labelled as representation deficit. For this variable, we find once more (Blais et al. 2015) that voters whose parties are under-represented in the legislature tend to have lower SWD, although the substantive effect is only moderate in comparison. Second, we have further distinguished between electoral

winner who have voted for the party of the PM or president and those who have only voted for a minor coalition party. Once more, we find that being an electoral winner is a very strong predictor and its substantive effect is comparable with that of political efficacy (winning an election is a categorical variable and therefore not standardized). However, what is more important for our argument is that we find that voters who have cast their ballot for the party that leads the government have twice as much satisfaction as voters who have only voted for a minor coalition partner (hypotheses H3). Finally, party identification, again a categorical variable, also has a sizeable effect on individual SWD. Similarly, ideological congruence with the government parties substantially increases respondents' SWD, although its effect is a little weaker.

In models 6 and 7, we have added only the most relevant aggregate variables to our analysis. In terms of the type of executive, we control for presidential and semi-presidential systems since *winning a legislative election* might have a different importance in these systems to that in parliamentary systems. However, we find the type of executive does not have a significant effect on SWD. The results reproduce all our previous findings for the TSCS data set. The relative strength of the coefficients on the Gallagher Index and government fractionalization are very similar. These effects are substantial and are highly significant, and when taken together these political variables are even more important than the level of economic development (even though GDP per capita is the most important single predictor). Model 7 adds a cross-level interaction between government fractionalization and the preceding significant individual-level variables that tap individual political representation. As previously discussed (hypotheses H4a and H4b), differences in the level of fractionalization might diminish the positive effect on SWD of voting for the winner or exaggerate the negative effect of representational deficits. This is what can be seen from model 7.

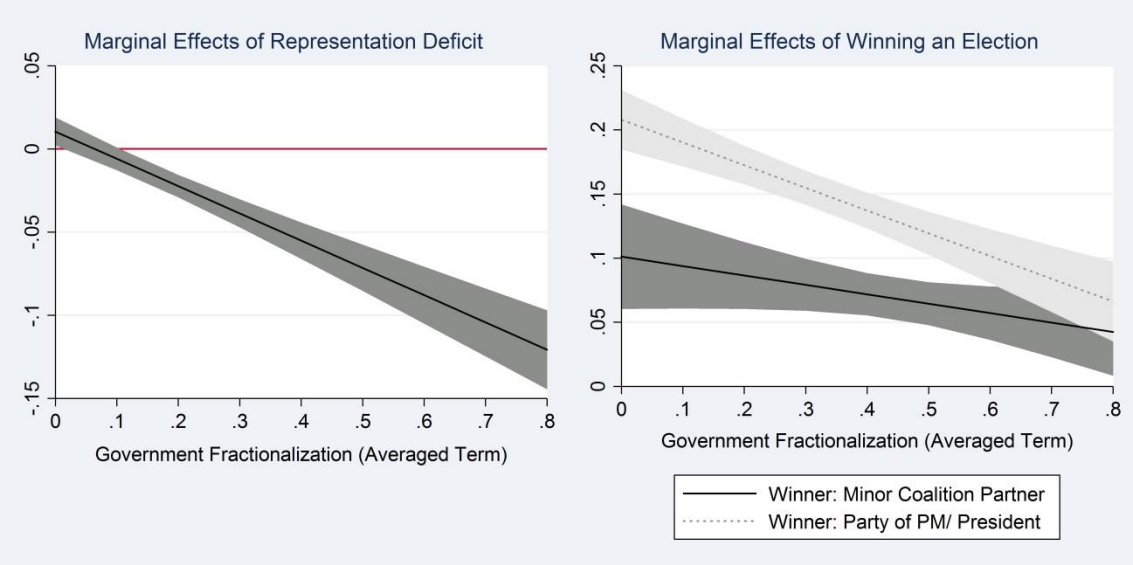
Table 2: Multilevel Analysis of the CSES Dataset

