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**POLITICAL STRUCTURE ACROSS
NATIONS: HOW THE
DIMENSIONALITY OF POLITICS
AFFECTS ELECTORAL BEHAVIOR**

By

Shane P. Singh

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ABSTRACT

POLITICAL STRUCTURE ACROSS NATIONS: HOW THE DIMENSIONALITY OF POLITICS AFFECTS ELECTORAL BEHAVIOR

By

Shane P. Singh

This project examines the relationships among electoral institutions, political structure, and party and voter behavior. While the comparative literature establishes a clear link between electoral systems and political outcomes, it ignores the role played by a country's underlying political structure. I conceptualize political structure as the degree to which political conflict in a nation is captured by a single dimension and create a new, quantitative measure of this concept, which I term "political dimensionality." I then examine the effects of political dimensionality on political and social outcomes from a cross-national perspective.

The dissertation begins by developing the method used to generate the new cross-national measure of political dimensionality. Essentially, the method determines the dimensional structure of political space through an iterative, least squares procedure. Using voter preference data, I apply the method to 81 cases from the Comparative Study of Electoral Systems and produce a quantitative measure of dimensionality for each.

Next, I develop a model predicting that majoritarian electoral systems discourage the emergence of new dimensions; because small parties are unable to exploit new issues to overcome barriers to representation, electorally entrenched parties have little incentive to take strong stances on emergent issues. Using a sophisticated empirical strategy, I find this indeed to be the case.

I then theorize that proximity voting is less likely in political systems that do not conform to a single dimension. This is true for a host of reasons, including the

simple idea that identifying the most proximate party is difficult in complex political space. I again find empirical support for this prediction. I then examine the nature of representation across various dimensional constructs and electoral institutions. I find evidence that elite-voter congruence is greater in low-dimensional systems, but I do not find that the nature of representation varies across electoral systems.

The final portion of the dissertation looks in depth at two countries: Australia and Peru. The chapter on Australia finds that voters and parties are coherently located along a single dimension and that these locations are a strong predictor of vote choice. In Peru, the country's proportional electoral system has created a complex underlying political space. Using data over three elections, I examine how dimensionality and voting behavior evolved within this arena.

In sum, this dissertation provides a new measure of political dimensionality, a concept frequently mentioned in comparative political research but rarely quantified. I explore the measure's relationships with several micro and macro political factors across several countries. In the end, a clearer picture of political dimensionality across countries emerges. I find that dimensionality is dependent on a country's institutional configurations, while it also effects the behavior of parties and voters. Thus, it is important to consider the dimensionality of politics when conducting cross-national research.

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Chapter 1

Introduction

It is well-established that institutional structure guides and constrains human behavior. As such, it is known that the electoral system of a nation shapes the actions of voters and parties. In this dissertation project I show that electoral institutions also affect the lines of political conflict in a nation, or the dimensions along which parties and voters align. Dimensional configurations, in turn, affect the behavior of parties and voters. Thus, the actions of voters and parties are constrained by the electoral system to which they are subject, with the underlying political configuration in a nation acting as a catalyst between institutions and behavior.

Politicians, pundits, journalists, and academics often invoke phrases such as “left” or “right,” to describe the location of an individual or an organization in some space that is assumed to be familiar to their audience. Moreover, individuals routinely describe themselves as “liberal,” “moderate,” or “conservative.” These phrases are heard on television, in movies, in classrooms, and in everyday conversations. Moreover, on the internet, members of social networking websites often divulge their political leanings.

When people use such terminology, they tacitly assume that the political space to which they refer is of a certain dimensional construct. While many people have a good idea about the meaning of the terms they use to locate themselves or others

in space, such typologies are vague in that they do not precisely define “location” or “space.” Research which examines the true nature of underlying political space is valuable in that it identifies and quantifies the dimensions which are so-often referred to in daily interactions.

Much academic research either explicitly or implicitly references dimensionality and spatiality when formulating or testing theories. For example, researchers studying the formation and dissolution of coalitions often consider the spatial locations of parties. In addition, the *veto players* tradition of explaining policy change has recently gained much attention (see Tsebelis 2002). Studies using veto players theory must assume the policy space in which actors live, and their positions within this space.

Election procedures and voting behavior have also long been explained and examined with spatial theory (see, for example, Cox 1997; Downs 1957; Hotelling 1929; Rabinowitz and Macdonald 1989). According to Ordeshook (1997), spatial constructions in which issues are represented as lines, candidates (or parties) and voters are represented as points on these lines, and where voters make decisions based on their distance from candidates, are well-accepted as representations of elections. Hinich and Munger (1998) note spatial theory’s crucial role in elucidating the effects of electoral systems on democratic outcomes. In turn, they stress the importance of continued empirical studies grounded in the spatial theory of voting.

Green and Shapiro (1994) assert that theoretical work of spatial theory in relation to voting behavior has outpaced its empirical counterpart. That is, despite the heavy reliance on dimensionality in political science, much of the previous empirical and theoretical work either *assumes* the dimensionality of a given space, or preselects a host of issue stances to be analyzed with a data reduction technique. In the words of Laver and Hunt (1992, 22-23), “While the theorist can wave a magic wand and declare a policy system to be one-, two-, or three-dimensional, the empirical analyst

dealing with a particular case is left with no hint as to how to determine the actual dimensionality of the space in question.”

Thus, there is a clear need for empirical methods that assess dimensionality. Existing empirical approaches take two approaches. First, they ask experts or mass survey respondents to assess dimensionality. Second, they take a large data set and attempt to reduce it, testing whether the observed variation in the data is dependent on some latent dimension or dimensions.

Following the call for agnostic empirical dimensional research, this dissertation describes and quantifies the dimensionality of conflict within nations without presupposing anything about a nation’s underlying structure. I conceptualize dimensionality as the amount of variance in party and voter locations in a nation captured by a single dimension. This dimension may be thought of as the political “super dimension” of Gabel and Huber (2000), which constrains party positions over several issues.

The method I use measure this concept is unfolding analysis, which is based on an underlying geometric model of spatial proximity. Unfolding recovers the dimensions of the space it is applied to and locates stimuli (in this case, parties) and individuals (in this case, survey respondents) along these dimensions with interval-level measures. Associated with these results are statistics indicating the “goodness of fit” of the model, or how much variance in voter preferences the recovered dimensional construct explains. Using these statistics, I derive the measure of dimensionality introduced in this research, which I term “political dimensionality.” The methodology used to produce this measure will be developed and explored in detail in Chapters 2 and 3.

1.1 The Cross-National Focus

The cross-national portion of this project grounds itself in previous theoretical work, empirically analyzing predictions and gauging their validity. In doing so, specific attention is given to electoral institutions, party systems, and voter behavior. In the end, a clearer picture of the interplay between electoral institutions, the dimensionality of politics, and various political outcomes is provided.

In Chapters 4, 5, and 6 I examine political dimensionality and its relationship with other political variables across several countries. Chapter 4 explores the relationship between electoral institutions and political dimensionality. In line with previous theory, I predict that restrictive electoral institutions - those with hurdles to representation for small parties - lead to simple dimensional constructs. This is because they encourage entrenched parties to ignore emerging issue dimensions as they need not worry about small parties riding them to power.

Alternatively, in permissive systems - those in which small parties can gain parliamentary representation with a small fraction of the vote - political dimensionality should be high. This is because major parties cannot simply ignore emerging issue dimensions out of fear of losing seats to niche competitors. Instead, they must engage such parties on up and coming issues, thereby bringing new dimensions to the political forefront. Empirical tests provide evidence for these predictions. In fact, politics in nearly all countries that employ restrictive electoral systems conform well to a single dimension. Likewise, most nations with permissive electoral setups tend to have non-unidimensional political space.

Moving dimensionality to the right side of the equation, in Chapter 5 I examine how dimensional configurations and other individual- and election-level factors affect electoral behavior. Under the assumption that proximity voting is less likely in countries with complex political space, I find such behavior to occur less in countries where political variation does not arise from one dimension. In addition, I find

that strong party identity and political efficacy have a positive relationship with proximity voting, while party system fractionalization and compulsory voting rules relate negatively to proximity voting. These findings shed light on the institutional and individual bases for proximity voting and add to the general understanding of the nature of voting behavior.

In Chapter 6 I expand upon the cross-national examination of representation, examining how it varies with the dimensionality of politics and electoral institutions. I expect that party-voter correspondence will be high in nations with simple dimensional constructs. Alternatively, in countries where political space is not well-captured unidimensionally, representatives are less likely to accurately reflect the desires of constituents. To test these expectations, I examine how well party positions mirror both the median and spread of voter preferences, conditional on the electoral institutions and political dimensionality of nations. Using data from a wide sample of nations and the new measure of dimensionality, I find that the positions of parties correspond more closely to those of voters in countries with low-dimensional political space, whereas electoral systems play a smaller role in the nature of political representation.

1.2 The Within-Country Focus

I also conduct two country-level studies in which the insights derived from the cross-country analyses are applied to individual nations. This allows me to examine nation-level idiosyncracies that cannot be captured outside of the error term of large- n statistical models.

In Chapter 7, I examine the dimensionality of politics and voter preferences in Australia. Evidence from the unfolding model provides that Australian parties and voters are organized along a unidimensional continuum. Individual-level variables, derived from previous theory, are then used to predict voter ideal points on this

continuum. From the ideal points, voter preferences over each party are ascertained. Because this approach allows for a full examination of voter preference orderings, it is important to the study of voting behavior and representation under preferential electoral institutions. Moreover, the findings verify the intuition from the cross-national analyses; due to Australia's majoritarian electoral system, political variation tends to arise from one dimension and voters generally follow the proximity logic.

In Chapter 8 I conduct an in depth analysis of Peruvian voter behavior in the 2001 and 2006 congressional elections. Because political variation in Peru does not arise from a single dimension, voters are less likely to correctly identify the party closest to them in political space. As such, I expect that proximity voting should be minimal in Peru. Using an alternative-specific multinomial probit model, I find that proximity voting did not occur in Peru in 2001. Moreover, in 2006, while proximity considerations did enter the voting calculus, they played only a minor role as compared to the effects of other factors.

1.3 Conclusion

The aim of this dissertation is to fill a gap in previous comparative political research, while introducing new data to the discipline. While dimensionality as a concept is commonly referenced, it is rarely quantified or examined in relation to other political variables. In this work I create a new cross-national measure of dimensionality and explore its relationships with several micro and macro political factors across several countries.

In the end, a clearer picture of political dimensionality across countries emerges. I find that dimensionality is dependent on a country's institutional configurations, while it also effects the behavior of parties and voters. Thus, it is important to consider the dimensionality of politics when conducting cross-national research.

I also apply my cross-national findings at the country level, looking in depth

at Australia and Peru. In Australia, I find that voters and parties are coherently located along a single dimension and that these locations are a strong predictor of vote choice. In Peru, I find that the country's proportional electoral system has created a complex underlying political space. Using data over two elections, I examine how dimensionality and voting behavior interact within this arena.

In sum, this dissertation provides a new measure of dimensionality, a concept frequently mentioned by politicians, pundits, journalists, and academics alike. I show that electoral institutions affect the lines of political conflict in a nation, or the dimensions along which parties and voters align. Dimensional configurations, in turn, affect the behavior of parties and voters. Thus, the actions of voters and parties are constrained by the electoral system to which they are subject, with the underlying political configuration in a nation acting as a catalyst between institutions and behavior.

Chapter 2

Methodology and Measures

This research uses a new approach to measure dimensionality cross-nationally. Rather than using expert surveys or party manifestos, I examine voter evaluations of parties. A data reduction technique, unfolding analysis, measures the dimensionality of the space from which these evaluations are generated. This approach is useful in that it provides an objective indicator of dimensionality, as well as party and voter locations along the recovered dimensions.

Underlying political space is measure in many ways. For example, social cleavages are often conceptualized and measured under the label of “socioethnic heterogeneity.” However, such cleavages may or may not prove salient at the national level, depending on the incentives provided to important political actors. Examining dimensionality, rather than heterogeneity, allows researchers to measure how socioethnic structure manifests itself as important national-level dimensions. To measure dimensionality, previous research generally focuses on the number of ideological or issue dimensions in a country. More specifically, it examines the issues or ideological cleavages that are important to the various national-level political parties.

The measure developed here departs from this approach to measuring dimensionality by gauging the makeup of the political space in which parties and voters

are located. If all parties in a given system choose to squeeze the salient issue dimensions into one “super dimension,” the measure will reflect this. If a small, niche party brings to government an emerging issue dimension that proves salient to the point that entrenched parties wish to compete along it, the measure will reflect this as well.

Such an approach to measuring dimensionality is important in that it gauges political space after political parties reduce it and stake out positions within. Thus, the parliamentary behavior of parties is captured by this measure; any decision to ignore or absorb an issue or ideological divide is accounted for. The new measure also adds to the existing literature by expanding the number of countries beyond previous measures and focusing on recent years. With 42 countries covered, it spans the widest range of nations to date. Using data from 1996-2006, the measure focuses on a relatively recent time period, as opposed to previous cross-national measures which generally expire in the late 1990s.

2.1 Previous Cross-National Measures of Dimensionality

“Dimensionality” as a concept is measured in various ways throughout previous literature. While some measures count salient political issues, others gauge the number of ideological dimensions purported to arise from such issues. Expert opinions, party manifestos, and citizen evaluations are all used in various measures of dimensionality, and each measure covers different countries and time periods.

Ethnic, social, religious, and linguistic heterogeneity are frequently studied and used as dependent or independent variables (see, for example, Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg 2003). Socioethnic heterogeneity has the potential to create cleavages, introduce new issues into the political dialogue, and shape party

systems, but its likelihood of doing so is moderated by societal factors, such as electoral institutions (Amorim Neto and Cox 1997; Geys 2006; Ordeshook and Shvetsova 1994). As noted by Laver and Hunt (1992, 17-18), while certain religious or ethnic divides may define the political behavior of individuals, these cleavages may or may not prove to be salient at the legislative level. Moreover, some cleavages may simply not be important enough to gain national-level political attention, or elites may exclude them from national politics out of self-interest (Taagepera 1999, 545).

Measures of dimensionality gauge the number of salient dimensions of political conflict within nations, rather than the amount of conflicting societal groups. One such measure, what Stoll (2009) terms as *raw* dimensionality, counts the number of salient ideological conflicts in a nation. This she contrasts with *effective* dimensionality, which counts only ideological conflicts that may be considered orthogonal to one another.¹

The most well-known measure of issue dimensionality is that of Lijphart (1999), which Stoll (2009) classifies as *effective*. Lijphart assesses dimensionality based on his subjective, but “straightforward and uncontroversial” judgements of the salience of seven issue dimensions across 36 nations, providing a single measure for the years 1945-1996 (79). As noted by Taagepera (1999), Lijphart’s method of determining dimensionality is highly subjective and therefore “less than satisfactory” (546). To improve on the measurement of dimensionality, recent work has turned to the Comparative Manifestos Project (CMP) (Budge, Klingemann, Volkens, Bara, and Tanenbaum 2001). The CMP is a reliable and widely-used data source, which hand-codes party manifestos.

One measure of dimensionality arising from the CMP is that of Richman (2005), which simply gauges the portion of the party manifestoes that are coded in the

¹Orthogonality implies that movement along one dimension causes no movement along another. Thus, in two dimensions, orthogonal axes are situated at 90° angles to each other. Terming a measure *effective* does not presuppose that it uses scaling analyses to empirically determine orthogonality, though it certainly may.

“left-right” category. Nyblade (2004) creates more involved measures from CMP data. He first examines 43 CMP issue categories in 17 West European countries over the years 1945 to 1998. Applying the common Laakso and Taagepera (1979) effective parties formula (ENEP)² to weight the issues by their salience, Nyblade creates a measure of the effective number of issues (ENI). He then creates a measure of the effective number of issue dimensions (ENID) by weighting issues by the vote share of parties with analyzed manifestos and their similarity, in addition to salience. Thus, when two or more parties consider the same issue important, dimensionality decreases. The similarity measures are derived by pooling all countries and election years and calculating the angular separation³ between all issue pairs. Stoll (2009) classifies the ENID measure as *effective* because it collapses raw dimensions into effective dimensions.

Stoll herself (2005; 2009), also using CMP data, creates various measures of *raw* dimensionality in 24 Western countries from 1945-1998. These measures can be thought of as indices of *ideological* dimensionality. The measure used in her 2009 work is based on the salience of seven ideological dimensions. To gauge salience, Stoll looks at the proportion of space each party manifesto in a given nation devotes to each dimension, and takes an average across manifestos. She then applies Molinar’s (1991) formula⁴ to weight each conflict by its salience.

Other studies use scaling methods to count dimensions. For instance, McAllister and Studlar (1995) use principal components analysis to examine the number of opinion dimensions among elites and voters in Australia, recovering about two salient dimensions for each. Similarly, Jackman (1998) employs a factor analysis to uncover

²ENEP is measured as $\frac{1}{\sum_{j=1}^n v_j^2}$, where v_j is the proportion of votes or seats obtained by the j^{th} party

³Angular separations are essentially correlations that are bound between 0 and 1 rather than -1 and 1.

⁴Molinar’s formula was originally created as an alternative to the Laakso and Taagepera (1979) effective number of parties index.

the structure of elite and mass preferences in Australia, finding four cleavages in both groups. Ray and Narud (2000) find a two-dimensional representation of Norwegian political space using factor analysis.

Cross-nationally, Moreno (1999) uses the World Values Survey (WVS) and principal components analysis to comparatively analyze dimensional structure. He finds political space in all nations to be of a 2- or 3-dimensional structure, though in each area of the world (Latin America, Post-Communist and Eastern Europe, and the “First World”) the dimensions are substantively different. Warwick (2002) performs a principal components analysis of party positions from Laver and Hunt’s (1992) expert data on 16 West European nations, finding they arise from three dimensions, which account for 89% of the variance (105). He also applies principal components analysis to party positions from the CMP, this time finding that three dimensions capture only 14.9% of the variance (111).

In addition to counting dimensions, a substantial amount of research locates parties (but not voters) along presupposed dimensions with the use of expert surveys (Castles and Mair 1984; Dodd 1976; Huber and Inglehart 1995; Laver and Hunt 1992; Warwick 2005). Though based on subjective opinion, the validity of this approach is high in that the measures produced relate strongly to one another. Gabel and Huber (2000, 98) find that the expert party locations of Huber and Inglehart and Castles and Mair correlate very highly with the locations reported by party supporters in the Eurobarometer and World Values Survey (from .88 to .94). Warwick (2005) employs a new, original expert survey of 13 West European Nations. Respondents are asked to identify the salience of up to four dimensions in each nation and to place parties along them. The respondents generally identify three important dimensions, with the left-right dimension proving to be the most salient in all but Austria, Italy, and the Netherlands (34).

Discouragingly, several of these measures make *a priori* assumptions about the

importance of specific issues, and whether or not to include them in expert questioning. To counteract this, Gabel and Huber (2000, 95) develop a “vanilla method,” which includes all issue categories of the CMP in a factor analysis, predicting party positions via regression scoring. Similar approaches to placing parties are used in the work of Klingemann (1995) and Budge, Robertson, and Hearl (1987). However, even the vanilla method is influenced by the CMP’s decisions to include and exclude certain issue categories in its coding scheme. In addition, as manifestos do not necessarily correspond to the true parliamentary behavior of parties, such approaches are sensitive to any distortions found in the documents.

2.2 A New Measure of Dimensionality

To gauge dimensionality, I simply examine the makeup of the political structure in which parties and voters live. I am not concerned with social cleavages, issues, or ideological dimensions themselves, but the ability of a particular, dimensionally reduced structure to capture the political variation in party and voter positions. I term the new measure “political dimensionality.” Put simply, if variation in political outcomes is well-captured by a single dimension, political dimensionality is low. Alternatively, in a country in which political variation does not depend strongly on a sole underlying continuum, political dimensionality is high.

The measure of political dimensionality has numerous practical and theoretical strengths. First, it covers more countries than any previous measure of dimensionality and does so across a wider range of developed and developing polities. Moreover, it focuses on recent years and can be applied to any data set in which respondents rate political stimuli. The measure also locates parties and voters in the recovered space. This provides valuable information on the relative locations of representatives and the represented.

By relying on voter evaluations of parties, I avoid the subjectivity inherent in

measures created from party manifestos, expert surveys, and voters' opinions of dimensionality. Such techniques for determining dimensionality must presuppose the importance of some latent cleavages. Manifestos are coded according to some researcher-defined ideological divides and, when asking survey respondents to gauge the salience of cleavages, the survey designer must choose which cleavages to include. The measure created here, on the other hand, does not presuppose the importance or insignificance of any societal divide.

Respondents are also more capable of providing evaluations of parties than placing parties at ideal points along assumed dimensions, and thus the response rate for this type of question is relatively high (Narud and Oscarsson 1999, 12). Furthermore, evaluative responses have more comparability than "left-right" responses over time and across nations (Bobbio 1996). Finally, there is less research bias in evaluative response measures, which do not presuppose the importance or obscurity of any given issue or dimension (Narud and Oscarsson 1999, 12-13).

The new measure is also useful in that it accounts for the public and parliamentary behavior of political parties. It is well-known that parties shape their agendas according to political ambition. That is, they selectively engage and ignore various issue dimensions based on a calculus of their electoral prospects (Budge et al. 1987; Cantillon 2001; Meguid 2005; Przeworski and Sprague 1986; Taagepera 1999). This measure of dimensionality gauges the space parties compete in after they choose which issues to actively compete along on which issues to ignore or absorb based on various political incentives. Accordingly, it is sensitive to any such behavior by political parties that may shape or reduce political space.