	Model 4		Model 5		Model 6		Model 7	
	β	(se)	β	(se)	β	(se)	β	(se)
<i>Individual Level</i>								
Age			-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)
Female			-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)
Primary education			-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)
Secondary education			-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)
Household income			0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)
Political efficacy			0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)
Left-right ideology			0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)
Left-right congruence			0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)
Party ID			0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)
Winner: minor coalition party			0.07***	(0.01)	0.07***	(0.01)	0.08***	(0.01)
Winner: party PM/president			0.16***	(0.01)	0.16***	(0.01)	0.15***	(0.01)
Representation Deficit			-0.02***	(0.00)	-0.02***	(0.00)	-0.04***	(0.00)
<i>Country Level (Cross-Sectional)</i>								
Government Fractionalization (Gov. Frac.)					-0.11**	(0.03)	-0.09**	(0.03)
Gallagher Index					-0.11**	(0.04)	-0.11**	(0.04)
GPD per capita					0.16**	(0.05)	0.16***	(0.05)
GPD growth rate					0.09***	(0.03)	0.09***	(0.03)
Quality of Government Index					0.13**	(0.04)	0.13**	(0.04)
Semi-Presidential					-0.07	(0.07)	-0.08	(0.07)
Presidential					0.09	(0.09)	0.09	(0.09)
<i>Cross-Level Interactions</i>								
Winner: minor coalition party * Gov. Frac.							-0.02	(0.01)
Winner: party PM/president * Gov. Frac.							-0.04***	(0.01)
Representation Deficit * Gov. Frac.							-0.04***	(0.00)
<i>Constant</i>	2.63***	(0.05)	2.56***	(0.05)	2.65***	(0.04)	2.66***	(0.04)
<i>Variance components</i>								
Country intercept	0.09***	(0.02)	0.09***	(0.02)	0.02***	(0.01)	0.02***	(0.01)
Election intercept	0.03***	(0.01)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)
Residuals	0.50***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)
Log Likelihood	-90491.78		-88652.47		-88629.94		-88584.97	
AIC	180991.6		177336.9		177305.9		177221.9	
ICC respondent level	0.82		0.81		0.92		0.92	
ICC election level	0.04		0.04		0.05		0.05	
ICC country level	0.14		0.15		0.04		0.04	
Number of respondents	83.968		83.968		83.968		83.968	
Number of elections	96		96		96		96	
Number of countries	38		38		38		38	
Notes: Multilevel regression with ML-Integration; standardized β for all continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.								

In order to better grasp the interactive effects, it is more informative to look at the marginal effects plots in Figure 3 (Brambor et. al. 2006). These fully confirm the negative conditional effects of government fractionalization. However, they also show that fractionalization does not affect all winners equally. It only reduces satisfaction for those who have voted for the party that leads the government. For electoral winners who have voted for a

minor coalition partner, there appears to be no effect. This is an interesting situation but fully compatible with the usually-employed power-sharing explanation of the linkage. In fact, the whole argument only makes sense for voters who have voted for the party that leads the government, since larger party and government fractionalization inevitably means coalition government and the sharing of power. On the other hand, if there is a minor coalition partner for whom people could have voted, this already implies some degree of government fractionalization.

Figure 3: Marginal Effects Plots of Cross-Level Interactions



5. Conclusions

This comparative cross-regional study has provided evidence that countries with higher electoral proportionality tend to have citizens that are more satisfied with the way democracy works. On the other hand, we have also found strong evidence that countries with a highly fractionalized government system tend to exhibit lower levels of SWD than those with concentrated party and government systems. Our longitudinal analysis has given additional support to the notion that increasing party fractionalization causes SWD to decline over time. These findings might seem paradoxical, especially if one takes Lijphart's dichotomy between majoritarian and consensual democracies as a starting point since we would expect that all these measures should point in the same direction.

We did not finish our analysis by demonstrating aggregate-level relationships but also went on to ask if electoral proportionality and government fractionalization also affect respondents at the individual level. In an analogy to the Gallagher Index at the aggregate level, we have been able to demonstrate that voters whose parties have received fewer seats than their respective vote share are less satisfied with the way democracy works in their country. Second, we have been able to show that the satisfaction voters receive is more than twice as high when they have voted for the government party that leads a coalition as compared to electoral winners who have only voted for a minor coalition partner. Finally, we have found that the positive effect of winning an election on SWD is much diminished in highly fractionalized government systems, while the negative effects of representational deficits are amplified.

It, therefore, seems that people want to be represented adequately and have their votes counted equally and not wasted. However, citizens seem to dislike government fragmentation. This paradox seems to make sense since people might value both at the same time: good representation but also concentrated party and government systems where parties can be held accountable. It is this duality of counteracting consequences of consensual democracies that is likely to have produced the mixed results in the literature since the effects partially cancel each other out when they are not included jointly in a model or when they are combined into a single index. For the same reason, we should not be able to detect any substantial relationships between the type of the electoral system or the average district magnitude with SWD, since PR-systems and higher district magnitude are related not only to higher levels of electoral proportionality but also to a more fractionalized party/ government system (compare Table D and Table E in the Appendix).

Nevertheless, what is the mechanism behind the effect of government fragmentation? Is it just due to the resulting lack of accountability – as we have mainly argued – or just the perceived greater instability and inefficiency of such governments? After all, research on government instability has repeatedly shown that the risk of breakup of governments increases with the number of parties in government (Dodd 1976; Taylor and Herman 1971; Somer-Topcu and Williams 2008) and it has profound negative effects on economic outputs such as growth rates (Aisen and Veiga 2013; Alesina et. al. 1996; Gurgul and Lach 2013). These alternative explanations might deserve more detailed attention.

This study also poses some problems and opens new questions. For instance, we found no longitudinal linkages between SWD and the Gallagher Index or our measure of government fractionalization. A partial explanation for this could be that these two variables carry too little time-varying information. Future research should focus squarely on the countries where there are actually sizeable changes – this might be due to electoral reform or a changing party system – and analyze them over a longer period of time.

Another surprising finding has to do with the relationship between party supply and SWD. Miller and Listhaug (1990) argue that multi-party systems should increase system support in the long term since they provide more choices, handle discontent among the electorate better and increase the possibility of the emergence of new parties that can channel new demands. However, regarding SWD, we have been surprised to observe the opposite effect, not only cross-sectionally but also longitudinally. Countries with higher levels of party fractionalization display lower levels of SWD, and additionally increasing party fractionalization also leads to decreasing SWD over time. But why is this the case? How can fragmentation of the party supply decrease SWD? Does too much offer hurt citizen's perceptions of the party system? Where is the threshold? All these questions deserve further attention in the future; so far what our analysis has shown is that the effects of party system fragmentation are very similar to those of government fractionalization.

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7. Appendix

7.1. Figures and Tables

Figure A: Evolution of Electoral Disproportionality



Figure B: Evolution of Government Fractionalization



Table A: SWD-Sources of the TSCS Panel Dataset

Source	Data Access and Documentation
American National Election Studies	http://www.electionstudies.org/
Americas Barometer (LAPOP)	http://datasets.americasbarometer.org/database/
Asian Barometer	http://asianbarometer.org/data
Australian Election Study	http://aes.anu.edu.au/
Canadian Election Study	http://ces-eec.arts.ubc.ca/
Candidate Countries Eurobarometer (CCEB)	http://ec.europa.eu/public_opinion/archives/cceb2_en.htm
Central and Eastern Eurobarometer (CEEB)	http://ec.europa.eu/public_opinion/archives/cceb_en.htm
Comparative Study of Electoral Systems (CSES)	http://www.cses.org/datacenter/download.htm
Eurobarometer (EB)	http://www.gesis.org/eurobarometer-data-service/data-access/
European Value Study (EVS)	http://www.europeanvaluesstudy.eu/
Latinobarómetro	http://www.latinobarometro.org/latContents.jsp
New Democracies Barometer	http://www.cspp.strath.ac.uk/catalog4_0.html
New Zealand Election Study	http://www.nzes.org

Notes: Last accessed on the 8th of December 2016.

Table B: Summary of Aggregate-Level Variables

Type of Variable	Indicator	Measurement	Longitudinal Variation	Cross-Sectional Variation	Sources
<i>Cultural and social indicators</i>	Ethnic fractionalization	Numerical	No	Yes	Alesina et. al. (2003)
	Income inequality (GINI Index)	Numerical	Yes	Yes	Solt (2016)
<i>Economic indicators</i>	GDP per capita (current US\$)	Numerical	Corresponds to GDP growth rate	Yes	Worldbank (2016), for Taiwan: IMF (2016)
	GDP growth rate	Numerical	Yes	Yes	Worldbank (2016), for Taiwan: IMF (2016)
<i>Quality of governance</i>	Quality of Government Index (International Country Risk Guide)	Numerical	Little	Yes	Quality of Governance Standard Dataset (Teorell et. al. 2015)
<i>Structure of the state</i>	Federalism	Yes, No	No	Yes	Democracy Barometer (2016), Norris (2009)
	Type of executive	Parliamentary, Semi-Presidential, Presidential	No	Yes	Bohrmann and Golder (2013)
<i>Electoral variables</i>	Temporal distance to last election	Years	Yes	Not meaningful	Own calculations
	Gallagher Index of electoral disproportionality	Numerical	Little	Yes	Gallagher (2015), Carey and Hix (2011), Democracy Barometer (2016)
	Effective number of electoral parties (ENEP)	Numerical	Yes	Yes	Bohrmann and Golder (2013), Gallagher (2015), Democracy Barometer (2016)
	Government fractionalization	Numerical	Yes	Yes	Database of Political Institutions (2016)