Previous measures, on the other hand, capture either the number of important issues in a country or the amount of issues or ideological cleavages deemed important by political parties. Manifestos do not necessarily reveal true party strategies

or relate highly to observed parliamentary behavior.⁵ Moreover, they are not necessarily updated each time parties adopt a new parliamentary strategy, and thus are not ideal for gauging the actual space in which parties locate. Voter evaluations, instead, change with the observed behavior of political parties.

In the United States for example, the party system is dominated by the Democrats and the Republicans, with the Greens capturing very modest electoral support among environmentally concerned and far-left voters. Imagine such a voter rates the Greens 9, the Democrats 5, and the Republicans 2. If the Democrats see value in taking strong positions on environmental issues and introducing bills accordingly, this voter may change her opinion of the party, perhaps then assigning a 7 to the Democrats rather than a 5. Only the measure developed here is sensitive to such shifts.

In determining dimensionality, the unfolding procedure also recovers interval-level locations of parties and voters in space, which can be seen as an alternative to those produced by expert surveys or factor/principal components analysis; Hinich, Khmelko, and Ordeshook (1999) and Çarkoğlu and Hinich (2006, 371) note that principal components analysis and factor analysis are inferior for the study of the structure of voter preferences because they are not based on a formal mathematical model of preference. The unfolding method used here, on the other hand, is directly based on the Downsian proximity model of voting. Other studies that apply unfolding cross-nationally (Dow 2001; Listhaug, Macdonald, and Rabinowitz 1990; Narud and Oscarsson 1999; Rabinowitz, Macdonald, and Listhaug 1991) focus on measuring party and voter positions and place less emphasis on cross-national dimensionality. Moreover, these studies generally cover very few nations.

⁵ Budge and Farlie (1983), for example, note that parties downplay diverging positions on political issues in their official manifestos, but tend to emphasize differences in the media.

2.3 The Spatial Proximity Model and Unfolding Analysis

Jacoby (1991, 27) conceptualizes dimensionality as the number of salient sources of variation among objects. As the left-right ideological dimension forces a range of issues to logically and consistently relate to one another (Converse 1964; Gabel and Huber 2000), this number is often very low. The method of gauging dimensionality employed here, a spatial proximity model estimated with unfolding analysis, determines how much variation in party and voter positions is due to a single dimension.

Spatial models in which parties and voters are represented as points on dimensions, and where voters make decisions based on their distance from candidates, are well-accepted as representations of elections (Ordeshook 1997). The spatial proximity model, in the tradition of Hotelling (1929) and Downs (1957), assumes that voters choose the party or candidate closest to them in some n -dimensional space. While this model has its opponents,⁶ it is the most commonly used model for examining vote choice in political science, economics, and related fields. Figure 2.1 depicts a simple spatial model of four parties and two voters. By proximity theory, Voter 1 will prefer Party B and Voter 2 will prefer Party D.

Unfolding analysis determines how well a given set of preferences conform to spatial proximity theory. It is important to note that the actual voting behavior of survey respondents is not considered with unfolding analysis. Rather, the correspondence of their survey responses to a proximity model of preference is gauged. The only assumption made is that individuals tend to express more positive affect for parties with ideal points similar to their own.

Developed in one dimension by Coombs (1950; 1964) and later generalized to

⁶ Most notable is Directional Theory (see for example, Macdonald, Rabinowitz, and Listhaug 1998), which posits that voters, rather than selecting the most proximate party, choose parties that take extreme positions in a direction they prefer, assuming that they remain within some “region of acceptability.”

several dimensions by Bennett and Hays (1960), the unfolding model employed here is a nonmetric and unidimensional model. The model locates stimuli (in this case, parties) and individuals (in this case, survey respondents) along the recovered dimension with interval-level values. Associated with these results are statistics indicating the “goodness of fit” of the model, or how much variance in voter preferences it explains. As the proportion of voter preferences that are single-peaked increases,⁷ so does the goodness of fit.⁸

In sum, the unfolding model has three important applications: 1) it determines whether there is a common dimension (or dimensions) underlying individuals’ preference orderings, 2) it gauges the extent to which preferences are “single-peaked” along the recovered dimension(s), and 3) it recovers metric information about both individuals and stimuli in the recovered space (McIver and Carmines 1981, 71-75).

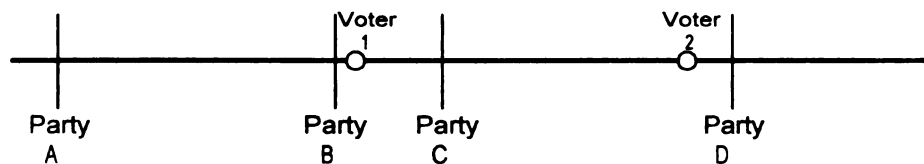


Figure 2.1: Two Voters on a *J Scale*

⁷ “Single-peaked” preferences are transitive. If voter *A* prefers *X* to *Y* and *Y* to *Z*, and he also prefers *X* to *Z*, his preferences are transitive.

⁸ Unfolding analysis, as developed by Coombs (1964; 1950) assures that, with scalable data, preferences are single-peaked along the recovered dimension. Note, however, that unidimensionality does not alone guarantee single-peakedness; Niemi and Weisberg (1974) show that Guttman scales can provide a perfect unidimensional solution even in the presence of multiple-peaked preferences.

2.4 A Detailed Exposition of Unfolding

2.4.1 The Basics

Coombs' original unidimensional unfolding method was popularized in his 1964 book, but first introduced in his 1950 work. In this model each individual's preference ordering over a number of stimuli (for example, parties) is called an *I scale*. The unfolding model asks whether there is a common latent attribute, a *J scale* (a *joint scale*), underlying individuals' preference orderings. If individuals employ a common, unidimensional criterion in evaluating stimuli, the various *I scales* will be consistent with a single *J scale*. Stated differently, if all preferences are single-peaked along an underlying *J scale*, individuals can be aligned along a unique, single dimension (McIver and Carmines 1981).

Figure 2.1 depicts a single *J scale*, along which three hypothetical voters maintain *I scales*. Voter 1's *I scale* is BCAD and voter 2's is DCBA. Because these individuals can be placed along the dimension, their *I scales* are consistent with the underlying *J scale*. If the axis is "folded" at voter 1's ideal point, the preference ordering BCAD is recovered. If the axis is "folded" at voter 2's ideal point, the order DCBA is recovered.

However, imagine an individual, voter 3, with *I scale* ADBC. There is no location along the underlying *J scale* which corresponds with this *I Scale*. Figure 2.2 further illustrates this, as well as unfolding's peakedness criterion: any preference order that can be generated from the common underlying continuum can be depicted with a single-peaked curve. Single-peaked curves, as defined by Riker (1982, 124), can be:

- always upward sloping
- always downward sloping
- sloping upward to a point and then sloping downward

- sloping upward to a plateau and then sloping downward
- horizontal and then downward sloping, or
- upward sloping and then horizontal.

The preference curves for both voter 1 and voter 2, which are single-peaked, reach a single maximum at their ideal points and then decline monotonically. Alternatively, voter 3's curve, which "peaks" at both sides of the x-axis, is not single-peaked. Therefore, while the preference profiles of voter 1 and voter 2 can be described with reference to a single underlying dimension, the profile of voter 3 does not fit on the unidimensional continuum. Voter 3 may be evaluating the parties using some different criteria or appealing to separate dimensions when formulating his preferences.⁹

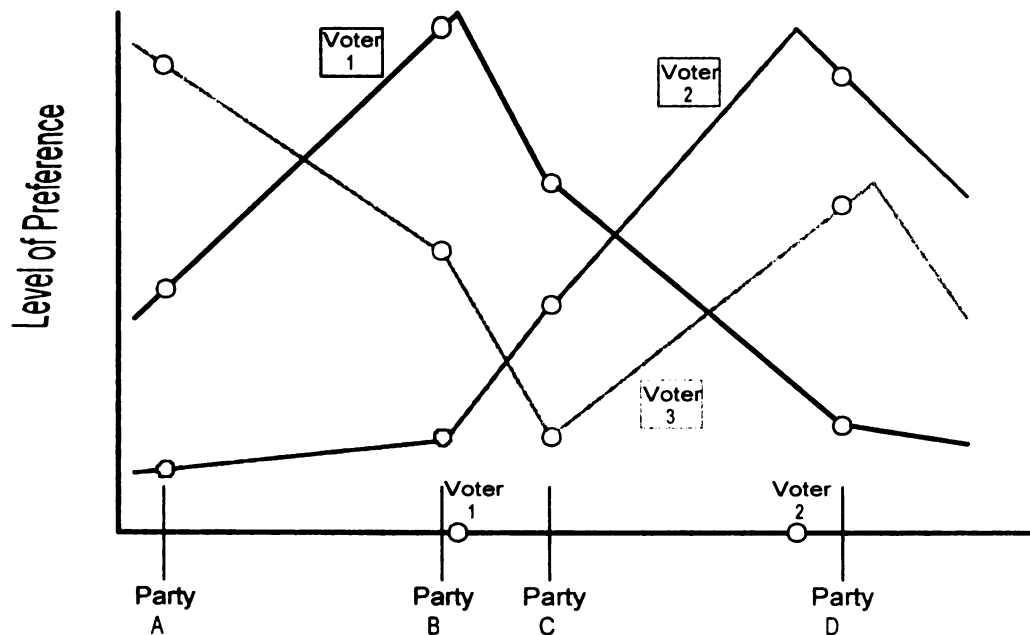


Figure 2.2: A *J Scale* and Voter Preferences

⁹He may also be reporting his preferences untruthfully, thus adding to the random noise inherent in survey data.

2.4.2 Nonmetric Unidimensional Unfolding - A Newer Method

Newer, computer-based unfolding methods, built on the work of Coombs, have developed over the past four decades. Here I outline the nonmetric unidimensional unfolding procedure used in this work, which is based on optimal scaling (Jacoby 1999; Young 1981) and Poole's (1984) conditional global minimum (CGM) algorithm. This method was developed by William G. Jacoby, and I thank him for assistance with the information put forth in this section.

The Metric Procedure

This procedure begins with an n by k matrix of preference data, Δ . Smaller values mean more preference for a stimuli, and larger values mean less: Δ is a dissimilarities matrix. Each entry in Δ , δ_{ij} , depicts i 's preference for stimulus j . The unfolding procedure produces a matrix D , with values d_{ij} . There is an error when $\delta_{ip} \leq \delta_{iq}$ but $d_{ip} > d_{iq}$ (subject i prefers stimulus p to q but the unfolding results say otherwise). Thus, the objective is to minimize the differences between the δ_{ij} 's and the d_{ij} 's, or the sum of squared errors, shown in Equation 2.1.

$$\sum_{i=1}^n \sum_{j=1}^k (\delta_{ij} - d_{ij})^2 \quad (2.1)$$

Poole's (1984) CGM algorithm provides a method for minimizing Equation 2.1. Imagine that each individual's ideal point has k vectors attached to it (one for each of the stimuli) and the length of each vector is equal to the subject's preference for that stimulus. Since this is a unidimensional situation, each vector can point to the left or the right of the ideal point. Poole proved that when each vector is pointed toward the correct location of the stimulus j , the sum of squared errors is minimized.

To find optimal locations for the stimulus points, each stimuli is moved along the dimension, and the ideal points are held fixed. There are $n + 1$ intervals on the

dimension (the areas between the individuals' ideal points and the two outer areas). At each stimulus location, the variance in the terminal points of the attached vectors is calculated. The final location is the one associated with the lowest variance value. Next, the procedure is reversed, and the stimulus points are held fixed¹⁰ while ideal points are tried in each of the $k + 1$ intervals along the dimension.

Incorporating Nonmetric Data

If a *degree* of preference is expressed rather than a precise amount, data are considered *nonmetric*. For example, if, on a 10 point scale, survey respondent *A* rates the "Progressives" with a 9 and the "Regressives" with a 1, we know that she prefers the former. And, if survey respondent *B* rates the "Progressives" with a 6 and the "Regressives" with a 5, we again know that he prefers the "Progressives." However, we cannot make the assumption that respondent *A* likes the "Progressives" more than respondent *B*, as these two individuals may be using different criteria for evaluation. With data such as "U.S. dollars spent" or "votes received," a metric procedure suffices.¹¹ However, a metric procedure is not equipped to handle survey responses gauging personal opinions.

Alternating least squares optimal scaling (ALSOS) (Jacoby 1999; Young 1981) provides a fix to this problem. ALSOS finds an interval-level set of values that respect original assumptions about the measurement level of the data and provide the best fit (minimize the sum of squares) for the spatial proximity model. After incorporating ALSOS into the metric procedure, the steps in the unfolding procedure used in this research are as follows:

1. Start with Δ_m^* (m indexes the iterations), a matrix of row-conditional monotonic transformations of Δ .

¹⁰The first time through, the locations of either the stimulus points or ideal points must be specified by the researcher.

¹¹In fact, dollars spent is used as an input to a metric procedure estimated in Jacoby and Schneider (2009).

2. Run Δ_m^* through the CGM algorithm and find initial coordinates for the ideal points and stimulus points, producing the estimated matrix, $\mathbf{D}_m^*$. Calculate the goodness of fit for this iteration.
3. Run $\mathbf{D}_{m+1}^*$, an *optimally scaled* version of $\mathbf{D}^*$, through the CGM algorithm and find new coordinates for the ideal points and stimulus points. Calculate the goodness of fit for this iteration.
4. If the goodness of fit for this iteration is worse than for the first or is unchanged, stop. Otherwise, go to the next step.
5. Run $\mathbf{D}_{m+2}^*$, an *optimally scaled* version of $\mathbf{D}_{m+1}^*$, through the CGM algorithm. Find new coordinates for the ideal points and stimulus points. Calculate the goodness of fit for this iteration.
6. When the goodness of fit stops improving across iterations, stop. Use these final estimations of the stimulus and ideal points.

The goodness of fit is defined as Stress₂,

$$\sqrt{\frac{\sum_{i=1}^n \sum_{j=1}^k (\delta_{ij} - d_{ij}^*)^2}{\sum_{i=1}^n \sum_{j=1}^k (d_{ij}^* - \bar{d}_{ij}^*)^2}} \quad , \quad (2.2)$$

which takes on lower values as the fit improves. A more intuitive measure of fit is the R^2 value, which is equivalent to the squared correlation between the original, though optimally scaled, data values and the distances between the ideal points and stimulus points estimated with the unfolding model.¹² **This R^2 value is the measure of political dimensionality used in this research.** As R^2 tends toward zero, political dimensionality increases. As R^2 tends toward one, political dimensionality does as well.¹³

¹² R^2 is also equal to $1 - \text{Stress}_2^2$.

¹³This holds under the intuitive assumption that individuals feel positively about parties with ideal points close to their own.

2.4.3 The Unfolding Method in Comparison to OLS

Ordinary least squares (OLS) regression is a method familiar to nearly all quantitative social scientists. As such, it is useful to briefly build the intuition of the unfolding method developed here in relation to this technique. With OLS, one determines how well a given set of observed points corresponds to an underlying linear model. The observed points are derived from each observation's values on two or more variables. After being fit to a linear model, a predicted point is reported for each observation. A goodness of fit statistic, R^2 , is reported, which captures the strength of the relationship between the predicted points and the observed points. A value of 1.0 indicates a perfect linear relationship.

The unfolding method also starts with a set of observed points. These are each respondent's evaluations of the six parties. It then determines how well this set of points corresponds to an underlying unidimensional spatial proximity model. Like with OLS, a predicted point is reported for each observation (respondent) and each party. These are the ideal points. A goodness of fit statistic is also associated with the unfolding analysis. And, like the OLS R^2 statistic, it captures the strength of the relationship between the predicted points and the observed points. A value of 1.0 indicates that voter preferences in a given nation are entirely generated by a single dimension - that the politics of the nation are unidimensional.

2.5 Unfolding in Comparative Elections Research

A limited body of research uses unfolding to study elections comparatively, providing interesting observations, predictions, and insights. In an early treatment of dimensionality, Butler and Stokes (1969) use unfolding to examine preferences of British voters over three parties: Labour, Liberal, and Conservative. In doing so, the authors test whether voters perceive the underlying political space of Britain

as unidimensional. Their findings demonstrate multidimensionality, meaning that the preferences of British voters, at least in the 1960s, could not be explained with reference to a single underlying dimension.

Studying a classic multiparty system, Norpoth (1979) examines party preferences in the West German electorate. He finds that a single dimension, defined by social class and religion, underlaid German politics from the early 1960s to mid-1970s. Because voter preferences along a single dimension shift regularly across elections, Norpoth surmises that they are heavily susceptible to cues from party elites. And, due to the precarious coalitional politics that arise from Germany's relatively inclusive, tiered electoral system, these cues are unlikely to come from a "fixed configuration of parties" (724).

Lin, Chu, and Hinich (1996) examine the 1992 election in Taiwan, which initiated the nation's process of democratic consolidation (455). They posit that a single dimension with political liberalism on one end, and conservatism on the other, existed before Taiwan's transition. However, after regime change, the makeup of Taiwanese political space shifted. To identify the new dimensions of conflict, the authors examine survey data collected just before the 1992 election. They find two dimensions of conflict, along which both political candidates and ordinary citizens are located. The first reflects national identity, with strong Taiwanese identification on one end, and strong Chinese identification on the other. The second dimension they identify as relating to socioeconomic justice (469). The authors demonstrate that individuals' locations on these dimensions are related to a number of demographic characteristics (472-473). They then show that vote choice in Taiwan is dependent on an individual's distance from a given party in the two-dimensional space, which itself can be predicted from demographic characteristics.

Hinich et al. (1999) examine the 1998 national election in Ukraine. Using preference data, they find a "traditional" left-right dimension and a dimension gauging

preference for reform, along which both voters and parties are located. The authors then use demographic and opinion variables to predict the recovered voter ideal points. Assuming that voters select the party closest to them in the two-dimensional space, the authors use the predicted ideal points to forecast vote shares for several of the competing parties. There are differences between the authors' forecasts and the actual vote returns, though they are not stark. The authors also find that ideal point locations predict voting intentions.

A fair amount of research uses the unfolding model to study European nations cross-nationally. For example, Listhaug et al. (1990), studying European party systems, find that parties in these nations tend to gravitate toward the extremes, leaving an "empty center" in the political space. Rabinowitz et al. (1991) find that in Norway and Sweden, parties again tend toward the outer portions of the political space. Studying these same nations, Narud and Oscarsson (1999) use multidimensional unfolding to examine the makeup of policy space and the locations of voter and leaders within. They find the Norwegian system to have a "multidimensional character," while the Swedish system conforms well to a single dimension (28).

Dow (1998) uses unfolding to study voter and candidate behavior in Chile's 1989 national election. Finding that a single dimension represents Chilean political space well, he shows that the nation's "binomial" electoral system¹⁴ encourages politicians to move toward the extremes of political space. Dow then shows that voters' proximities to the various candidates along the recovered dimension, as well as a battery of demographic variables, are significantly and strongly related to their reported vote choice (463-466).

Çarkoğlu and Hinich (2006) use unfolding to examine the preferences of voters

¹⁴Chile's electoral system applies the d'Hondt electoral formula in two-member districts. The result is that each party (or coalition of parties) can nominate two candidates per district, and the only way a party wins both seats is if it receives more than twice the vote of its closest competitor. If party *A* receives 60% of the vote and party *B* receives 29%, party *A* gets both seats. If party *B* instead receives 31% of the vote, each party gets one seat.

and political space in Turkey. They find two main dimensions of voter attitudes in Turkey, one defined by secularism vs. Islamism and another defined by the Turkish nationalism vs. Kurdish identity. Voters are distributed throughout the range of this two-dimensional space, though the bulk tend toward the center (379-380). The authors go on to show that the location of voters' ideal points in this space is dependent on several demographic characteristics.

In a cross-national study of four countries, Dow (2001) examines whether there are differences in the dispersion of parties across majoritarian and proportional electoral systems. Representing each nation's parties in two dimensions, the author finds no cases of strong centrist behavior. However, in the two majoritarian nations examined, parties are more inclined to gather around the median voter than in the proportional systems.

While this project uses unfolding to study party and voter behavior in a fashion similar to the work outlined above, a different strain of previous political science research uses unfolding to examine other topics. For example, to examine the spatial makeup of party factions and their associated leaders in Colombia, Hoskin and Swanson (1973; 1974) use a multidimensional unfolding model. Additionally, Jacoby (1982) uses unfolding to study party identification in the U.S. and Jacoby and Schneider (2009) employ unfolding to evaluate spending priorities in the U.S. states. In addition, an extensive body of research, based on earlier work by Poole and Rosenthal (see, for example, 1997), uses unfolding in the form of NOMINATE scores to measure the behavior of legislators in floor votes. Note that Weisberg (1972) and Wood and Jacoby (1984) also used unfolding to model legislative voting. In addition, unfolding has been employed in fields as diverse as anthropology, psychology, and engineering.

2.6 Conclusion

In this chapter I introduce a new way to conceptualize and measure dimensionality across countries. While previous measures are concerned with the number of issues or ideological divides in a country, the technique of measuring dimensionality introduced here, unfolding analysis, explicitly gauges the space in which political parties compete. Such a technique is important for examining the dimensional configurations that result after political parties adjust their strategies according to societal conditions and institutional rules.

Unfolding is also useful in that it provides party and voter locations across several countries. Such information provides a way to examine the correspondence between voters and elites. Moreover, the locations are not obtained by relying on subjective expert opinions or mass survey data, but are instead arrived at by evaluating voter preferences.