Table C: Summary of Individual-Level Variables

Indicator	Measurement	Sources
Age	Numerical	CSES
Gender	Female , Male (Ref.)	CSES
Education	Primary, Secondary, Tertiary (Ref.)	CSES
Household Income	Numerical	CSES
Political Efficacy	Numerical	CSES
Left-Right Ideology	Numerical: Low =Left, High=Right	CSES
Left-Right Congruence	Numerical	Own calculations: CSES, Parlgov
Party ID	Not close to a party, close to party (Ref.)	CSES
Voted	Voted, not voted (Ref.)	CSES
Electoral Winner	Electoral winner PM/ President, electoral winner minor coalition party, electoral loser (Ref.)	Own calculations: CSES, Parlgov, Parline
Representational Deficit	Numerical	Own calculations: CSES, Parlgov, Parline

Table D: Electoral System and Average District Magnitude (TSCS Dataset)

	Model 8		Model 9	
	β	(se)	β	(se)
<i>Longitudinal</i>				
Years since last election	-1.64***	(0.29)	-1.64***	(0.29)
GPD growth rate	1.94***	(0.32)	1.96***	(0.32)
Gini Index	-2.20***	(0.39)	-2.24***	(0.39)
Quality of Government Index	0.47	(0.44)	0.51	(0.44)
Linear Time Trend	2.48***	(0.52)	2.47***	(0.52)
<i>Cross-Sectional</i>				
Mixed electoral system	-4.61	(4.69)		
PR electoral system	-2.28	(4.49)		
Average district magnitude			-1.73	(1.18)
GPD per capita	7.78**	(2.50)	7.87**	(2.48)
GPD growth rate	2.68	(1.42)	3.13*	(1.44)
Gini Index	0.39	(2.76)	0.19	(2.70)
Quality of Government Index	8.49**	(2.93)	8.90**	(2.86)
Semi-Presidential	-4.59	(3.10)	-4.67	(3.07)
Presidential	5.53	(4.50)	5.08	(4.44)
Federal	0.52	(3.64)	0.32	(3.43)
Ethnic fractionalization	-2.29	(1.41)	-2.26	(1.40)
<i>Constant</i>	51.23***	(4.62)	48.84***	(2.13)
<i>Variance components</i>				
Country intercept	57.36***	(13.21)	56.40***	(12.98)
Election intercept	34.74***	(5.71)	34.76***	(5.71)
Residuals	58.31***	(3.59)	58.33***	(3.59)
Log Likelihood	-3066.32		-3066.09	
AIC	6170.64		6168.18	
ICC Country years	0.39		0.39	
ICC Election	0.23		0.23	
ICC Country	0.38		0.38	
Number of country years	833		833	
Number of elections	300		300	
Number of countries	58		58	

Notes: Multilevel regression with ML-Integration; standardized β for continuous variables; standard errors in parentheses; significance (two-tailed) *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.

Table E: Electoral System and Average District Magnitude (CSES Dataset)

	Model 10		Model 11	
	β	(se)	β	(se)
<i>Individual Level</i>				
Age	-0.01*	(0.00)	-0.01*	(0.00)
Female	-0.03***	(0.00)	-0.03***	(0.00)
Primary education	-0.05***	(0.01)	-0.05***	(0.01)
Secondary education	-0.02**	(0.01)	-0.02**	(0.01)
Household income	0.04***	(0.00)	0.04***	(0.00)
Political efficacy	0.07***	(0.00)	0.07***	(0.00)
Left-right ideology	0.05***	(0.00)	0.05***	(0.00)
Left-right congruence	0.03***	(0.00)	0.03***	(0.00)
Party ID	0.07***	(0.01)	0.07***	(0.01)
Winner: minor coalition party	0.07***	(0.01)	0.07***	(0.01)
Winner: party PM/president	0.16***	(0.01)	0.16***	(0.01)
Representation Deficit	-0.02***	(0.00)	-0.02***	(0.00)
<i>Country Level (Cross-Sectional)</i>				
Mixed electoral system	-0.24	(0.13)		
PR electoral system	-0.07	(0.10)		
Average district magnitude			-0.04	(0.04)
Quality of Government Index	0.16**	(0.05)	0.14**	(0.05)
Semi-Presidential	-0.08	(0.08)	-0.07	(0.08)
Presidential	0.18	(0.09)	0.14	(0.10)
GPD per capita	0.08	(0.06)	0.14*	(0.05)
GPD growth rate	0.03	(0.04)	0.07*	(0.03)
<i>Constant</i>	2.73***	(0.09)	2.64***	(0.05)
<i>Variance components</i>				
Country intercept	0.03***	(0.01)	0.03***	(0.01)
Election intercept	0.02***	(0.00)	0.02***	(0.00)
Residuals	0.48***	(0.00)	0.48***	(0.00)
Log Likelihood	-88633.74		-88634.92	
AIC	177313.5		177313.8	
ICC respondent level	0.91		0.90	
ICC election level	0.05		0.05	
ICC country level	0.05		0.05	
Number of respondents	83.968		83.968	
Number of elections	96		96	
Number of countries	38		38	
Notes: Multilevel regression with ML-Integration; standardized β for all continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.				

Table F: Party/Government System Fractionalization and Electoral Disproportionality (TSCS Dataset)

	Model 12		Model 13		Model 14		Model 15		Model 16		Model 17		Model 18	
	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)
<i>Longitudinal</i>														
Gallagher Index	0.35	(0.46)	0.33	(0.46)					0.57	(0.46)			0.35	(0.46)
Government Fractionalization											-0.27	(0.43)	-0.26	(0.43)
ENEP					-0.83	(0.44)	-0.84	(0.44)	-0.96*	(0.45)				
Years since last election	-1.64***	(0.29)	-1.64***	(0.29)	-1.64***	(0.29)	-1.64***	(0.29)	-1.65***	(0.29)	-1.64***	(0.29)	-1.65***	(0.29)
GPD growth rate	1.96***	(0.32)	1.96***	(0.32)	1.97***	(0.32)	1.97***	(0.32)	1.99***	(0.32)	1.94***	(0.32)	1.95***	(0.32)
Gini Index	-2.25***	(0.39)	-2.25***	(0.39)	-2.21***	(0.39)	-2.21***	(0.39)	-2.23***	(0.39)	-2.21***	(0.39)	-2.23***	(0.39)
Quality of Government Index	0.48	(0.44)	0.46	(0.44)	0.57	(0.44)	0.57	(0.44)	0.54	(0.44)	0.51	(0.44)	0.48	(0.44)