In short, unfolding allows researchers to examine how well a set of party preferences conform to a single underlying continuum. In doing so, it locates parties and voters along this continuum. If the relative distances between parties and voters correspond highly with the input preference data, there is evidence that a single dimension captures much of the variance in party and voter locations. Alternatively, if voters and parties cannot be located along the recovered unidimensional continuum in manner consistent with the preference data, it is shown that the political space of that country cannot be captured unidimensionally.

Chapter 3

Political Dimensionality across Nations

In this chapter I introduce the new measure of political dimensionality derived from the unfolding analysis. The necessary voter preference data is obtained from the Comparative Study of Electoral Systems (CSES).¹ The measure covers several countries across the years 1996-2006. While it varies intertemporally within some countries, there is also much variation across nations.

Comparing the measure to other variables indicates that, for most countries, the most salient political dimension is the common left-right, socioeconomic continuum. However, in certain nations where national politics are defined by atypical forces, the substance of the dimension is different. This is generally the case in countries where politics are defined by relations with a former colonial power.

I also report the party and voter locations associated with the new measure in this chapter. In many nations, especially those without viable fringe parties, the placement of the political parties is intuitive. In other nations party placements along a single dimension do not correspond to expectations. For example, parties that embody separatist issues are often placed at nonintuitive locations. This is

¹Available at <http://www.cses.org/>

likely because such parties base their existence on a second dimension that is highly unrelated to, or even orthogonal with, the prime dimension in their home country.

Finally, I compare the new measure to previous measures of cross-national dimensionality, finding there is little relation with these measures. This is not unexpected, as the measures all purport to measure something intrinsically different. However, the results of the comparisons must be taken lightly as the overlap of countries and years among the new measure and previous indices is minimal.

3.1 Cross-National Unfolding Results

The CSES is invaluable for this research in that it asks consistent survey questions across dozens of countries, regions, and levels of socioeconomic development, providing a broad sample with high comparability. Questions A3020 from CSES Module 1 and B3037 from CSES Module 2 ask voters to rate most or all of the competing political parties in their home nation. The exact question wording is:

“I’d like to know what you think about each of our political parties. After I read the name of a political party, please rate it on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party. If I come to a party you haven’t heard of or you feel you do not know enough about, just say so.”

Because higher values indicate more preference, the data were *reflected* (subtracted from 10) to meet the criteria of the unfolding procedure (see Chapter 2). I also obtain data from the 1999 and 2005 New Zealand Election Studies (NZES).² These waves of the NZES ask a question that is nearly identical to A2020 and B3037

² Available at <http://www.nzes.org/>

of the CSES.³ I use all nations, most voters,⁴ and nearly all parties⁵ covered in these studies as of November, 2007. In the end, there are 42 countries covered. As some nations are surveyed multiple times, I end up with 81 cases.⁶ A total of 100,820 individuals' evaluations were used in the creation of the index, with an average of 1244.691 per case.

I estimate a spatial proximity model for all 81 country-years using the unfolding procedure. For each country-year, the voters and parties are aligned along a single dimension, each with an interval-level value demarcating their location. The R^2 values, gauging the salience of the recovered dimension, range from a low of 0.541 in New Zealand in 2002 to a high of 0.955 in Great Britain in 1997. The standard deviation of these values is 0.098, and the mean is 0.746. Figure 3.1 depicts the R^2 value for each country-year dyad. Table 3.4, in the appendix to this chapter, provides the numerical R^2 values.

After the analyses, I centered the ideal points (voter locations) and stimulus points (party locations) in each country, constraining the ideal points to have a mean

³In 1999, Question B3 of the written survey inquires: "We would like to know what you think about each of these political parties. Please rate each party on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means *that* you strongly like that party. If you haven't heard about that party or don't know enough about it, please tick 'don't know.'" Question B6 from the 2005 wave is worded almost identically.

⁴Only survey respondents with no missing party evaluations could be analyzed. While this meant losing many respondents (23.7% from Module 1 and 24.4% from Module 2) the number of respondents per country-year across both modules was still very high. Moreover, comparisons of means indicates that there are no important systematic differences in the age, education, gender, socioeconomic status, or self-reported ideologies of the respondents that could rate all parties and those who could not. This is unsurprising, as affect toward parties is an "easy" political emotion and voters are very capable of evaluative responses (Campbell, Converse, Miller, and Stokes 1960; Narud and Oscarsson 1999)

⁵For some country-year dyads, certain parties, though included in the CSES questioning, simply did not receive enough ratings to be analyzed without losing a very high percentage of available data. For Hong Kong in 1998 and 2000 this includes The Citizen's Party, which, in questioning, was combined with The Neighbourhood and Workers' Service Centre. For the United Kingdom in 1997 and 2005 this includes the Scottish National Party.

⁶In Belgium, the CSES surveyed Walloon and Flanders separately in both 1999 and 2003.

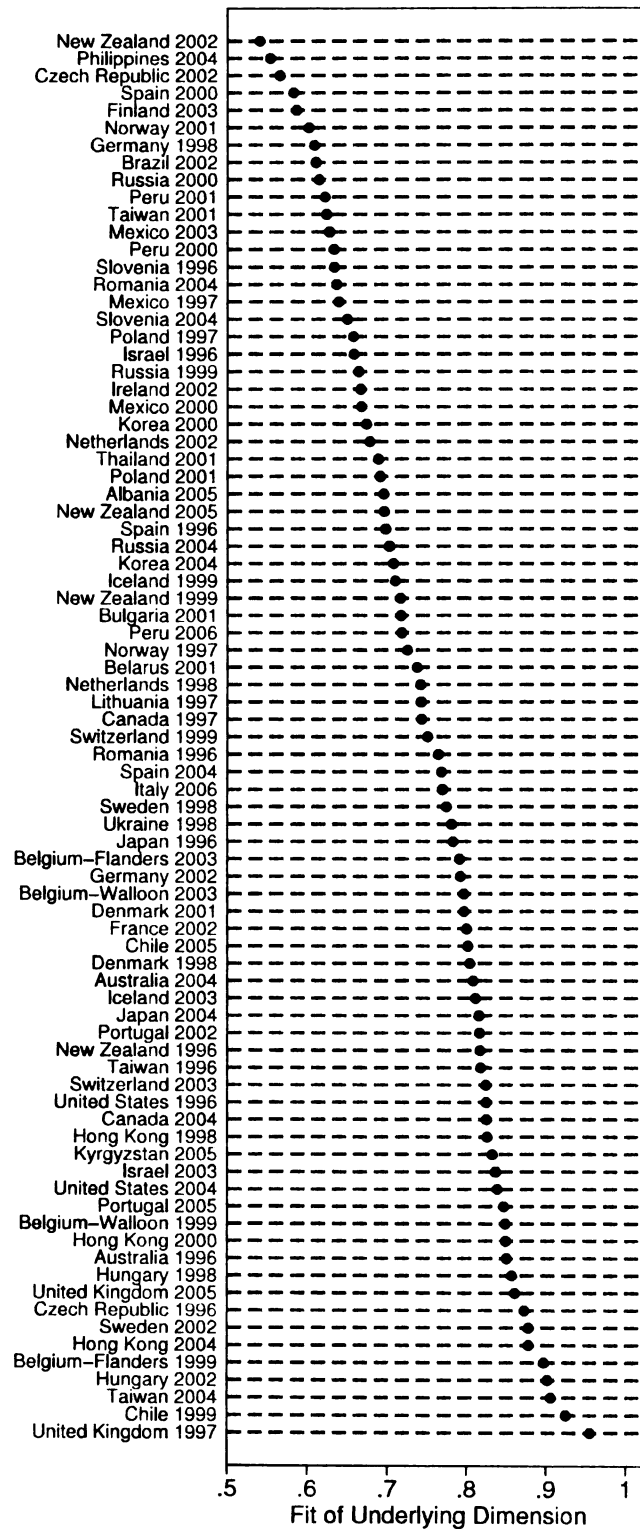


Figure 3.1: Dot Plot of Dimensionality

of zero. Also, if necessary, I flipped the ideal points and stimulus points to correspond with an intuitive left-right party ordering. For example, in the U.S. in 2004, the recovered configuration placed the Republicans on the left and the Democrats on the right. In order to make the locations correspond with common parlance, I reversed the signs on the ideal points and party locations. These alterations do not affect the relative locations of voters and parties or the fit of the recovered dimension; they merely adjust the unfolding results to correspond with common unidimensional perceptions of parties.

Figures 3.5-3.16, in the appendix to this chapter, display a total of 81 density plots of voter ideal points. Overlaid on each plot are the rough party locations and median voter for each country. The coding scheme for the party labels is borrowed directly from the CSES and each party is identified in the appendix in Table 3.3. In addition, Table 3.4, also in the appendix, displays the precise location of each party and median voter.

3.2 Intuitive Results

In most nations the placements of parties along the recovered continuum corresponds directly to popular perceptions. For example, in the U.K. in both 1997 and 2005, the Labour and the Tories are on the left and right, respectively, with the Liberal Democrats toward the center. This corresponds with the findings of Butler and Stokes (1969), who also applied unfolding to the British case. In the United States in 1996 and 2004, while both parties fall near the center, the Democrats are to the left of the Republicans. The Reform Party falls to the right of both major parties in both election years.

Also corresponding with intuition is Portugal, which unlike the U.S. and U.K. elects its parliament with a proportional system. In 2002 and 2005, the Communist Workers' party and the (also-communist) Unitary Democratic Coalition are together

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on the far left, while the Christian conservative, Partido Popular is on the far right. Additionally, the larger Socialist and Social Democratic parties fall towards the center in the expected order (the Socialists to the left of the Social Democrats).

Dow (1998) concludes that Chile's "binomial" electoral system causes parties to abandon the center of political space. The results from both 1999 and 2005 correspond with this finding; while the voters are distributed evenly in a "bell shape" on both sides of the median, the parties fall into two groupings on the left and the right of the dimension. On the left are the Communist Party (PC), Socialist Party (PS), and the Party for Democracy (PPD), a progressive social-democratic party. On the right are the Christian Democrats (PDC), the National Renewal Party (RN), and the Independent Democratic Union (UDI), the latter two being laissez-faire conservative parties. The relative order of the parties found by Dow (1998) across several different election districts in the 1989 Chilean election is identical to those recovered here, with the exception of the PC, which he finds to be right of the PPD and the PS.⁷

In the 2005 election to the lower house the PS, PPD, and PDC, received 15, 21, and 20 seats respectively. The Chamber of Deputies in Chile has 120 seats, meaning 61 are needed to form a government. With the addition of the 7 seats won by the Social Democrat Radical Party, these parties entered into a coalition dubbed the *Concertación*.

The theory of minimal winning coalitions presumes that parties strive for maximal political power, and will thus include the fewest parties necessary when forming a government (Riker 1962). And, if policy is important to parties, they will be inclined to enter into coalitions with parties with similar ideal points (Laver 1998). According to the positions recovered by the unfolding model, the formation of the *Concertación* in Chile fits perfectly with these two propositions. Not only did the

⁷Only three parties are included in the 1999 CSES Chile study: the PPD, and UDI, and the PC. The relative order of the parties in this year matches that of 2005.

parties enter into a minimal winning coalition, the three parties included in the CSES data that entered into the coalition are aligned sequentially along the recovered continuum.

The findings from Sweden and Norway match well with those of Narud and Oscarsson (1999), who also employ an unfolding model. They find the politics of Norway to be characterized by several dimensions, while the politics of Sweden are well-represented unidimensionally. In the present analyses, the variance explained (R^2) by a single dimension in Sweden is 78% in 1998 and 88% in 2002. In Norway, alternatively, the variance explained is 73% in 1997 and 60% in 2001, suggesting that Sweden does indeed conform better to a single dimension. Moreover, in Sweden in 2002, I recover a party ordering identical, over the parties studied, to that of Narud and Oscarsson's (1999) analysis of Sweden for the year 1994 and Rabinowitz et al.'s (1991) analyses in the years 1979 and 1982. However, the order I recover in Sweden in 1998 differs from the previous studies slightly, in that the Liberal and Center parties are placed to the left of the Social Democrats. This may be because the aforementioned authors use multidimensional unfolding models which gauge variation along a second dimension, while I force all parties to align along a single continuum.

In Norway the recovered party ordering is identical to Narud and Oscarsson's (1999) in both 1997 and 2001, with the exception the Center party.⁸ The inability to place the Center party unidimensionally is unsurprising; Narud and Oscarsson find the Center party, an agrarian organization wary of the EU, to be the party most deviant from a single recovered continuum (20). Rabinowitz et al. (1991) also locate parties in Norway for the years 1969, 1973, 1981, and 1985. Though they do so multidimensionally, their recovered party locations along a single continuum align closely with mine for each year studied.⁹

⁸Note that the Liberal Party is not included in 1997 CSES study.

⁹The gravitation of parties to the extremes in these nations, as noted by Rabi-

3.3 Counterintuitive Results and Alternative Dimensions

Intuitive configurations of parties are not apparent in all CSES elections. The reasons for these atypical placements vary. Comparing the party locations derived from expert and mass surveys and data reduction techniques, Gabel and Huber (2000) find the placements of extreme left and right parties to be the most precarious. In addition, special-issue parties are often placed in sporadic locations. Finally, in nations where political discourse does not conform to the common left-right distinction, unidimensional party placements are not readily interpretable.

For example, in Spain in 1996 and 2000, in which the variance explained by a sole dimension is 70% and 58% for each year respectively, the recovered ordering of the parties makes little sense. In 1996, while the Socialist Workers' Party, as expected, falls to the left of the more conservative People's Party, the smaller United Left is placed at the far right. Again, in 2000 the larger parties are placed as expected and the United Left is placed on the right. Moreover, the Basque Nationalist Party (PNV), which is defined more by its link to the Basque community than its political positions, flips from the left side to the right side of the continuum across the two years. As expected, in 2004, when the PNV is not included in the CSES questioning, the variance explained by a single dimension rises to 77% and the parties align from left to right as expected.

A similar pattern is observed in Canada in 1997 and 2004. Like the PNV in Spain, the Bloc Quebecois (BQ) in Canada is known more for its allegiance to the province of Quebec than its left-right political positions. As expected, the left-wing New Democratic Party and the center-left Liberals fall on the left side of the

nowitz, Macdonald, and Listhaug (1991), is not apparent for all parties. Though, for Sweden in both 1998 and 2002 it does appear that all parties but the Social Democrats abandon the center.

dimension, and the Conservative Party¹⁰ falls on the right in both years. However, the BQ flips from the right to the left over the two survey years in a fashion similar to that of the PNV in Spain. When parties form for the sole purpose of representing one region, they are less likely to take strong stances on salient national issues. This, in turn, increases the dimensionality of politics in a nation and lowers the likelihood that all parties in a nation will compete along the same underlying dimension.

While countries such as Canada and Spain have strong, national parties committed to regional separatism, other nations' politics are defined by their historical ties. For example, in Taiwan and Hong Kong political parties are well-known for their stance on relations with the People's Republic of China. In Hong Kong in 1998 and 2000 the parties all fall near each other on the recovered spectrum, and their ordering is based on their stance toward Beijing. On the left are the Democrats and the Frontier, both pro-Democracy parties, while the Democratic Alliance and the Liberal party, both pro-Beijing in orientation, fall on the right. In 2004 party polarization increases, and the parties again are placed from left to right according to their stance on independence (though the Frontier is excluded from the CSES in this year).

In addition, for the 1998 and 2000 survey years, the CSES asks a question (A3033) in Hong Kong gauging individuals' orientations toward the People's Republic, with higher values corresponding to an anti-Beijing position. As expected, in 1998, this variable relates negatively to ideal point ($r = -.425$), meaning that individuals with a more pro-Hong Kong stance tend to gravitate toward the anti-Beijing Democratic and Frontier parties. In 2000, though still negative, this relationship weakens dramatically ($r = -.045$).¹¹

¹⁰The Reform party, which morphed into the Canadian Alliance, then merged with the Progressive Conservatives to form the Conservative Party. In 1997, Reform and the Progressive Conservatives are evaluated separately, both falling on the right, as expected.

¹¹This question was not asked in the 2004 survey year.

In Taiwan, a similar pattern emerges. In 1996, the pro-independence Democratic Progressive Party (DPP) falls on the far left of the spectrum, while the strongly pro-Beijing New Party (NP) falls on the far right. The more moderate Kuomintang (KMT) falls in between the two parties. In 2001 more parties are included in the survey. The New Party again falls on the right, but the remaining parties are placed on the left of the dimension. Finally, in 2004, the NP and KMT fall on the right, while the DPP and the pro-independence Taiwan Solidarity Union are on the left. It appears that the recovered dimension is the main dimension found by Lin, Chu, and Hinich (1996): a nationalism dimension defined by Chinese vs. Taiwanese identity.

Like in Hong Kong, the CSES asks a question in 1996 and 2004 in Taiwan (A3033 in 1996 and B3046 in 2004) gauging individuals' orientations toward Beijing, but with higher values corresponding to a pro-Beijing position. However, in both 1996 and 2004, this variable is essentially uncorrelated with individual ideal points (correlations of $-.131$ and $.038$, respectively). The politics of Taiwan and Hong Kong are unique due to their relationship with the People's Republic, and thus are not captured with a traditional L-R continuum.

Another trend, apparent throughout numerous countries, is the inability to place Green or ecological parties in a consistent and meaningful place on the recovered continuums. Parties of this sort, though primarily defined by their concern for the environment, often take stances on issues that are traditionally associated with left-wing politics. These stances include a commitment to social justice, peace, and non-violence. For country-year dyads such as Australia in 2004, Mexico in 1997 and 2000, and Finland in 2003, the Green parties fall toward the left of the continuum. However, in Germany in 2002, the Greens are placed as centrists, and in Mexico in 2003, New Zealand in 1999, Australia in 1996, and Belgium-Walloon in 2003, the Green parties fall on the right side of the continuum. The inconsistency of Green party locations among the various recovered continuums likely stems from the fact

that these parties fall along a second dimension, likely defined by “postmaterialist” or “New Politics” issues (McAllister and Studlar 1995; Inglehart 1977).

Other parties that take stances associated with issues that do not fall clearly on the traditional left-right dimension also fall at various, nonintuitive locations throughout the recovered dimensions. For example, in Germany in 2002, the Republikaner party, a far-right entity often associated with neo-Nazism, falls on the far-left of the continuum with the Socialists. Similarly, in Belgium-Walloon in 1999, the National Front (FN), a segregationist, far-right party is placed on the left side of the recovered dimension. In Finland in 2003, the Swedish People’s Party (SPP), which primarily represents the interests of the Swedish-speaking minority, is located at the far right of the dimension. Though the party tends toward liberal, free-market economic positions, its placement on the far right overstates its conservatism. More likely, the SPP, the Republikaner, and the Walloon FN do not align along the left-right dimension, but instead along external dimensions defined by special interests (in the case of the SPP) or xenophobia and nationalism (in the cases of the Republikaner and the FN).

3.4 What are the Dimensions? An Empirical-Substantive Exploration

Policy positions may be constrained by ideology, which can force positions across a range of issues to relate to one another in a consistent manner (Converse 1964). As noted by Huber and Powell (1994) the most common dimension in developed democracies is the left-right ideological continuum. This dimension can uniformly assimilate the various issues presented to the electorate. In this vein, Gabel and Huber (2000, 96) define the left-right dimension as “the ‘super issue’ that most constrains parties’ positions across a broad range of policies.” As expected, throughout

the bulk of the countries examined here, communist and socialist parties fall on the left, while Christian democrat and free market liberal parties fall to the right.

The R^2 value for each nation-year may be conceptualized as the strength of this “super-issue” left-right dimension. As this value is usually well above .50, the single dimensions recovered across each election usually explain most of the political variation in a given country. While the party placements give insight as to the substantive interpretation of these dimensions, an appeal to individual-level data also sheds light on their “real-world” meanings.

In countries where parties align along the left-right dimension as one would expect based on their known socioeconomic issue positions, R^2 values are relatively high. In fact, the U.K., the U.S., Portugal, and Chile, each with party labels that correspond to intuition, all have R^2 values of 80% or above. Alternatively, in cases such as New Zealand in 1999 and Finland in 2003, parties do not align as expected and the variance explained is lower (72% and 59% respectively), meaning that political space is likely not unidimensional. In nations such as Hong Kong and Taiwan, where relationships with China primary define politics, a single dimension may capture much variance, but be substantively unrelated to the common left-right issue dimension.

To examine the substance of the recovered dimension in each nation, I test how strongly they correlate with individuals’ self-placements along the common left-right continuum. Recall that the estimation of the spatial proximity model places all individuals studied at a certain ideal point along the recovered dimension. In addition, the CSES and NZES ask individuals to place themselves along the common left-right dimension.¹² Correlating answers to this question with individual ideal points

¹²Actual CSES question wording: “In politics people sometimes talk of left and right. Where would you place yourself on a scale from 0 to 10 where 0 means the left and 10 means the right?” In Module 1, this is question A3031. In Module 2 it is B3045. The wording in the NZES is almost identical. In the 1999 NZES this is question B6, and in 2005 it is B9.

in each nation provides a gauge of how strongly individuals' self-placements along the left-right dimension relate to their positions on the latent left-right dimension recovered by the unfolding analyses.

I first generate a variable, *correlation*, which is the coefficient, r , from a bivariate correlation between individuals' ideal points and their self-reported left-right positions in each nation. The CSES does not ask for individuals' self-reported left-right positions in Thailand, noting that left-right evaluations are not relevant in Thai politics.¹³ Thus, there is no correlation generated for Thailand, dropping the number of observations from 81 to 80. The measure ranges from a low of -0.210 in Hong Kong in 2004 to a high of 0.760 in Sweden in 2002. Its mean is 0.296 and its standard deviation is 0.230. This variable is displayed in Figure 3.2.