Linear Time Trend	2.47***	(0.52)	2.41***	(0.52)	2.42***	(0.51)	2.42***	(0.51)	2.45***	(0.51)	2.47***	(0.52)	2.48***	(0.52)
<i>Cross-Sectional</i>														
Gallagher Index	-2.54*	(1.17)	-12.46**	(4.04)					-2.85	(3.26)			-4.33*	(1.81)
Gallagher Index Squared			10.37*	(4.05)										
ENEP					-3.95***	(1.12)	-11.52*	(5.55)	-4.13*	(1.76)				
ENEP Squared							8.01	(5.75)						
Gallagher Index*ENEP									0.17	(3.67)				
Government Fractionalization											-1.29	(1.26)	-3.80	(2.30)
Gallagher Index*Gov. Frac.													0.97	(2.30)
GPD per capita	7.67**	(2.43)	6.66**	(2.34)	7.06**	(2.30)	7.44**	(2.28)	6.59**	(2.19)	8.22**	(2.50)	7.87***	(2.34)
GPD growth rate	3.07*	(1.39)	3.43**	(1.33)	3.77**	(1.34)	3.64**	(1.32)	4.20**	(1.30)	2.91*	(1.44)	3.76**	(1.38)
Gini Index	1.45	(2.64)	1.14	(2.50)	-0.49	(2.49)	-0.81	(2.46)	0.16	(2.39)	-0.15	(2.86)	-0.39	(2.68)
Quality of Government Index	8.62**	(2.81)	8.55**	(2.66)	9.24***	(2.64)	9.39***	(2.60)	9.09***	(2.52)	8.64**	(2.89)	8.39**	(2.74)
Semi-Presidential	-3.66	(3.02)	-3.59	(2.86)	-3.90	(2.83)	-4.13	(2.79)	-3.11	(2.71)	-4.25	(3.10)	-3.29	(2.99)
Presidential	3.04	(4.49)	2.68	(4.27)	4.62	(4.11)	5.33	(4.08)	2.14	(4.04)	5.68	(4.49)	2.79	(4.33)
Federal	1.74	(3.39)	3.56	(3.29)	2.00	(3.18)	0.00	(3.43)	3.19	(3.13)	0.66	(3.45)	2.07	(3.27)
Ethnic fractionalization	-2.46	(1.37)	-2.11	(1.31)	-1.02	(1.34)	-0.77	(1.33)	-1.14	(1.27)	-1.91	(1.47)	-1.55	(1.38)
<i>Constant</i>	49.15***	(2.10)	48.99***	(1.99)	48.31***	(1.96)	48.45***	(1.93)	48.84***	(1.88)	48.45***	(2.15)	48.99***	(2.02)
<i>Variance components</i>														
Country intercept	53.84***	(12.45)	46.93***	(11.20)	46.36***	(11.02)	44.42***	(10.66)	40.70***	(9.86)	57.66***	(13.24)	48.60***	(11.40)
Election intercept	34.40***	(5.69)	34.44***	(5.69)	34.10***	(5.63)	34.17***	(5.63)	33.33***	(5.57)	35.00***	(5.74)	34.57***	(5.70)
Residuals	58.40***	(3.60)	58.40***	(3.60)	58.26***	(3.58)	58.24***	(3.58)	58.39***	(3.59)	58.21***	(3.58)	58.26***	(3.59)
Log Likelihood	-3064.60		-3061.51		-3059.71		-3058.75		-3055.79		-3066.43		-3061.80	
AIC	6167.19		6163.01		6157.42		6157.51		6155.58		6170.87		6167.60	
ICC Country years	0.40		0.42		0.42		0.43		0.44		0.39		0.41	
ICC Election	0.23		0.25		0.25		0.25		0.25		0.23		0.24	
ICC Country	0.37		0.34		0.33		0.32		0.31		0.38		0.34	
Number of country years	833		833		833		833		833		833		833	
Number of elections	300		300		300		300		300		300		300	
Number of countries	58		58		58		58		58		58		58	