The variable *fit* is the R^2 value from the unfolding routine. High values of this variable indicate that the recovered continuum in a nation is strong. If the recovered continuums truly capture the left-right, socioeconomic dimension, *fit* should be positively related to the *correlation* variable. As expected, a bivariate OLS regression of *correlation* on *fit* initially returns a coefficient of .649, significant at $p = .012$. This result shows that a .10 increase in variance explained by a single dimension corresponds to an increase of .065 in the correlation between self-reported left-right positions and ideal points from the unfolding analysis.

As explained in Section 3.3, certain nations are simply not defined by the classical left-right dimension, and including them in this test is thus misleading. In the sample at hand, these nations include Thailand, Taiwan, and Hong Kong. While left-right positions are not gauged in Thailand, the average of the absolute value of the *correlation* variable across each election covered is .114 in Hong Kong and .087 in Taiwan. Clearly these nations are not organized along the traditional left-right dimension.

¹³See Module 1 Variable Descriptions Codebook.

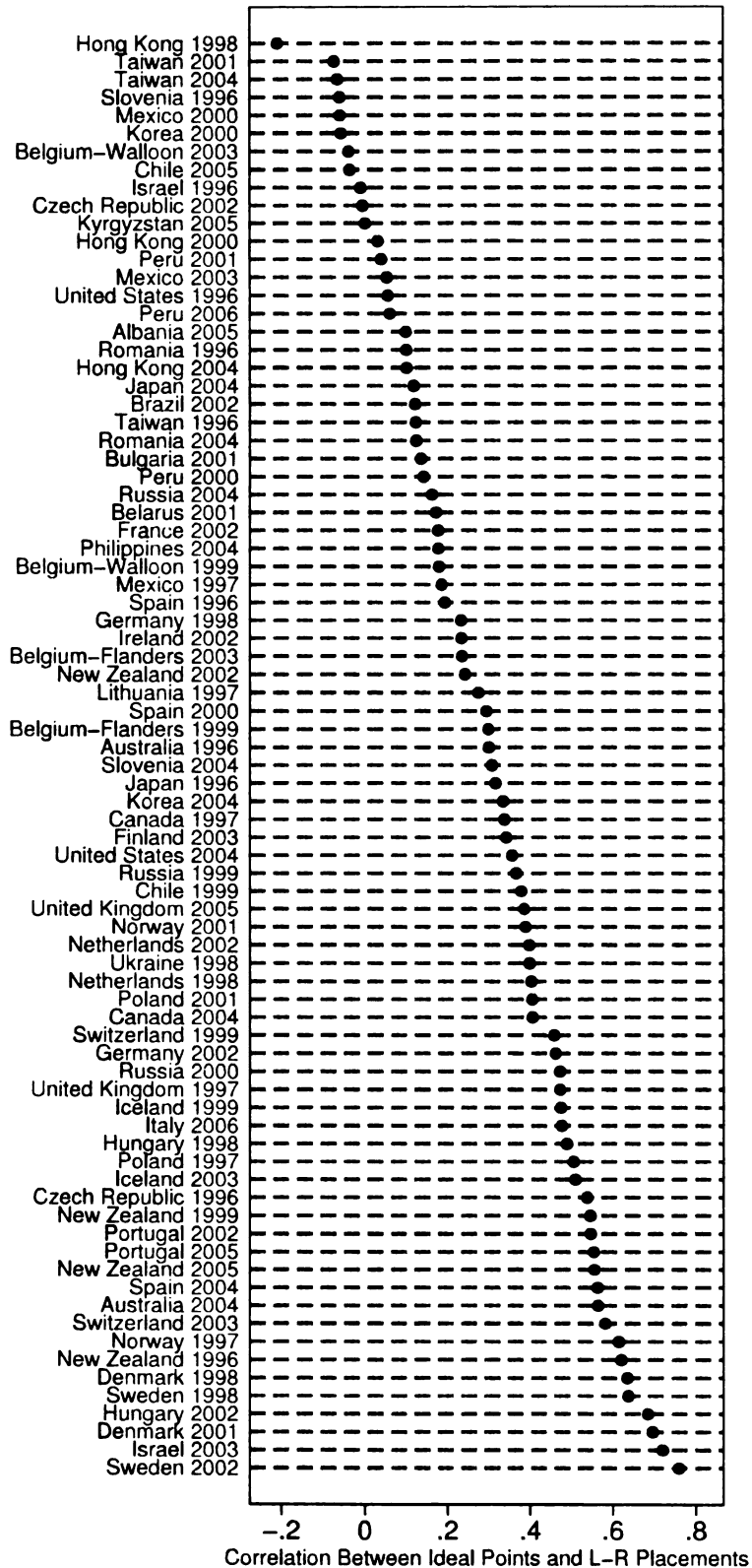


Figure 3.2: Dot Plot of Correlations

The results of an OLS regression without Taiwan and Hong Kong (n drops from 80 to 74) are shown in Table 3.1. The relationship is also depicted in Figure 3.3. The coefficient on *fit* jumps to .933 and is now significant at $p = .000$. In nations with low dimensional political space, the correspondence between individuals' recovered ideal points and their self-reported left-right positions is high. Thus, there is strong evidence that the primary dimension recovered in the nations studied, with the exception of Hong Kong, Thailand, and Taiwan, is the traditional left-right continuum. In the language of Gabel and Huber (2000), it is a “super dimension,” capable of capturing and organizing several of the issues presented to the electorate.

Table 3.1: Salience of the Left-Right Dimension and Fit

Variable	Coefficient	(p -value)
Fit	0.933	(0.000)
Intercept	-0.370	(0.043)
n	74	
R^2	0.173	
Prob > F	0.000	

3.5 Relationship with Previous Measures of Dimensionality

As discussed in Section 2.1, a handful of researchers have previously measured dimensionality across nations. In this section I provide a description of the relationship of the new measure of political dimensionality with three existing cross-national measures: those of Stoll (2009), Nyblade (2004), and Lijphart (1999). Obtaining these previous measures was easy, thanks to the courtesy of Benjamin Nyblade and Heather Stoll, who both happily provided me with their data sets. Lijphart's data was readily available in his 1999 book, *Patterns of Democracy*.

Directly assessing the relationship with each measure is difficult, as they sample

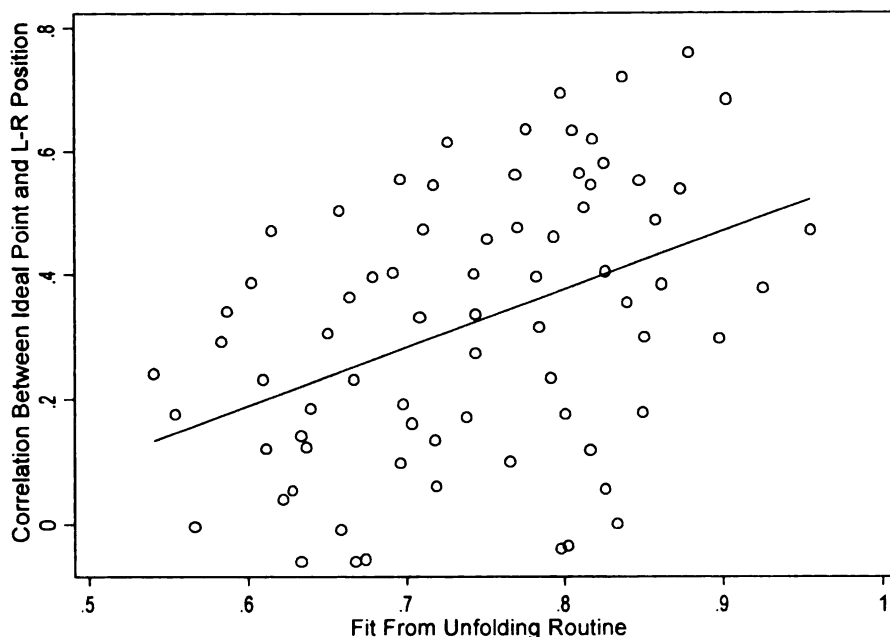


Figure 3.3: Saliency of the Left-Right Dimension and Fit

different nations and years. Stoll and Nyblade sample across countries and over time, while Lijphart creates a single measure purported to describe dimensionality from 1945 to 1996. And, while Lijphart samples nations throughout the world, Stoll and Nyblade focus on westernized nations. Furthermore, because the years covered in Stoll and Nyblade's data do not always correspond to those in the CSES, for several nations I proxy with the closest year sampled. If nearby years are not proxied, the resulting overlap is 6 country-year cases with Lijphart's measure, 7 with Nyblade's measures, and 11 with Stoll's.

Also, as noted in Section 2.1, each measure aims to gauge a different type of dimensionality. Stoll seeks to measure the amount of "raw" ideological dimensions in a nation, while Lijphart is concerned with the number of salient issue dimensions. Nyblade's Effective Number of Issue Dimensions (ENID) not only gauges how many salient issues arise in a country, but down-weights this number when multiple parties deem the same issue important. Conversely, the new measure of dimensionality

introduced here is only concerned with the space in which parties and voters align.

I subtract the R^2 value from the unfolding analyses from 1 so lower values correspond to lower dimensionality, as is the case with the other three measures. I also average across the Flemish and Walloon regions of Belgium to create single measures for each year, dropping the observations on my new variable from 81 to 79. Correlations between the measures are given in Table 3.2, and a scatterplot matrix illustrating the relationship between all four measures is depicted in Figure 3.4. The measure of dimensionality from the unfolding procedure is essentially uncorrelated with the previous measures. Lijphart's measure is positively correlated with Stoll's, and moderately negatively correlated with Nyblade's.

Table 3.2: Correlations among Measures of Dimensionality

Variables	Lijphart	Nyblade	Stoll	My Measure
Lijphart	1.000 (41)			
Nyblade	-0.236 (25)	1.000 (25)		
Stoll	0.404 (41)	0.114 (25)	1.000 (41)	
My Measure	0.166 (41)	-0.135 (25)	-0.001 (41)	1.000 (81)

Number of observations in parentheses.

The lack of congruence among the measures must be viewed with caution. First, the relationships among the previous measures are only evaluated across the countries and years also covered in my CSES sample, perhaps skewing their true relationships. Second, because the data for certain years is proxied with nearby years, the results may be misleading, especially for the measure of Lijphart, which does not consider any year beyond 1996.

3.6 Conclusion

The new index of dimensionality introduced here covers more countries than any previous measure. Thus, it serves as a valuable tool in cross-national research, especially that which makes use of the Comparative Study of Electoral Systems.

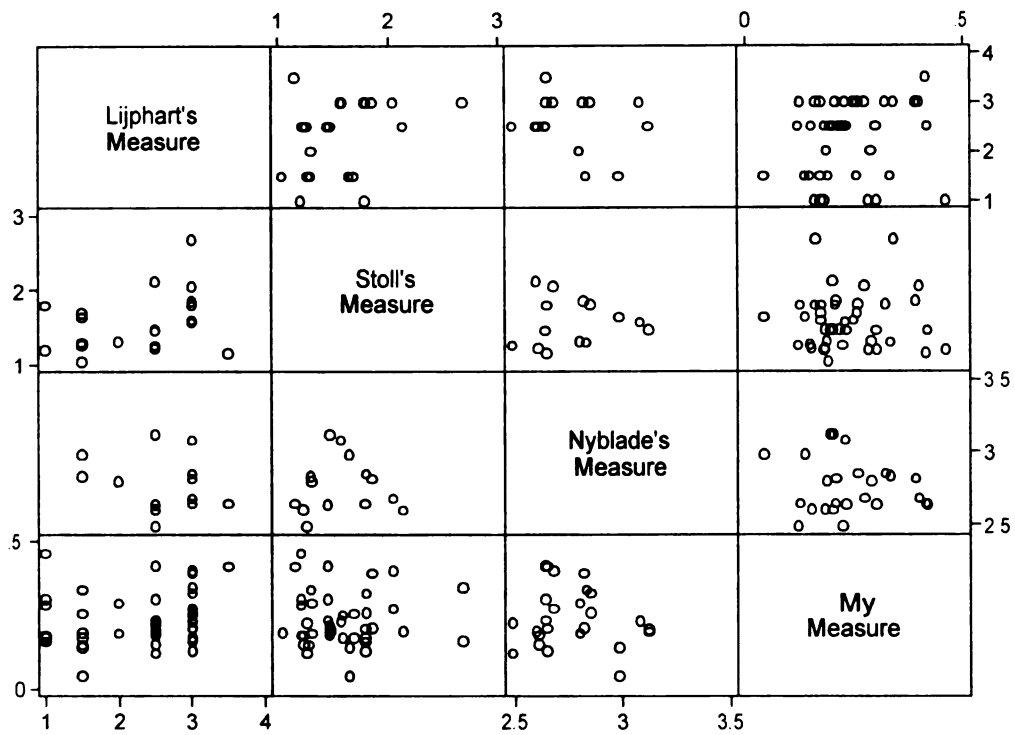


Figure 3.4: Relationships among Measures of Dimensionality

The measure is valuable for researchers who wish to examine the dimensionality of the space in which parties and voters locate, either as an outcome variable or as a causal or independent factor. The index indicates politics conform almost perfectly to a single dimension in several countries, while political variation in others cannot be well-captured unidimensionally.

Substantively, there is evidence that the main political dimension in each country is the common socioeconomic continuum. This can be thought of as a “super dimension” that bundles together multiple issues. In some nations this super dimension is very strong, while in others politics are defined primarily by alternate factors.

Voter and party locations are provided along the recovered dimension in each of the 42 countries and 81 elections. Party locations are generally intuitive, following common perceptions. However, in many cases fringe and niche parties fall at unexpected locations in the recovered political space.

In sum, the new index of dimensionality provides a clear, quantitative measure of the unidimensional conformance of political space across countries. In addition, party and voter locations along the recovered dimension are provided. Because the new measure covers numerous countries and years corresponding to the CSES (and can be updated with subsequent waves of the survey), it is a useful tool for comparative political, social, and economic research.

3.7 Appendix to Chapter 3

This appendix provides figures and tables detailing the results of the spatial proximity model, estimated with unfolding, for 79 country years from the Comparative Study of Electoral Systems and two from the New Zealand Election Study (1999 and 2005).

Figures 3.5-3.16 display a total of 81 density plots, each illustrating the the distribution of voter ideal points in a particular country-year dyad. Table 3.3 provides the names and ideal points of the parties in each dyad. The coding scheme is taken directly from the CSES, with two differences. First, in Belgium in 2003, the CSES incorrectly labeled parties G and H as the Centre Democrat Humaniste and the New Flemish Alliance, respectively. I reverse this labeling to fix the error. Second, in Brazil in 2002 the CSES treats parties B and G, the Brazilian Social Democratic Party (PSDB) and the Labor Democratic Party (PDT), together. I refer only to the larger party, in terms of votes received and seats in parliament, the PSDB. Table 3.4 provides the location of each party on the recovered continuums, as well as the location of the median voter and the R^2 value for each country year.

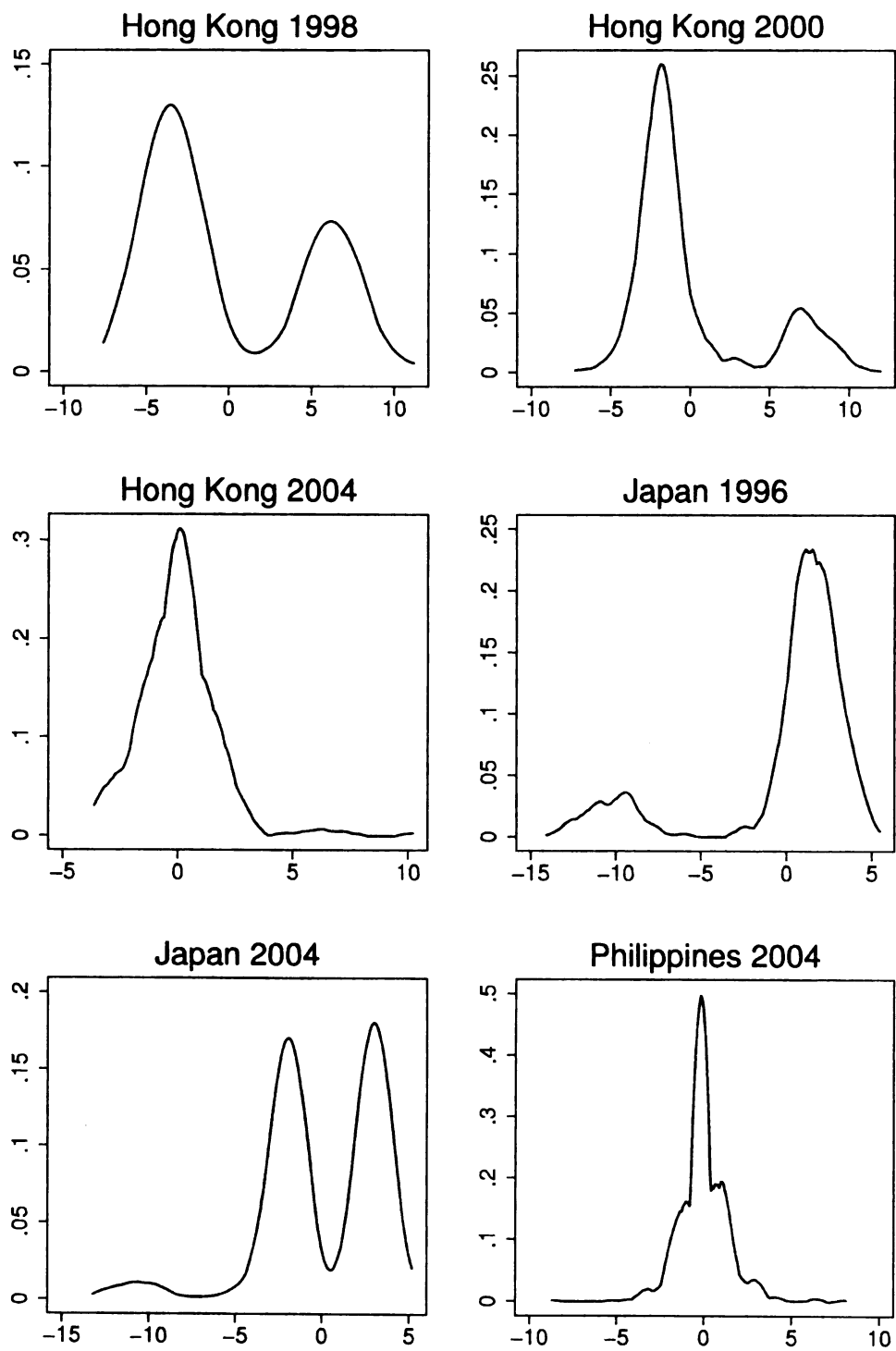


Figure 3.5: Asia

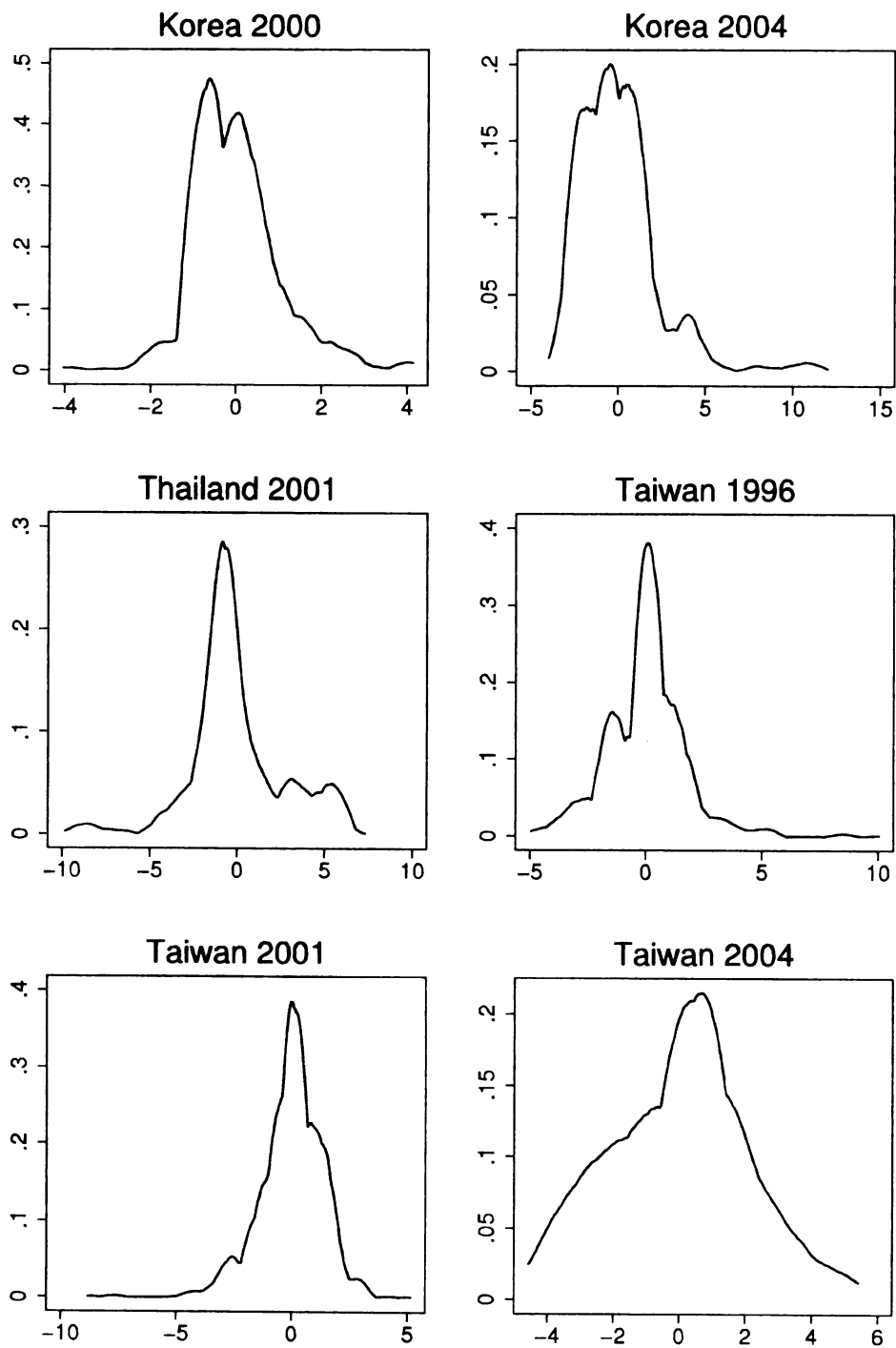


Figure 3.6: Asia continued...

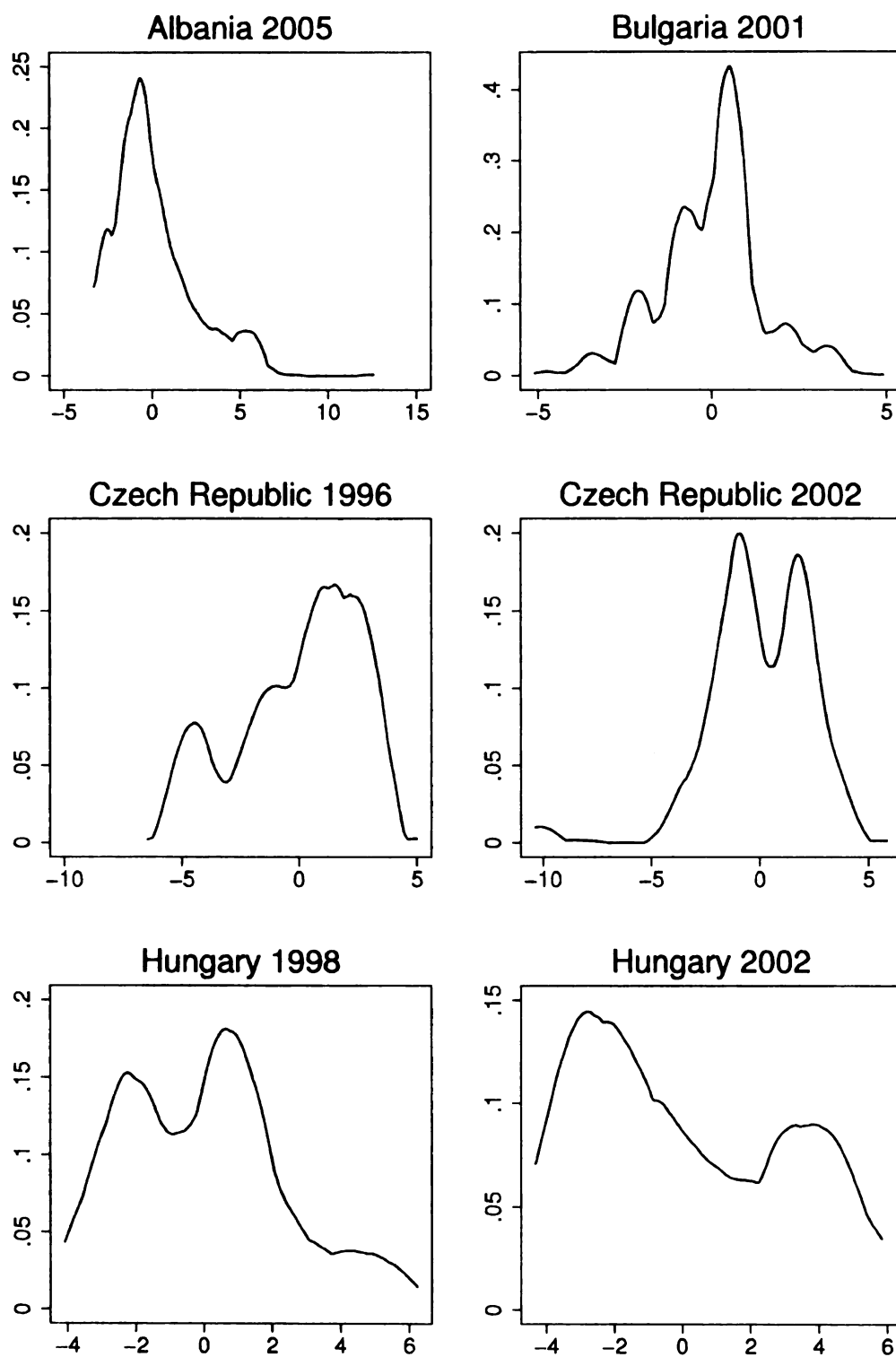


Figure 3.7: Central and Eastern Europe

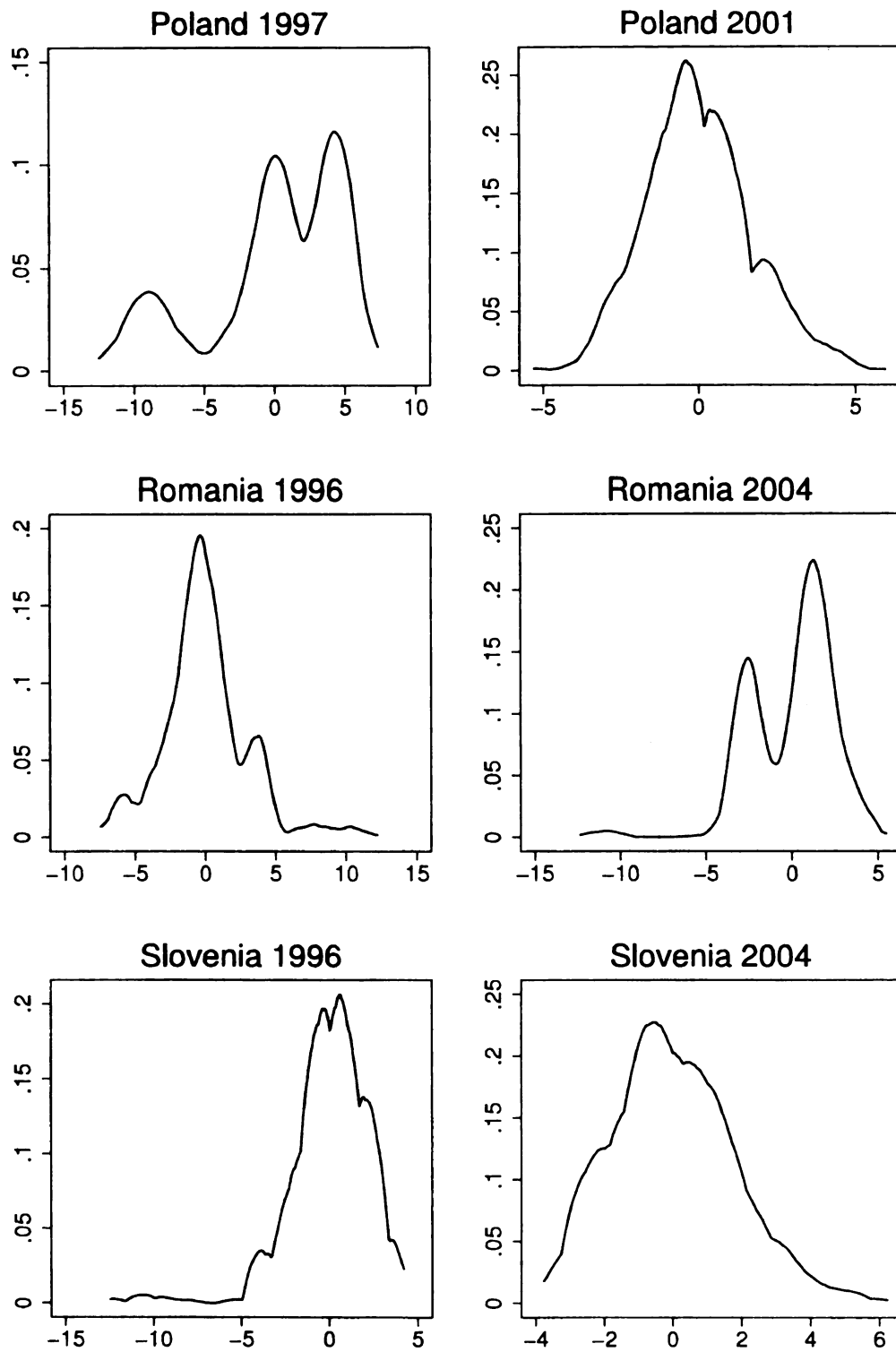


Figure 3.8: Central and Eastern Europe continued...