Notes: Multilevel regression with ML-Integration; standardized β for continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.

Table G: Party/Government System Fractionalization and Electoral Disproportionality (CSES Dataset)

	Model 19		Model 20		Model 21		Model 22		Model 23		Model 24		Model 25		Model 26	
	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)	β	(se)
<i>Individual Level</i>																
Age	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)
Female	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)	-0.03***	(0.00)
Primary education	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)	-0.05***	(0.01)
Secondary education	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)
Household income	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)	0.04***	(0.00)
Political efficacy	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)	0.07***	(0.00)
Left-right ideology	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)	0.05***	(0.00)
Left-right congruence	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)	0.03***	(0.00)
Party ID	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)
Winner: minor coalition party	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)	0.07***	(0.01)
Winner: party PM/president	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)	0.16***	(0.01)
Representation Deficit	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)	-0.02***	(0.00)
<i>Country Level (Cross-Sectional)</i>																
Gallagher Index	-0.05	(0.03)	-0.27*	(0.13)					-0.07*	(0.03)	-0.04	(0.10)			-0.10*	(0.04)
Gallagher Index Squared			0.22	(0.12)												
ENEP					-0.05	(0.03)	-0.26	(0.14)	-0.07*	(0.03)	-0.06	(0.04)				
ENEP Squared							0.20	(0.14)								
Gallagher Index * ENEP											-0.02	(0.10)				
Government Fractionalization													-0.06	(0.03)	-0.10	(0.06)
Gallagher Index * Gov .Frac.															-0.01	(0.05)
GDP per capita	0.12*	(0.05)	0.11*	(0.05)	0.15**	(0.05)	0.16**	(0.05)	0.13*	(0.05)	0.13*	(0.05)	0.16**	(0.06)	0.16**	(0.05)
GDP growth rate	0.07*	(0.03)	0.07*	(0.03)	0.08**	(0.03)	0.08**	(0.03)	0.09**	(0.03)	0.09**	(0.03)	0.08**	(0.03)	0.09***	(0.03)
Quality of Government Index	0.14**	(0.05)	0.12*	(0.05)	0.13**	(0.05)	0.13**	(0.05)	0.13**	(0.05)	0.13**	(0.05)	0.13**	(0.05)	0.12**	(0.05)
Semi-Presidential	-0.07	(0.08)	-0.05	(0.08)	-0.08	(0.08)	-0.08	(0.07)	-0.09	(0.07)	-0.09	(0.07)	-0.07	(0.08)	-0.07	(0.07)
Presidential	0.16	(0.09)	0.14	(0.09)	0.16	(0.09)	0.11	(0.10)	0.16	(0.09)	0.16	(0.09)	0.12	(0.09)	0.08	(0.09)
Constant	2.64***	(0.05)	2.63***	(0.05)	2.64***	(0.05)	2.65***	(0.05)	2.65***	(0.04)	2.65***	(0.04)	2.64***	(0.05)	2.65***	(0.04)
<i>Variance components</i>																
Country intercept	0.03***	(0.01)	0.03***	(0.01)	0.03***	(0.01)	0.02***	(0.01)	0.02***	(0.01)	0.02***	(0.01)	0.03***	(0.01)	0.02***	(0.01)
Election intercept	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)	0.02***	(0.00)
Residuals	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)	0.48***	(0.00)
Log Likelihood	-88634.65		-88633.15		-88633.88		-88632.82		-88631.86		-88631.83		-88634.04		-88629.89	
AIC	177313.3		177312.3		177311.8		177311.6		177309.7		177311.7		177312.1		177307.8	
ICC respondent level	0.90		0.91		0.91		0.91		0.91		0.91		0.91		0.92	
ICC election level	0.05		0.05		0.05		0.05		0.05		0.05		0.05		0.05	
ICC country level	0.05		0.05		0.05		0.04		0.04		0.04		0.05		0.04	
Number of respondents	83.968		83.968		83.968		83.968		83.968		83.968		83.968		83.968	
Number of elections	96		96		96		96		96		96		96		96	
Number of countries	38		38		38		38		38		38		38		38	

Notes: Multilevel regression with ML-Integration; standardized β for all continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.

Table H: Government System Fractionalization (TSCS Dataset, Parliamentary Systems Only)

	Model 27	
	β	(se)
<i>Longitudinal</i>		
Gallagher Index	0.88	(0.73)
Government Fractionalization	-0.21	(0.73)
Years since last election	-1.52***	(0.36)
GPD growth rate	2.24***	(0.41)
Gini Index	-1.81*	(0.70)
Quality of Government Index	-0.61	(0.60)
Linear Time Trend	2.55***	(0.70)
<i>Cross-Sectional</i>		
Gallagher Index	-3.05+	(1.63)
Government Fractionalization	-5.00**	(1.70)
GPD per capita	1.99	(2.64)
GPD growth rate	7.91***	(2.15)
Gini Index	-7.14+	(3.95)
Quality of Government Index	17.01***	(3.40)
Federal	0.85	(3.81)
Ethnic fractionalization	-1.13	(1.58)
<i>Constant</i>	44.84***	(2.12)
<i>Variance components</i>		
Country intercept	23.61***	(9.89)
Election intercept	36.11***	(7.43)
Residuals	32.41***	(3.13)
Log Likelihood	-1184.41	
AIC	2406.81	
ICC Country years	0.35	
ICC Election	0.39	
ICC Country	0.26	
Number of country years	344	
Number of elections	125	
Number of countries	23	
Notes: Multilevel regression with ML-Integration; standardized β for continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.		

Table I: Government System Fractionalization (CSES Dataset, Parliamentary Systems Only)

	Model 28		Model 29	
	β	(se)	β	(se)
<i>Individual Level</i>				
Age	0.00	(0.00)	-0.00	(0.00)
Female	-0.02***	(0.01)	-0.02***	(0.01)
Primary education	-0.06***	(0.01)	-0.06***	(0.01)
Secondary education	-0.02*	(0.01)	-0.02*	(0.01)
Household income	0.04***	(0.00)	0.04***	(0.00)
Political efficacy	0.07***	(0.00)	0.07***	(0.00)
Left-right ideology	0.04***	(0.00)	0.04***	(0.00)
Left-right congruence	0.03***	(0.00)	0.03***	(0.00)
Party ID	0.06***	(0.01)	0.06***	(0.01)
Winner: minor coalition party	0.04***	(0.01)	0.03*	(0.01)
Winner: party PM/president	0.14***	(0.01)	0.14***	(0.01)
Representation Deficit	-0.02***	(0.00)	-0.04***	(0.01)
<i>Country Level (Cross-Sectional)</i>				
Government Fractionalization (Gov. Frac.)	-0.13**	(0.05)	-0.12**	(0.05)
Gallagher Index	-0.07+	(0.04)	-0.08+	(0.04)
GPD per capita	0.23***	(0.06)	0.23***	(0.06)
GPD growth rate	0.12***	(0.03)	0.12***	(0.03)
Quality of Government Index	0.19***	(0.05)	0.20***	(0.05)
<i>Cross-Level Interactions</i>				
Winner: minor coalition party * Gov. Frac.			0.03	(0.02)
Winner: party PM/president * Gov. Frac.			-0.04***	(0.01)
Representation Deficit * Gov. Frac.			-0.03***	(0.00)
<i>Constant</i>	2.68***	(0.04)	2.68***	(0.04)
<i>Variance components</i>				
Country intercept	0.01***	(0.01)	0.01***	(0.01)
Election intercept	0.02***	(0.00)	0.02***	(0.00)
Residuals	0.45***	(0.00)	0.45***	(0.00)
Log Likelihood	-50478.34		-50449.25	
AIC	100998.7		100946.5	
ICC respondent level	0.93		0.93	
ICC election level	0.04		0.04	
ICC country level	0.03		0.03	
Number of respondents	49,455		49,455	
Number of elections	50		50	
Number of countries	18		18	
Notes: Multilevel regression with ML-Integration; standardized β for all continuous variables; standard errors in parentheses; significance (two-tailed) *** p<0.001, ** p<0.01, * p<0.05, + p<0.10. AIC: Akaike's Information Criterion, ICC: Intraclass Correlation Coefficient.				

7.2. Robustness Checks

A number of robustness checks were performed after the estimation of each model. Given the extensive scope of the robustness checks and the usage of two entirely different datasets, we will not present our results here in detail. However, every step can be replicated by using the commented Stata Do-file accompanying this study. First, we identified and controlled for the effect of influential outlying cases at the country and election levels as suggested by Meer et al. (2010), mainly by analyzing the random effects at both levels but also by scrutinizing partial residual plots. Second, when observing the residuals at the lowest level we found them to be almost normally distributed. Deleting the few potentially problematic cases did not change the results. Third, following a suggestion by King and Roberts (2014), to understand differences in robust standard errors and normal standard errors as indications of model misspecification, we estimated all the models twice and compared their standard errors. We found only minor differences and no coefficient losses or gains of much statistical significance.

Fourth, we estimated the random part of all the models by treating ‘country-years’ as nested within ‘election cycles,’ which are cross-classified within ‘years’ and ‘countries.’ However, the variance that can be attributed to the ‘year’ level is so marginal that it did not change the estimates to a notable degree. Fifth, analyzing the correlation matrix of each model and the VIF scores, we found the degree of collinearity in the longitudinal part to be only a minor issue. Regarding the cross-sectional part, we found GDP per capita, the Quality of Government Index and the Gini Index to be moderately collinear but not the institutional variables. As a consequence, we increased the possibility of type II errors for the Gini Index and accepted $\beta_i = 0$, although in reality there is a relationship (Arceneaux and Huber 2007; Goldberger 1991).

Finally, we also added random slopes for the longitudinal estimators for ENEP and ‘years since election’ to further probe the robustness of the fixed effect of these ‘within’ estimators (Barr et. al 2013; Bates et. al. 2015). We found that the fixed effect stays significant regardless of the inclusion of the random term.

7.3. Additional References

- Barr, Dale J., Roger Levy, Christoph Scheepers, and Harry J. Tily. 2013. "Random Effects Structure for Confirmatory Hypothesis Testing: Keep It Maximal." *Journal of Memory and Language* 68 (3): 255–78.
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