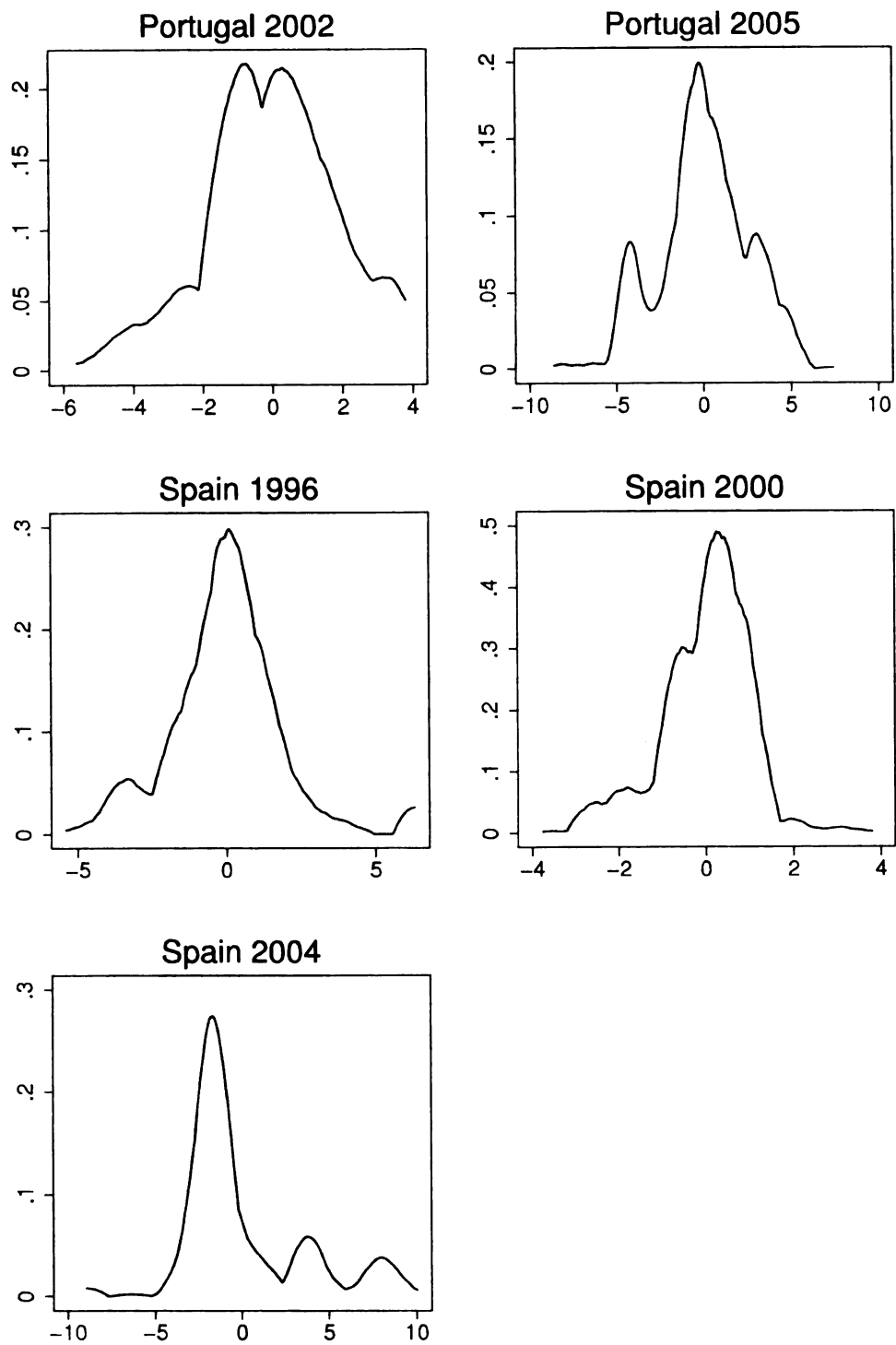


Figure 3.9: Iberia

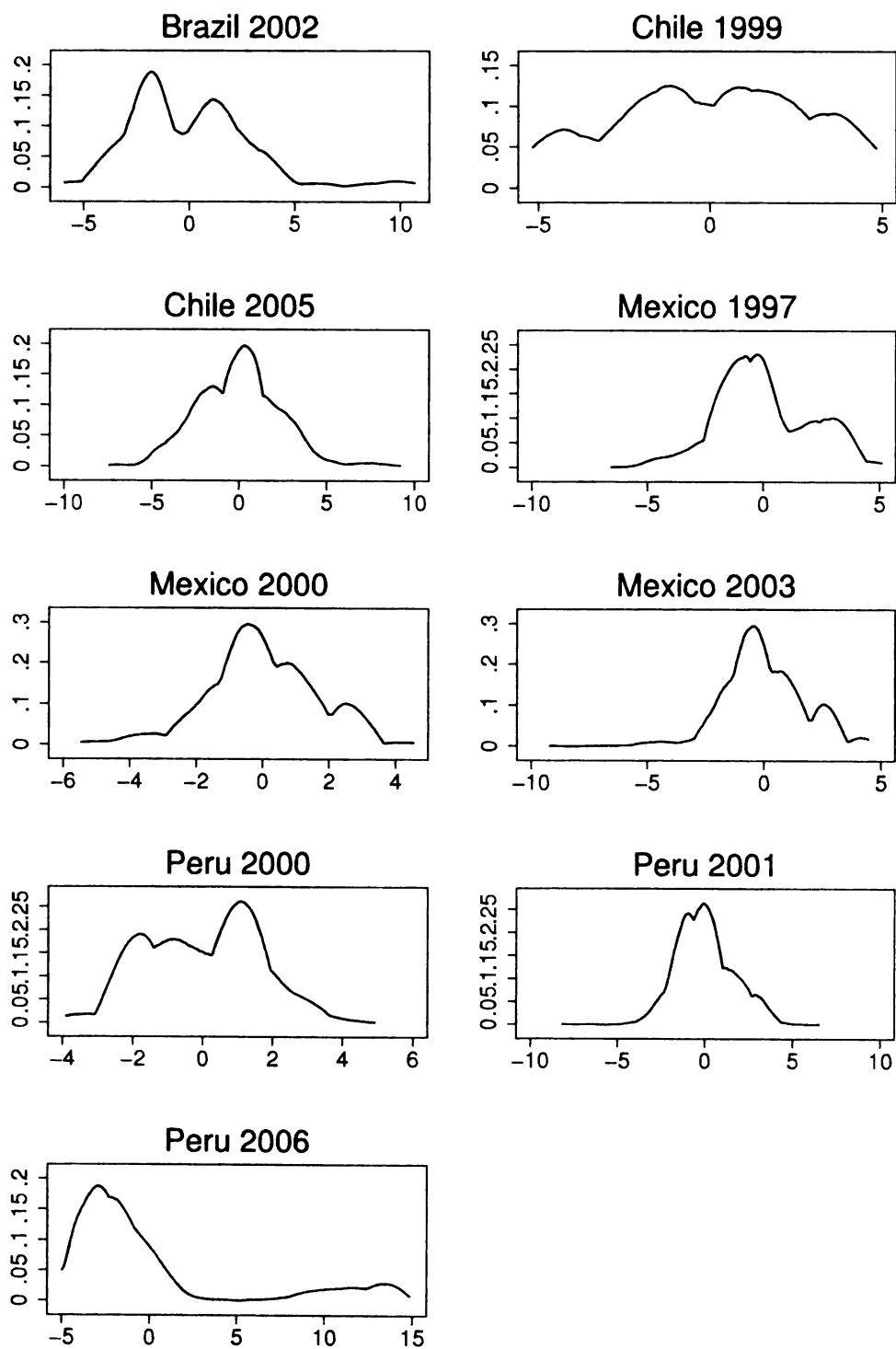


Figure 3.10: Latin America

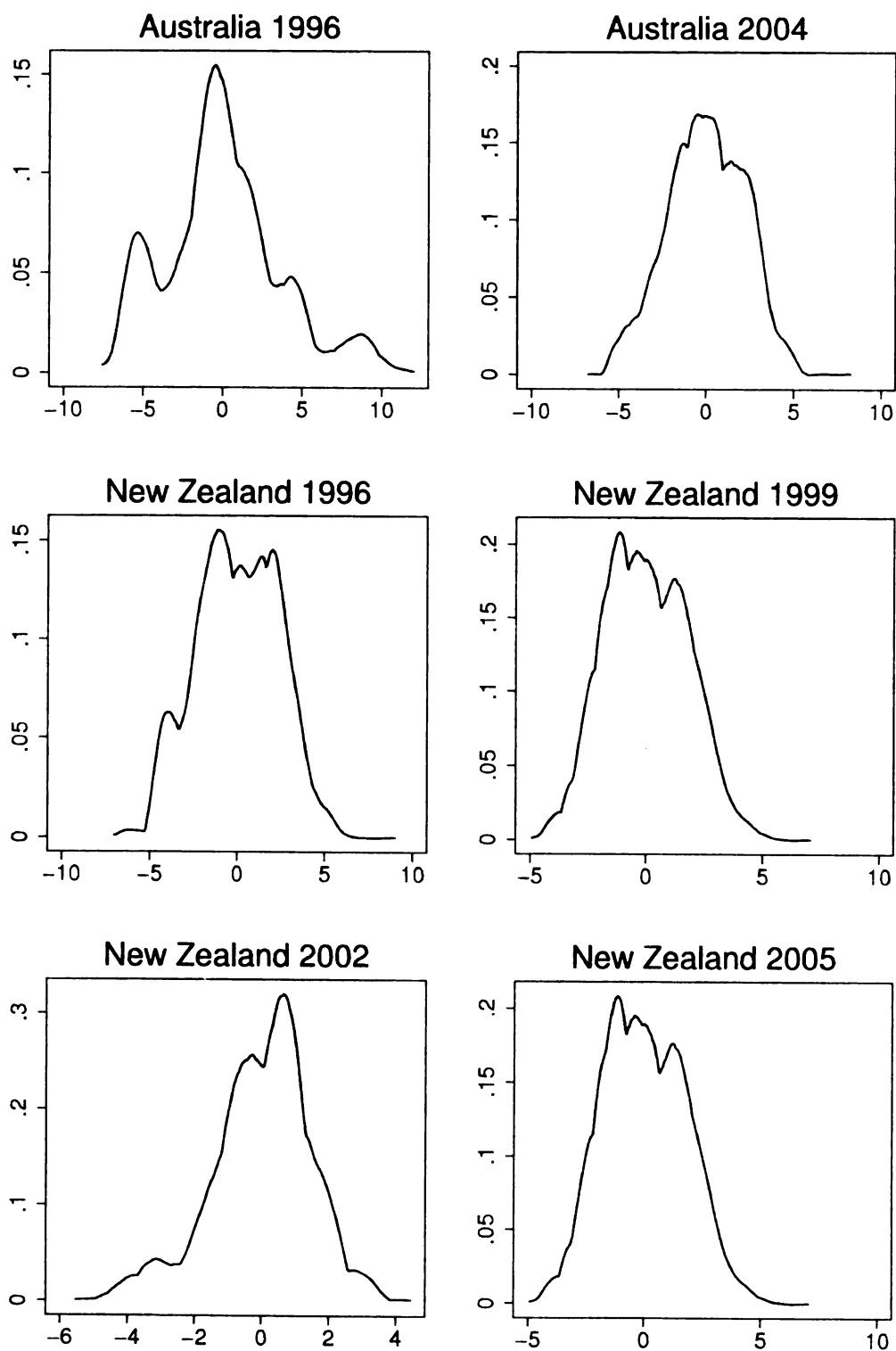


Figure 3.11: Oceania



Figure 3.12: Post-Soviet States

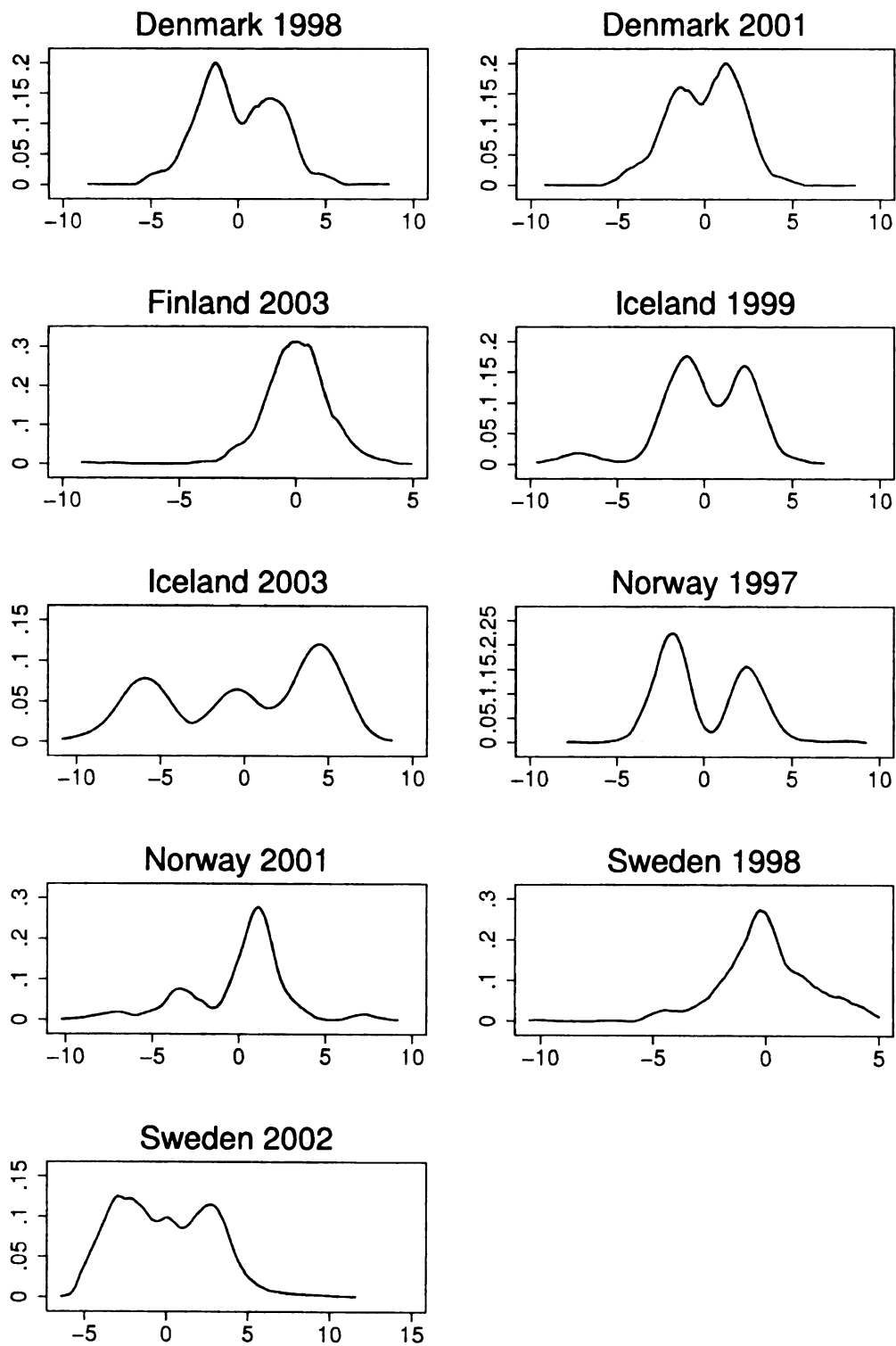


Figure 3.13: Scandinavia

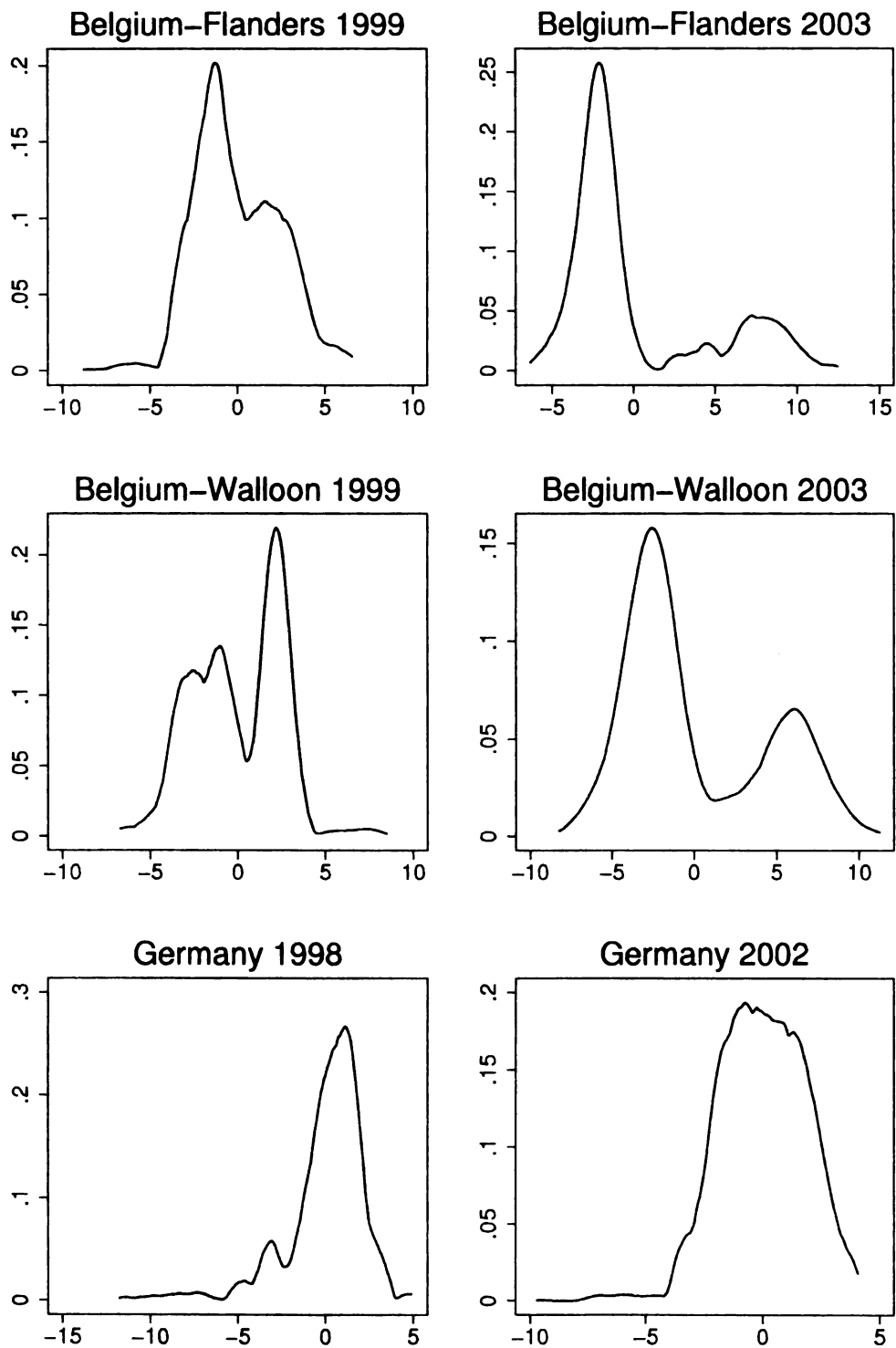


Figure 3.14: Western Continental Europe

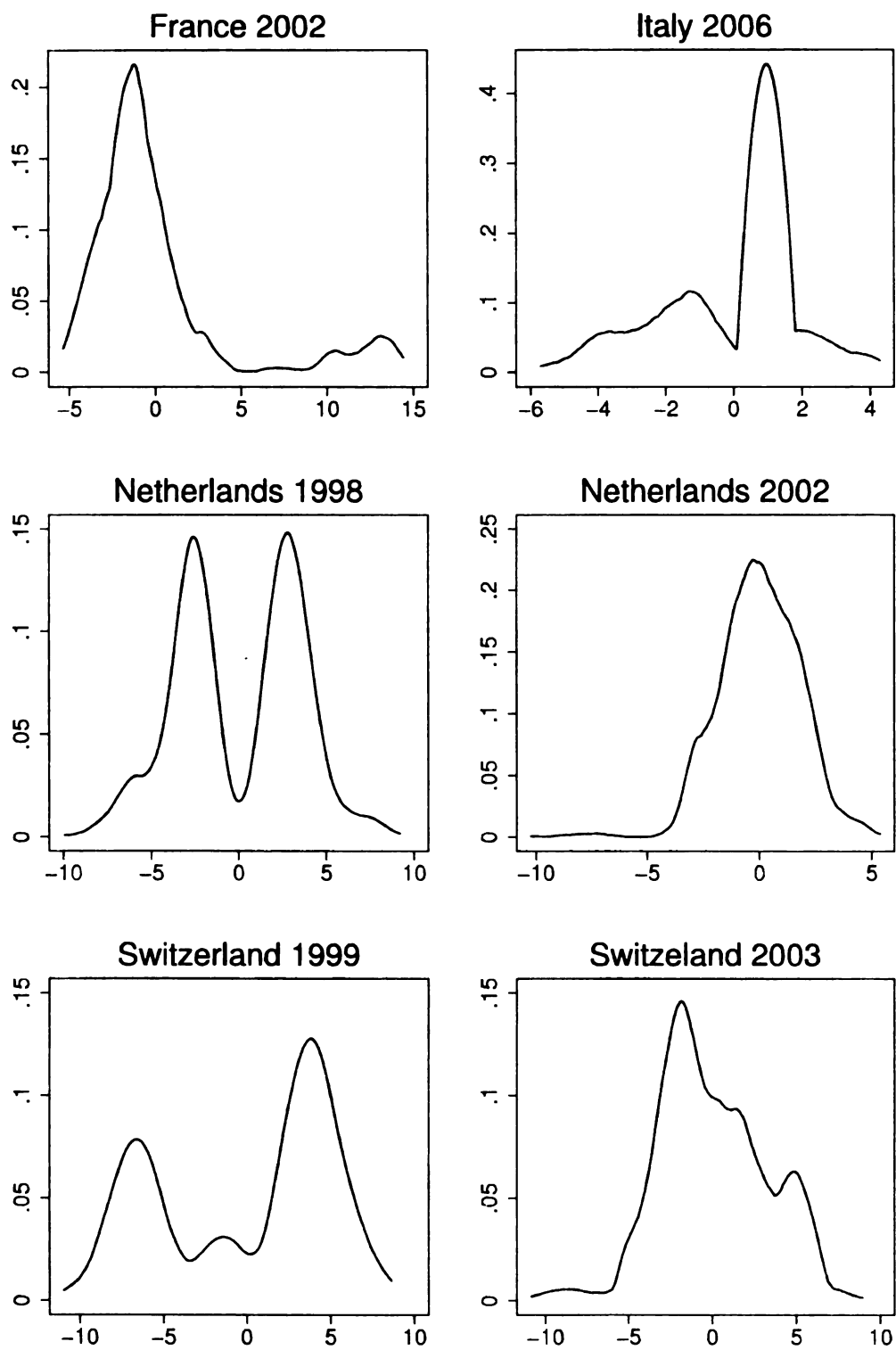


Figure 3.15: Western Continental Europe continued...

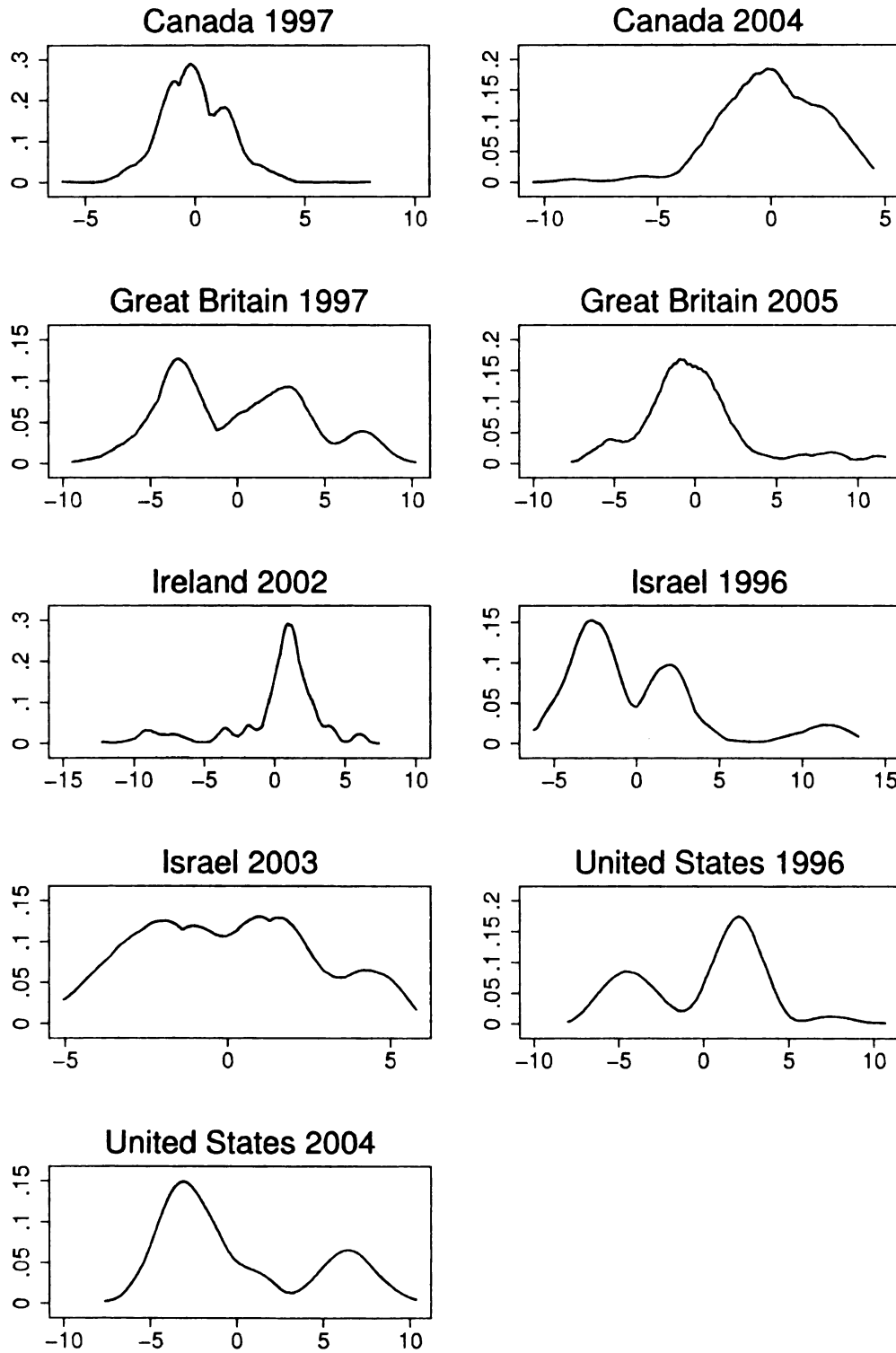


Figure 3.16: Other Western Countries

Table 3.3: Party Names

Country	Year	Party A	Party B	Party C	Party D	Party E	Party F	Party G	Party H	Party I
Albania	2005	PD	PS	PR	PSD	LSI	PDR	PAA	PAD	PDK
Australia	1996	ALP	Liberal	National	Dems	Green				
Australia	2004	Liberal	ALP	Green	National		Dems	ON		
Belarus	2001	Comm	Agrarian		Lib-Dem			Soc-Dem	Un-Civ	Chr-Con
Belgium-F	1999	VLD	CVP	SP.A	Vl Blok	Green	Volks			
Belgium-F	2003	VLD	SP.A	CD&V		Vl Blok		NV-A		
Belgium-W	1999	PS	FDF	Green	PSC	FN				
Belgium-W	2003				PS		MR		CDH	Green
Brazil	2002	PT	PSDB	PFL	PMDB				PTB	
Bulgaria	2001	NMS II	UDF	BSP	MRF	George's	Euroleft	VMRO		
Canada	1997	Liberal	Reform	Prog-Con	NDP	BQ				
Canada	2004	Liberal	Con	NDP	BQ					
Chile	1999	PPD	UDI	PC						
Chile	2005	UDI	PDC	PPD	RN	PS	PC			
Czech Rep.	1996	ODS	CSSD	KSCM	KDU-CSL	SPR-RSC	ODA			
Czech Rep.	2002	CSSD	ODS	KSCM	KDU-CSL	US-DEU				
Denmark	1998	Soc-Dem	Liberal	Con	Soc-Peop	Dan-Peop	Cen-Dem			
Denmark	2001	Left-Lib	Soc-Dem	Dan-Peop	Con-Peop	Soc-Peop	Rad-Left	Red-Grn	Chr-Peop	
Finland	2003	Center	Soc-Dem	Nat-Coa	Left-All	Green	Chr-Dem	Sw-Peop		
France	2002	RPR	FN	PS	UDF	LO	MRC	VEC	DL	PCF
Germany	1998	SPD	CDU	CSU-Bav	B90/Grn	FDP	PDS			
Germany	2002	SPD	CDU	CSU-Bav	B90/Grn	FDP	PDS	Repub	Schill	
Hong Kong	1998	Dem	Dem-All	Frontier	Dem-PL	Liberal				
Hong Kong	2000	Dem	Dem-All	Frontier	Dem-PL	Liberal				
Hong Kong	2004	Dem	Dem-All	Liberal	Dem-PL					
Hungary	1998	MSZP	Fid-MPP	FKgP	SZDSZ	MIÉP		MDF		
Hungary	2002	MSZP	Fid-MPP	SZDSZ	MIÉP	ÖMC	MDF			

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Table 3.3 (cont'd)

Country	Year	Party A	Party B	Party C	Party D	Party E	Party F	Party G	Party H	Party I
Iceland	1999	IP	Alliance	PP	Left-Grn	Liberal				
Iceland	2003	IP	Alliance	PP	Left-Grn	Liberal				
Ireland	2002	Fia-Fail	Fine Gael	Labour	S-Fein	Prog-Dem	Green			
Israel	1996	Avoda	Likud	Shas	Mafdal	Meretz				
Israel	2003	Likud	Labor	Shinui	Shas	Nat-Un	Meretz			
Italy	2006	FI	DS	AN	DL	UDC	PRC			
Japan	1996	LDP	New-Fron	Dem	JCP	SDP	Harb			
Japan	2004	Dem	LDP	NKP	JCP	SDP				
Korea	2000	HD	SMD	JMY	Dem-Peop	Dem-Lib	Hope			
Korea	2004	UD	HD	MDD	SMD	JMY	NA21			
Kyrgyzstan	2005	Dignity	Comm-M	Soc	Forward	Rep-Nat	New		Comm-K	Nat
Lithuania	1997			H-Union	Soc-Dem	Chr-Dem		Cent-Un	Dem-Lab	
Mexico	1997	PRI	PAN	PRD	PVEM	PT	PFCRN			
Mexico	2000	PAN	PRI	PRD	PT	PVEM	PARM			
Mexico	2003	PAN	PRI	PRD	PVEM	PT	Converg			
Netherlands	1998	PvdA	VVD	CDA	D66	GL	SP	SGP		
Netherlands	2002	CDA	LPF	VVD	PvdA	GL	SP	D66	CU	SGP
New Zealand	1996	National	Labour	NZF	Alliance	ACT	Chr-Coa			
New Zealand	1999	National	Labour	NZF	Alliance	ACT	United	Green		
New Zealand	2002	Labour	National	NZF	ACT	Green	United	Prog-Coa	Alliance	
New Zealand	2005	National	Labour	NZF	United	ACT	Green	Prog	Maori	
Norway	1997	Labour	Progress	Con	Chr-Peop	Center	Soc-Left			
Norway	2001	Labour	Con	Progress	Soc-Left	Chr-Peop	Center	Liberal		
Peru	2000	Peru 2000	PP	FIM	Somos	APRA	SN			
Peru	2001	PP	APRA	UN	FIM	SP	Ren-And			
Peru	2006	UPP	APRA	UN	AF	FDC	RN	PP		
Philippines	2004	Lakas	NPC	LP	LDP	AD	Bangon			
Poland	1997	AWS	SLD	UW	PSL	ROP	UP			

Continued on next page

Table 3.3 (cont'd)

Country	Year	Party A	Party B	Party C	Party D	Party E	Party F	Party G	Party H	Party I
Poland	2001	SLD-UP	PO	S	PIS	PSL	LPR	AWSP		UW
Portugal	2002	PPD-PSD	PS	CDS-PP	CDU	BE	Comm			
Portugal	2005	PS	PPS-PSD	CDU	CDS-PP	BE				
Romania	1996	PNTCD	PSD	PD	UDMR	UDMR	PUNR	PNL		
Romania	2004	PSD	PNL	PD	PRM		PUR			PNTCD
Russia	1999	KPRF	Unity	OBP	SPS	Zhir-Bloc	Yabloko			
Russia	2000	KPRF	Unity	OBP	SPS	Zhir-Bloc	Yabloko			
Russia	2004	ER	KPRF	LDPR	RNPS	SPS	RDPY			
Slovenia	1996	LDS	SLS	SDS	NSi	ZLSD		SNS		
Slovenia	2004	SDS	LDS	ZLSD	NSi	SLS	SNS	DeSUS		
Spain	1996	PP	PSOE	IU	CiU	PNV				
Spain	2000	PP	PSOE	IU	CiU	PNV				
Spain	2004	PP	PSOE	IU	CiU					
Sweden	1998	Soc-Dem	Moderate	Left	Chr-Dem	Centre	Lib-Peop			
Sweden	2002	Soc-Dem	Con	Lib-Peop	Chr-Dem	Left	Centre			
Switzerland	1999	People's	Soc-Dem	Free-Dem	Chr-Dem	Green				
Switzerland	2003	People's	Soc-Dem	Free-Dem	Chr-Dem	Green				
Taiwan	1996	KMT	DPP	NP						
Taiwan	2001	DPP	KMT	PFP	TSU	NP				
Taiwan	2004	DPP	KMT	PFP	TSU	NP				
Thailand	2001	TRT	PP	PKWM	PCT	PCP	PST			
Ukraine	1998	Comm	Rukh	Soc		Peop-Dem	Peasants	Soc-Dem		
U.K.	1997	Labour	Con	Lib-Dem						
U.K.	2005	Labour	Con	Lib-Dem						
United States	1996	Democrat	Repub	Reform						
United States	2004	Repub	Democrat	Reform						

Table 3.4: Variance Explained and Party Locations

Country	Year	R-sq	Median Voter	A	B	C	D	E	F	G	H	I
Albania	2005	0.70	-0.52	2.61	-5.84	6.43	8.27	6.60	7.47	8.11	8.28	8.14
Australia	1996	0.85	-0.37	-4.51	3.49	4.37	3.36	5.43				
Australia	2004	0.81	-0.07	3.64	-4.41	-6.09	4.95		-6.30	7.79		
Belarus	2001	0.74	0.11	-7.26	5.38		5.63			5.36	5.13	6.43
Belgium-Flanders	1999	0.90	-0.47	-3.37	-2.64	-4.33	7.80	-4.13	-4.13			
Belgium-Flanders	2003	0.79	-1.81	0.99	0.69	1.51		5.64		3.39		
Belgium-Walloon	1999	0.85	-0.12	10.20	10.09	6.15	10.57	-3.51				
Belgium-Walloon	2003	0.80	-1.84				0.40		0.57		2.28	3.75
Brazil	2002	0.61	-0.30	-0.26	6.21	-6.76	5.66				6.73	
Bulgaria	2001	0.72	0.19	1.67	-7.01	-7.81	-8.44	7.14	-8.46	7.24		
Canada	1997	0.74	-0.04	-3.87	6.28	5.00	-6.11	8.51				
Canada	2004	0.83	-0.01	-4.52	5.39	-5.28	-7.61					
Chile	1999	0.92	-0.18	-5.03	6.00	-6.50						
Chile	2005	0.80	0.21	6.11	4.22	-3.86	5.85	-4.44	-6.60			
Czech Republic	1996	0.87	0.67	3.83	3.32	-8.03	4.21	-7.54	4.24			
Czech Republic	2002	0.57	-0.16	0.28	-5.96	-6.70	-5.46	7.02				
Denmark	1998	0.80	-0.35	-3.89	3.56	4.55	-5.92	7.84	-5.55			
Denmark	2001	0.80	0.18	3.55	-3.79	7.10	4.45	-5.71	-5.39	-7.56	5.80	
Finland	2003	0.59	0.01	4.73	-3.48	-5.33	-6.37	-5.21	5.91	6.51		
France	2002	0.80	-1.11	3.47	7.87	1.82	3.79	5.63	4.65	4.27	4.73	5.46
Germany	1998	0.61	0.49	-1.99	-4.64	5.85	-6.07	-6.16	-7.61			
Germany	2002	0.79	0.00	-2.85	5.15	5.50	-4.67	5.77	-7.67	-9.44	-9.20	
Hong Kong	1998	0.83	-2.47	-0.66	1.82	0.44	1.71	2.64				
Hong Kong	2000	0.85	-1.44	2.09	3.14	2.34	2.09	4.16				
Hong Kong	2004	0.88	-0.03	-4.14	5.54	4.93	4.54					
Hungary	1998	0.86	0.08	-4.70	3.01	6.68	-5.15	8.19		7.47		
Hungary	2002	0.90	-0.66	-4.30	5.03	-4.98	8.28	-5.58	5.60			

Continued on next page

Table 3.4 (cont'd)

Country	Year	R-sq	Median Voter	A	B	C	D	E	F	G	H	I
Iceland	1999	0.71	-0.20	0.66	-4.88	-4.76	-4.85	7.73				
Iceland	2003	0.81	0.36	2.11	-2.71	1.66	-3.63	-3.63				
Ireland	2002	0.67	0.89	-1.19	4.83	-4.49	-5.84	-2.54	-4.42			
Israel	1996	0.66	1.62	-0.27	0.02	7.42	5.92	5.75				
Israel	2003	0.84	-0.05	3.25	-5.81	-5.69	7.63	6.65	-6.36			
Italy	2006	0.77	0.95	7.59	-7.23	7.50	-7.26	-7.46	-7.44			
Japan	1996	0.78	1.24	7.28	-3.70	-3.40	-5.83	-4.66	-5.33			
Japan	2004	0.82	-0.59	0.52	0.47	-6.33	-7.14	-6.58				
Korea	2000	0.67	-0.18	4.75	4.37	-6.57	-6.80	6.03	-6.88			
Korea	2004	0.71	-0.31	3.10	6.30	-4.59	6.74	7.37	7.19			
Kyrgyzstan	2005	0.83	1.20	-3.69	-3.23	-5.78	-7.95	-6.27	-4.89		-5.39	
Lithuania	1997	0.74	1.74			-1.88	-1.26	-1.51		0.73	-5.07	-4.44
Mexico	1997	0.64	-0.24	6.01	5.65	1.04	-6.90	-7.49	-7.75			
Mexico	2000	0.67	-0.13	-2.37	5.50	6.28	-7.58	-6.80	-7.79			
Mexico	2003	0.63	-0.20	-3.43	5.05	-5.67	6.73	-7.86	-8.05			
Netherlands	1998	0.74	0.79	-0.21	0.30	0.11	-0.42	-0.74	-4.48	5.94		
Netherlands	2002	0.68	-0.02	-2.05	-6.18	-4.41	-4.70	-4.87	-4.54	-4.92	6.12	7.00
New Zealand	1996	0.82	0.01	4.31	-3.46	-5.37	-5.59	6.77	7.42			
New Zealand	1999	0.72	0.09	4.88	-2.74	-8.15	-5.63	7.25	7.32	6.42		
New Zealand	2002	0.54	0.19	-2.56	-5.94	-6.53	6.96	-7.20	5.79	-7.39	-7.61	
New Zealand	2005	0.70	-0.19	5.49	-2.78	6.22	6.82	6.97	-6.64	6.66	-6.29	
Norway	1997	0.73	-1.10	0.17	6.33	4.68	0.53	-5.71	-5.59			
Norway	2001	0.60	0.76	-2.99	-1.19	5.63	-4.54	-1.78	5.07	-5.86		
Peru	2000	0.63	0.10	4.70	-4.02	7.32	-7.24	8.32	7.50			
Peru	2001	0.62	0.00	-4.26	-5.21	4.68	-4.48	8.39	-8.06			
Peru	2006	0.72	-1.95	3.62	2.78	3.56	5.16	6.32	6.61	7.01		
Philippines	2004	0.55	-0.22	4.28	5.63	-5.13	-5.24	-5.72	4.88			
Poland	1997	0.66	0.79	2.56	-5.20	2.05	-5.57	-4.38	-4.49			

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Table 3.1 (cont'd)

Country	Year	R-sq	Median Voter	A	B	C	D	E	F	G	H	I
Poland	2001	0.69	-0.14	-3.69	6.30	-6.11	-5.40	-5.83	6.40	8.22	7.76	
Portugal	2002	0.82	0.05	4.68	3.80	5.55	-6.91	-6.48	-7.88			
Portugal	2005	0.85	-0.01	-2.89	5.31	-6.44	6.69	-5.72				
Romania	1996	0.76	-0.19	2.26	-5.28	2.61	6.31		5.34	3.99		
Romania	2004	0.64	0.64	-4.85	-0.72	-0.68	6.32	-7.41	-6.92			-7.27
Russia	1999	0.66	-0.13	-5.26	1.71	-5.46	6.37	-8.26	-5.89			
Russia	2000	0.61	0.15	-5.41	3.65	-6.19	6.06	8.05	6.18			
Russia	2004	0.70	0.04	-3.19	-7.08	7.73	-7.06	7.97	7.88			
Slovenia	1996	0.63	0.21	-4.43	5.22	-6.14	-6.99	-5.66		-6.74		
Slovenia	2004	0.65	-0.20	4.52	6.18	-6.05	7.54	7.09	7.15	7.15		
Spain	1996	0.70	0.04	5.88	4.15	6.05	-7.29	-7.59				
Spain	2000	0.58	0.23	4.12	-5.28	6.74	-7.28	7.91				
Spain	2004	0.77	-1.44	0.74	6.47	-5.22	2.21					
Sweden	1998	0.78	-0.02	-3.10	5.37	-6.20	5.22	-5.64	-5.64			
Sweden	2002	0.88	-0.24	-1.38	5.64	4.55	5.59	-5.86	5.04			
Switzerland	1999	0.75	2.66	0.30	-3.28	1.21	1.01	-3.94				
Switzerland	2003	0.82	-0.45	6.05	-3.81	3.43	-4.99	-4.93				
Taiwan	1996	0.82	0.05	4.40	-5.41	6.15						
Taiwan	2001	0.62	0.15	-3.78	-4.92	-5.19	-6.94	6.56				
Taiwan	2004	0.91	0.40	-4.68	5.35	6.34	-6.69	6.78				
Thailand	2001	0.69	-0.51	0.70	1.85	-5.08	3.25	-4.96	-5.82			
Ukraine	1998	0.78	-3.71	-1.86	4.08	0.76		1.75	-0.31	2.34		
United Kingdom	1997	0.96	-0.06	-2.21	5.74	-1.94						
United Kingdom	2005	0.86	-0.31	-4.36	5.31	4.12						
United States	1996	0.83	1.32	-2.21	-0.91	5.09						
United States	2004	0.84	-2.15	3.25	-0.70	4.58						

Chapter 4

Electoral Systems and the Dimensionality of Politics

Is the political dimensionality of a nation related to its electoral system? Among other things, electoral institutions are known to shape the behavior of elites and voters, to affect the nature of representation, and to play a role in economic outcomes. Yet, their relationship with dimensionality is scarcely explored in existing comparative political research. As such, in this chapter I explore the relationship between dimensionality and electoral rules across several countries using the measure of dimensionality introduced in this project.

The dimensionality of underlying political structures is commonly assumed, both in everyday language and academic research. When an individual describes himself as “right-wing,” he implicitly locates himself on a latent continuum, when a media report labels a candidate “liberal,” a political dimension with liberals on one end and conservatives on the other is implied, when a researcher studies the proximity between a voter and a party, she must assume a space in which the actors operate, and when studying multi-player policy creation, one must assume the dimensions that define actors’ preferences. Accordingly, it is important to examine how dimensional constructs vary with external societal factors.

A sizeable body of previous work in comparative political science focuses on explaining the number of political parties across countries. The first research tradition, pioneered by Duverger (1954) and Sartori (1976), assigns primacy to the electoral institution employed

in a given nation. The second tradition, spearheaded by Downs (1957) and Lipset and Rokkan (1967), attributes explanatory power to social and ideological cleavages within nations. Later work by researchers such as Taagepera and Grofman (1985), Lijphart (1999), Taagepera (1999), and Stoll (2009), explicitly links multipartism to the number of ideological or issue dimensions in a country.

I argue that political dimensionality is itself a product of electoral systems. Sartori (1976) and Lijphart's (1984; 1999) famous analyses of democratic institutions and party systems posit such a relationship. Electoral systems that are restrictive to small party entry discourage the emergence of new dimensions as large, electorally entrenched parties have no incentive to take strong stances on emergent issues. Permissive systems, conversely, induce existing parties to take stances on nascent issues, thereby facilitating the rise of new dimensions.

With the term "political dimensionality" I refer to the underlying makeup of the political space in which parties compete. The new measure of dimensionality employed in this research operationalizes this conceptualization of political space, determining how well a single dimension captures the space in which parties and voters align. Thus, if entrenched parties choose to absorb or ignore a certain issue dimension, the measure reflects such behavior. This is contrasted with previous indices of dimensionality, which count the number of salient issues or ideological conflicts among political parties in a country, but do not account for the transformation of such issues into political dimensions.

I find that political dimensionality is functionally related to electoral institutions. In line with previous theory, I empirically demonstrate that restrictive electoral systems lead to low-dimensional political structures, while political space cannot be captured unidimensionally in permissive systems. This relationship holds when other factors are controlled for, including the number of relevant political parties, and when the potential endogeneity of electoral systems is taken into account.

4.1 Measuring Dimensionality

As discussed in Chapter 2, previous cross-national measures of dimensionality generally take specific issues into account rather than gauging the space in which parties compete. The most well-known measure of dimensionality is that of Lijphart (1984; 1999). This index is based on his subjective expert judgement of the salience of seven issue dimensions across 36 nations, averaged from 1945-1996, and has been employed as a variable of interest in subsequent research (for example, Taagepera 1999; Taagepera and Grofman 1985).

Two more recent studies make use of the Comparative Manifestos Project (CMP) (Budge, Klingemann, Volkens, Bara, and Tanenbaum 2001) to measure dimensionality. First, Nyblade (2004) creates a measure of the effective number of issues (ENI) from 43 CMP issue categories in 17 West European countries from 1945 to 1999. He applies the common Laakso and Taagepera (1979) formula to weight the issues by their salience, in addition to weighting them by party vote shares. From this he creates a reduced measure, the effective number of issue dimensions (ENID). The ENID reduces the ENI when multiple parties consider the same issue to be important.¹

Stoll (2005; 2009) creates postwar (1945-1998) measures of “raw” dimensionality across 24 Western countries based on seven ideological dimensions. Her measures gauge the amount of salient ideological dimensions in a polity, according to what conflicts parties deem important in their manifestos. In the measure employed in her 2009 work, to gauge the salience of each dimension, Stoll looks at the proportion of space devoted to each in the party manifestos of a given nation, takes an average across manifestos, and applies Molinar’s (1991) weighting formula.²

¹Issue similarity measures are derived by pooling all countries and election years and calculating the angular separation between all issue pairs. Angular separations are essentially correlations that are bound between 0 and 1 rather than -1 and 1.

²Molinar’s (1991) formula was originally created as an alternative to the well-known Laakso and Taagepera (1979) effective number of parties index.

4.1.1 A New Measure of Dimensionality

The measure of dimensionality in this analysis comes from the goodness-of-fit statistic from the unfolding routine, described in Section 2.3. A value of 1.0 indicates that voter preferences in a given nation are entirely generated by a single dimension. I subtract this value from 1 so that higher values correspond with poor adherence to a single dimension. The measure covers 79 elections.³

This measure gauges what I call “political dimensionality,” as opposed to issue dimensionality or ideological dimensionality. Instead of gauging the number of salient issues or the number of ideological dimensions in a country, it captures the space in which parties and voters locate themselves.⁴ Additionally, because it is based on voter perceptions of the parties, rather than coded party manifestos or expert opinions, it avoids the subjectivity inherent in such measures. Moreover, unlike manifesto-based measures, it is sensitive to any public conduct by existing parties that affects political dimensionality: voter perceptions are influenced by the behavior of parties, while manifestos do not necessarily reveal true party strategies.⁵

If major parties in a given country purposely ignore a given issue dimension, the measure will reflect this. Additionally, if an emerging issue dimension proved salient to all parties at the national level, the measure captures the associated increase in dimensionality.⁶ Nyblade’s ENID measure is the closest to the measure employed here in that it

³Because I average across Flanders and Walloon in both 1999 and 2003 to get a single measure for Belgium in this macro-level examination, the number of cases drops from 81 to 79.

⁴The measure maps parties and voters into the same space. That is, party movements throughout this space affect voters’ evaluations of the parties, as posited by spatial voting theory.

⁵Budge and Farlie (1983), for example, note that parties downplay diverging positions on political issues in their official manifestos, but tend to emphasize differences in the media.

⁶To use the example given by Stoll (2009), racial considerations became salient in the United States in the 1930s and grew in importance through the 1960s, after which they diminished in importance. There were only two major parties and a handful of very minor parties in the U.S. throughout this period. In the 1960s the space in which parties competed was likely multidimensional, as the major parties consistently campaigned on racial issues. Conversely, in recent years the salience of race has decreased and racial issues have not been brought to the political forefront by major parties.

accounts for party overlap on issue dimensions. However, the ENID is based on the wording of party manifestos, which, as noted, do not necessarily correspond to the strategic actions of political parties.

While previous indices capture issue dimensionality or ideological dimensionality, they do not explicitly measure the space in which parties and voters locate. Thus, they are less sensitive to the incentives electoral systems provide to political parties. The measure used in this research, alternatively, captures such incentives and thus provides a way to examine the link from electoral setups to dimensionality.

4.2 Electoral Systems and Dimensionality in Theory

Taagepera (1999, 532) posits reciprocal relationships within the three dyads depicted in Figure 4.1. Link 1 is exhaustively examined in previous research. Authors such as Cox (1997) and Norris (2004), for example, show that multipartism is related to district magnitude, while Colomer (2005) shows reciprocity in this relationship. That is, countries with many parties tend to institute permissive electoral systems.

Regarding link 2, Lijphart (1999, 88) finds a strong and significant correlation between the effective number of parties and the number of issue dimensions in a nation, while Taagepera and Grofman (1985) show the number of parties in a nation to equal to its number of issue dimensions plus one. Stoll (2009) also examines whether the number of effective parties in a nation is related to its dimensionality. Using her new measure of raw ideological dimensionality and Nyblade's (2004) ENI measure, she finds evidence for this relationship in non-majoritarian electoral systems.

Taagepera (1999) notes that causality may precede from the number of parties to issue dimensionality. In multiparty systems, small parties may appeal to narrow constituencies, or "favored minorities" (Myerson 1993). As such, small interest groups can select political parties as their parliamentary agents. And, as the number of parties rises, so does the amount of new issues brought to government. While this logic is intuitive in relation

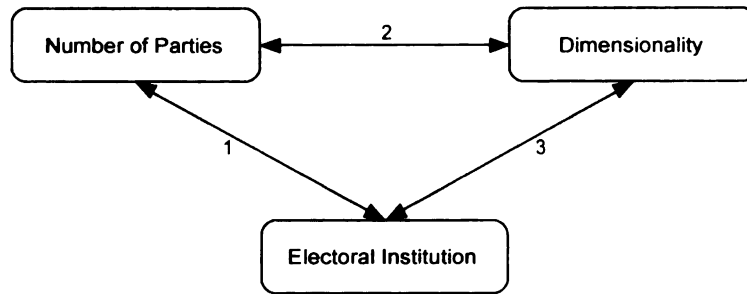


Figure 4.1: Dimensionality, Electoral Institutions, and the Number of Parties

to issue dimensionality, I contend that, independent of the number of parties, electoral systems affect the underlying dimensionality of the space in which parties and voters are located through the incentives they provide to major parties and voters.

As noted by Lijphart (1984, 127), “In the majoritarian model of democracy, the political parties typically differ from each other along a single issue dimension, the socioeconomic or left-right dimension. In contrast, partisan differences in the consensus model are multidimensional.” Sartori (1976, 342) explains that multidimensionality will only emerge in nations in which there exists an extra dimension defined by issues that existing parties are not willing to absorb; parties either ignore emerging issue dimensions or risk political suicide by taking a stance on electorally unimportant issues. That is, for multidimensionality to emerge, there must be a new issue dimension that is salient to the point that existing parties want to compete along it. Budge, Robertson, and Hearl (1987, 39) note the tendency of major parties to emphasize issues on which they have an advantage, rather than taking stances on issues they deem unimportant. In the American context, Petrocik, Benoit and Hansen (2003) note that candidates and parties “own issues” and campaign on those that provide them with an advantage. In addition, Przeworski and Sprague (1986) show how parties modify their agendas in anticipation of political gains within the electorate.

Thus, to maximize electoral success, electorally entrenched parties may choose to simply ignore a nascent dimension, signalling to voters that it “lacks merit” (Meguid 2005, 349) and keeping the dimension out of the political forefront. This behavior is likely in

restrictive systems, under which ignoring an emerging issue dimension is of low risk to major parties. Voters concerned with such a dimension will likely not risk casting a “wasted vote” for a small party that embodies it, but instead vote for the major party they most prefer. Alternatively, in permissive systems, if an issue important to a voter is abandoned by the major parties, voting for a smaller party that actively engages the issue dimension becomes an attractive option.

Consider, for example, the cases of Germany and the United States. In both countries environmental issues have gained considerable attention in recent decades, and in both countries the Green Party has built its platform around the environmental issue dimension. In the U.S., which employs a restrictive first-past-the-post (FPTP) electoral system, voters are left with little recourse if the major parties choose to ignore environmental issues; the hurdles which the Green Party must overcome to gain representation in the U.S. are insurmountable and voters recognize this when casting their vote. Alternatively, under Germany’s relatively permissive mixed electoral system, ignoring environmental issues is a politically dangerous strategy for the major parties; voters concerned with this dimension may punish such behavior by voting for the Greens without fear of casting an inconsequential vote.⁷

Thus, in permissive electoral systems entrenched parties will often choose to compete along emerging issue dimensions, and such behavior will increase the dimensionality of political space. Because voters choose based on issue dimensions they deem important (Bélanger and Meguid 2008), major parties will engage salient emerging dimensions to decrease the electoral gains of niche parties (Meguid 2005, 349). Such a strategy induces voters to abandon the niche party in favor of an existing major party, although the niche party’s “pet” dimension still gains political exposure; as explained by Meguid (2005), when

⁷A study of the Chewa and Tumbuka ethnic groups in Zambia and Malawi by Posner (2004) also helps to illustrate this logic. Though both countries use restrictive, first-past-the-post electoral systems, in Malawi the two ethnic groups make up a sizeable proportion of the population. Contrast this with Zambia, where each group makes up less than 10 percent of the total population. Thus, only in Malawi do the groups have a realistic chance of winning seats in the restrictive FPTP elections. As expected, in Malawi the socioethnic cleavage between the parties is politicized, as politicians have an incentive to “ride it” into office. Conversely, in Zambia politicians must and do look for other societal cleavages to politicize.

mainstream parties engage smaller parties on their niche issue dimensions, the salience of such dimensions is enhanced. In sum, permissive electoral systems induce parties to take stances on emerging issue dimensions, thus increasing the dimensionality of political space, while restrictive electoral institutions lead major parties to simply ignore emerging issues.

Cantillon (2001) draws similar conclusions about the dimensions of politics from a formal modeling perspective. In equilibrium, she finds that entrenched parties in restrictive electoral systems often choose to replace, ignore, or lump together emerging issue dimensions. In permissive systems, alternatively, low barriers to party entry may lead to a two-dimensional political space; incentives to lump issues together are lower under such electoral rules.⁸

Previous theoretical work is unified in its predictions that systems of low restrictiveness facilitate multidimensional political space, while majoritarian institutions lead to low-dimensional constructs. Only a scarce amount, though, empirically examines the direct link between institutions and the dimensionality of politics. Moreover, the studies that do examine this relationship focus on ideological and issue dimensionality, rather than the dimensionality of the space in which parties locate themselves.

4.2.1 Previous Empirical Tests

Taagepera (1999) posits a specific relationship between the number of issue dimensions and electoral system permissiveness, which I reproduce in Equation 4.1:

$$I = (2.15 \times M^{3/16}) - 1, \quad (4.1)$$

where I is defined as the number of issue dimensions in a nation, which he quantifies with Lijphart's (1984) subjective judgements, and M is the arithmetic mean of the district magnitudes in a nation. Taagepera finds moderate empirical support for Equation 4.1 across 22 stable democracies.

⁸This discussion is based on Stoll (2005, 195).

More recent work examines this relationship with updated data and measures. For example, Stoll (2005, 198) tests the relationship between dimensionality and institutions using her self-produced measure of dimensionality. She conducts a difference in means test of dimensionality between four plurality and 20 more-permissive electoral systems, but finds no support for the hypothesis that dimensionality is higher in permissive systems. Richman (2005), also using CMP data and a loose measure of dimensionality,⁹ tests how tightly the parties of 25 nations simultaneously adhere to a single left-right ideological dimension. He also finds no evidence that restrictive systems lead to unidimensionality.

4.3 A New Test of Dimensionality and Electoral Systems

The findings of Richman (2005) and Stoll (2005) provide no evidence that dimensionality is higher in permissive electoral systems. In fact, only Taagepera's (1999) moderate findings support this hypothesis. However, none of these studies explicitly examine the dimensionality of the space in which parties locate.

I instead use the new measure of political dimensionality as the outcome variable in several empirical tests. Theory puts forth that, conditional on the electoral system employed, parties selectively compete along emerging issue dimensions, thus structuring the space in which they align. The measure introduced here allows me to test whether these theoretical arguments are empirically realized.

Using the new measure, Figure 4.2 depicts a bar chart of mean political dimensionality across three classes of electoral institutions. "Majoritarian" refers to institutions with single-member districts, "proportional" indicates that the district magnitude is greater than one and the country employs a proportional electoral formula, and "mixed" refers to systems in which elections are conducted across two tiers, one with single-member districts

⁹Richman's dependent variable is simply the portion of the party manifestoes that are coded in the "left-right" category.

and another with multi-member districts.¹⁰

As expected, Figure 4.2 illustrates that nations with majoritarian systems are better-captured by a single dimension than their mixed and proportional counterparts. Due to the combination of majoritarian and proportional elements, nations with mixed systems have lower political dimensionality than proportional systems, but are not captured by a single dimension as well as majoritarian systems. Difference in means tests indicate that the difference in political dimensionality between majoritarian and proportional systems is significant at $p = .025$, and the difference between majoritarian and mixed systems is significant at $p = .055$. The difference between mixed and proportional systems is statistically indistinguishable from zero ($p = .720$).

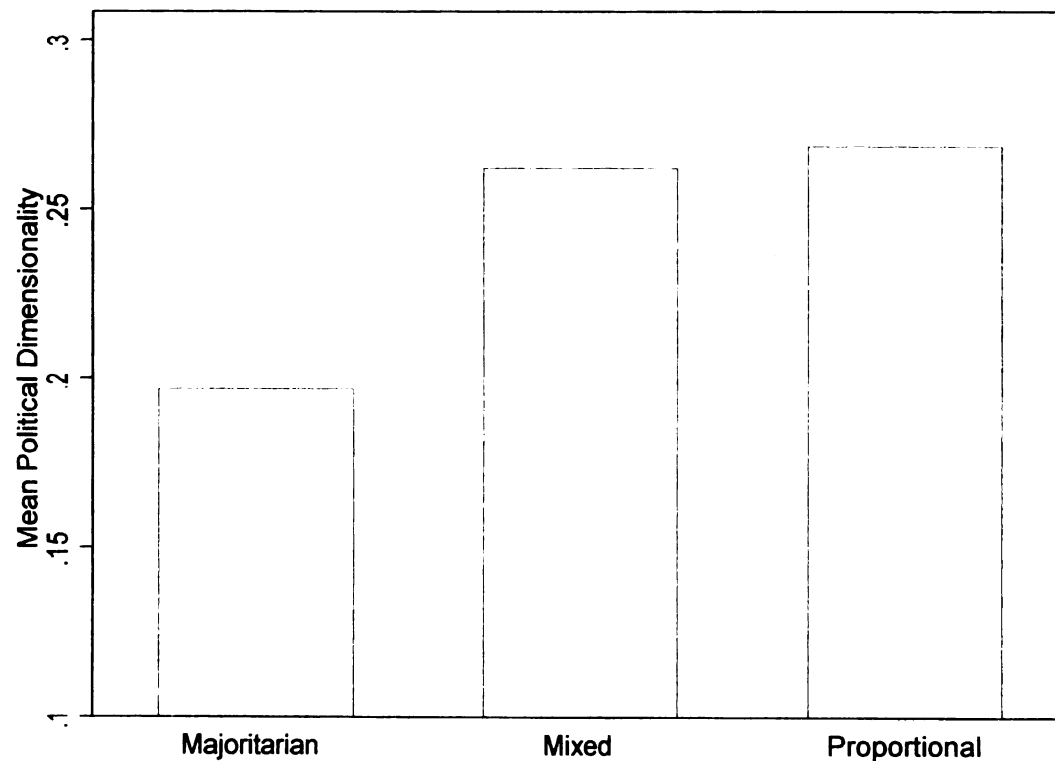


Figure 4.2: Political Dimensionality Across Electoral Institutions

¹⁰Italy switched from a mixed electoral system to a fully proportional setup during the 2006 election process. I code its electoral system as *mixed* because it is unlikely that the new system could have affected dimensionality in such a short time frame. In practice, the empirical analyses were not sensitive to this coding decision.

The district magnitude of electoral systems provides a continuous measure of electoral permissiveness (see, for example, Lijphart 1984). Figure 4.3 depicts a scatterplot with dimensionality on the vertical axis and logged¹¹ mean district magnitude on the horizontal axis. As theoretically expected, the figure demonstrates that political dimensionality systematically increases with district magnitude. The slope of the superimposed regression line, which is statistically significant at the .01 level, is .029. The correlation between the two variables is .410.

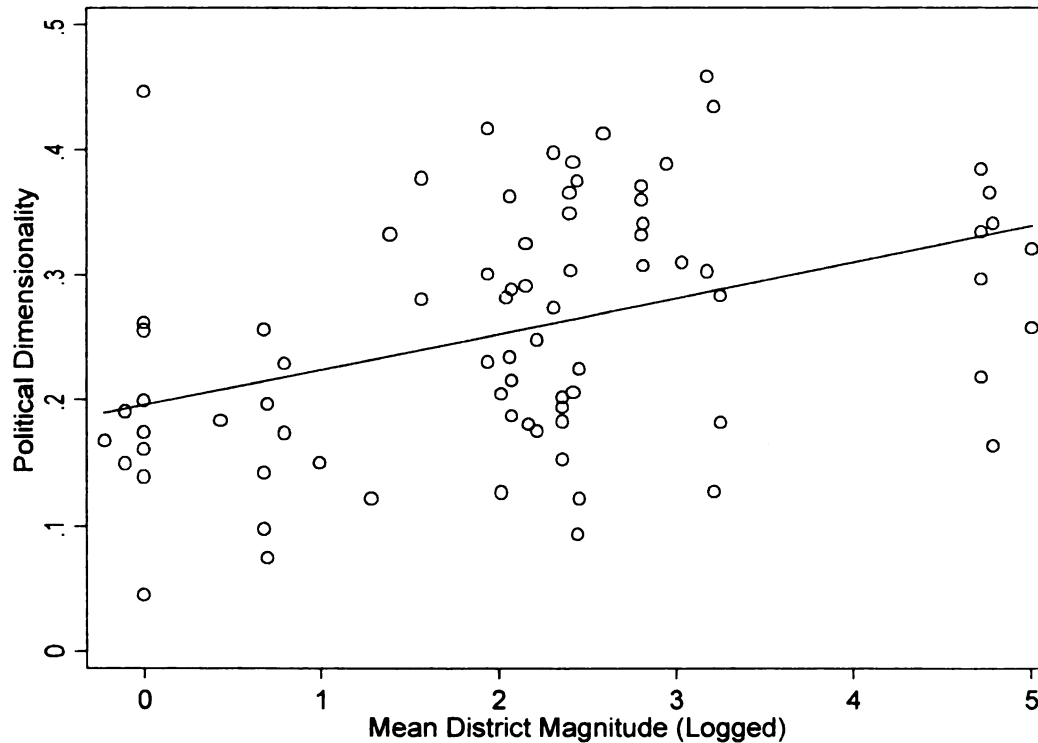


Figure 4.3: Political Dimensionality and District Magnitude

¹¹As is common practice in the literature, the log of district magnitude was taken; an increase in DM from 1 to 2 is expected to have greater effects than a change from 30 to 31. Furthermore, a loess nonparametric regression (see Jacoby 2000) of dimensionality on mean district magnitude indicated a clear logarithmic relationship between the two variables.

4.3.1 Accounting for other Factors

Figures 4.2 and 4.3 provide preliminary evidence that political dimensionality increases along with the permissiveness of electoral systems. However, these exercises do not control for other factors that may affect dimensionality across nations. Examining political dimensionality over time in nations that have reformed their electoral systems provides a way to hold other factors constant. The data at hand cover three nations that underwent recent electoral reform: New Zealand, Japan, and Peru.

In 1993 New Zealand, through a national referendum, switched from first-past-the-post (FPTP) majoritarian elections to a mixed member proportional (MMP) system.¹² It conducted its first election under MMP in 1996. Between the CSES and the NZES, survey data in New Zealand is available for the years 1996, 1999, 2002 and 2005.¹³ According to theory, dimensionality in New Zealand should increase after the switch to MMP. Though there is no data before the switch, Figure 4.4 shows that, as the new electoral system set in, dimensionality steadily rose in New Zealand through 2002, but began to level off to its 1999 level in 2005.

The circumstances of Japan's electoral reform differ in multiple ways from those of New Zealand. In 1994 Japan adopted a mixed systems for elections to its lower house. While New Zealand's mixed system is compensatory, in that it awards seats from the PR tier to achieve as proportional a result as possible, the two tiers in Japan's new mixed system were designed to operate independently (Gallagher 1998).

Also, while New Zealand abandoned pure FPTP elections for a mixed system, Japan formerly used the single non-transferable vote (SNTV). SNTV, though not a "fully proportional" system, can sometimes lead to proportional outcomes (Lijphart 1999, 163). Thus, Japan's switch from one semi-proportional system to a marginally more proportional system should not work to increase or decrease political dimensionality in a drastic manner.

¹²In MMP elections seats are allocated from the multi-member tier of the electoral system in a fashion designed to achieve as proportional a result as possible; seats won in the majoritarian tier are subtracted from each party's seat winnings in the multi-member tier.

¹³The NZES also had waves in 1990 and 1993, but, because of dissimilarities in data, it could not be analyzed here.

Data for Japan is available in 1996 and 2004, both falling after the switch. Figure 4.4 shows that political dimensionality is essentially unchanged in Japan from 1996 to 2004. This result is unsurprising, considering the relative innocuousness of Japan's electoral reform.

Peru's unicameral legislature contains 120 members and is elected with open-list proportional representation via the d'Hondt electoral formula. In 2000, Peru used a single national district to elect its lower house. Thus, the Peruvian electoral system was very permissive to small party entry. In 2001 and 2006, the country was electorally apportioned, and legislators were elected from 25 different districts, meaning the average district magnitude was 4.8. Thus, the electoral system became more restrictive to small party entry, though still relatively permissive when compared to majoritarian or plurality systems. Figure 4.4 shows that political dimensionality in Peru did not immediately respond to the electoral reform, but by 2006, as expected, political dimensionality dropped in response to the more restrictive electoral rules.

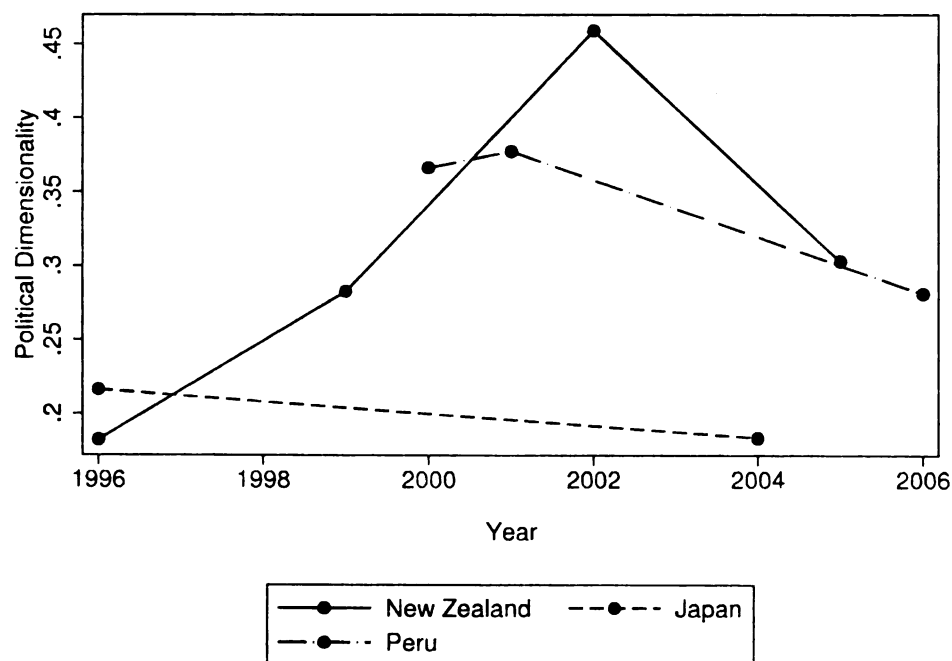


Figure 4.4: Political Dimensionality Over Time in New Zealand, Japan, and Peru

To assure that the relationship between electoral permissiveness and dimensionality is not spurious, I take other theoretically-related variables into consideration in cross-

national analyses. First, the number of political parties in a nation is posited to affect issue and ideological dimensionality (Lijphart 1999; Stoll 2009; Taagepera and Grofman 1985). Though I contend that the number of parties is unrelated to the new measure of political dimensionality, I include the variable to be sure of its null effect.¹⁴ To measure the number of parties, I use the Laakso and Taagepera (1979) effective number of electoral parties measure (ENEP).¹⁵ This index accounts for parties that do not win representation in addition to those with parliamentary seats. Thus, parties that campaign on emerging issue dimensions but do not win seats are accounted for. I obtained the measure from the CSES.¹⁶ Because of missing data on this variable, the number of observations drops from 79 to 74.¹⁷

The causal logic derived above evokes an interactive effect of socioethnic fractionalization and electoral permissiveness on political dimensionality. Because small parties in electorally restrictive but socioethnically fractionalized nations may win seats by emphasizing an emerging issue within a district densely populated by a minority group (see, for example, Chhibber and Kollman 1998), entrenched parties in such systems cannot simply ignore nascent dimensions as they may in socioethnically homogenous nations. In such countries, minority issues may gain national prominence regardless of the electoral system employed. Thus, electoral permissiveness should have a relatively weak effect on political dimensionality.¹⁸

¹⁴Because the number of parties has a well-established empirical relationship with electoral permissiveness, collinearity is a concern when including it in a regression equation with district magnitude. However, the bivariate correlation between logged ENEP and logged MDM is only .304 in the sample at hand. Moreover, *variance inflation factors* from the multiple regressions below indicate that the variances of the coefficient estimates for either variable were never inflated by a factor larger than 1.40.

¹⁵ENEP is measured as $\frac{1}{\sum_{j=1}^n v_j^2}$, where v_j is the proportion of votes obtained by the j^{th} party. I take the log of this measure to reign in outliers such as Belgium and Brazil.

¹⁶CSES Macro Data, available at <http://www.cses.org/download/contributions/contributionsmirror.htm>

¹⁷The missing country-years are Belarus in 2001, Hong Kong in 1998 and 2000, Kyrgyzstan in 2005, and the Philippines in 2004.

¹⁸Previous work on party systems also posits a conditional effect of electoral insti-

Canada embodies this logic. Though it employs a first-past-the-post electoral system, relative to other restrictive systems in the sample political variation in Canada conforms poorly to a single dimension. This is likely due to its socioethnically heterogeneous makeup, which is the highest of any nation sampled. Québécois issues, for example, gain national prominence in Canada due to the clustering of this minority group into certain electoral districts. Were Canada to switch to a system of proportional representation, the ability of the Bloc Québécois, a federal level Quebec-nationalist party, to bring Quebec-centric issues to government would not increase greatly, and the larger Canadian parties would likely devote a similar amount of attention to Québécois issues.¹⁹

In relatively socioethnically homogenous nations, alternatively, an increase in electoral permissiveness should have a strong, positive effect on political dimensionality through the mechanisms put forth in Section 4.2. That is, increased electoral permissiveness allows small, issue-centric, parties to come to power. Thus, large parties must adopt emerging dimensions to prevent this ascension and avoid a loss of parliamentary seats. This effect is offset in ethnically fractionalized nations, as their heterogeneous social character affects political dimensionality, even under restrictive electoral systems.

Three existing measures of fractionalization cover all of the countries in CSES sample: Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg's (2003) measures of ethnic and linguistic heterogeneity and Kok Kheng's (2001) measure of ethnic fractionalization. Recent work shows that the conclusions drawn from statistical analyses are sometimes dependent on the measure of fractionalization chosen (Stoll 2008). To avoid this potential pitfall, I use each of the three measures to create a single index of socioethnic fractionalization, thereby not assigning primacy to any single measure. I conduct a principal

tutions and socioethnic fractionalization (Amorim Neto and Cox 1997; Geys 2006; Ordeshook and Shvetsova 1994). However, the outcome variable is the number of political parties rather than political dimensionality. The driving theory is that cleavages can only materialize into multiple parties if the electoral institution in place is relatively permissive.

¹⁹India, though not included in the sample, also provides an example of this logic. The Philippines also embody this logic, though excluded from the sample due to missing data on the ENEP variable. Note, however, that the Philippines, despite its restrictive electoral system, has the second-highest political dimensionality score in the sample. This is likely due to the fact that it is a very heterogeneous country, with the third highest social fractionalization score in the sample.

components analysis, depicted in Table 4.4 in the appendix to this chapter. The first component captures roughly 76% of the total variance in these measures, and I use observations' scores on this component to gauge their level of socioethnic fractionalization. The ethnic and linguistic measures of Alesina et al. load²⁰ highly on the component, as does Kok Kheng's index.

I also expect that bicameral nations are home to politics of higher dimensionality than their unicameral counterparts. Because countries with two houses of government may have two veritably distinct party systems,²¹ more dimensions may come to the political forefront. Accordingly, I include a dummy variable for bicameralism, coded 1 for bicameral nations and 0 for unicameral.

Transparency and openness should also increase political dimensionality. When citizens in a nation are free to exchange ideas and their votes are fairly counted, more issues will circulate and gain electoral prominence. Moreover, when the press is allowed to report freely, more issues will enter the political discourse, including those from outside countries. To account for openness I use Freedom House scores, which gauge political rights and civil liberties.²² This index ranges from 1 to 10, and I reverse it so that high values correspond to more freedom.

Finally, I account for economic development. To gauge development, I use GDP per capita, adjusted for purchasing power and measured in thousands of constant international dollars. I obtain this measure from the World Bank's Development Indicators.²³ Each variable is summarized in Table 4.1.

²⁰The "loadings" are the coefficients of each variable in a multiple regression with the component as the dependent variable and the three measures of fractionalization as covariates, assuming each measure is standardized to a mean of zero and unit variance.

²¹This is especially true if the electoral rule for the upper and lower house differs, such as in Australia.

²²Freedom House has a separate scale designed to gauge media freedom. Because this measure correlates with the overall freedom measure at $r = .91$ in my sample, I opt to use only the broader freedom measure in the interest of saving degrees of freedom and avoiding collinearity issues.

²³Taiwan's per capita GDP is taken from the WTO and Wu (2004).

Table 4.1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	<i>n</i>
Political Dimensionality	0.256	0.098	0.045	0.459	79
MDM	21.946	37.514	0.800	150	79
Majoritarian	0.152	0.361	0	1	79
Proportional	0.481	0.503	0	1	79
Mixed	0.367	0.485	0	1	79
ENEP	4.636	1.570	2.174	9.761	74
Socioethnic Fractionalization ¹	0	1.512	-2.253	3.364	79
Bicameral	0.620	0.488	0	1	79
Freedom	-1.848	1.202	-6	-1	79
Per capita GDP	19.088	9.483	1.722	39.451	79
British ²	0.190	0.395	0	1	79
Latin ²	0.177	0.384	0	1	79

¹Measure from principal components analysis depicted in Table 4.4.

²Used only as an instrumental variable.

4.3.2 Estimation Strategies and Results

I estimate the relationship between political dimensionality and the explanatory variables with linear least-squares regression.²⁴ As several polities appear more than once in the data, the standard assumption that observations are independent must be relaxed. Thus, I cluster the standard errors by country to account for intranational correlation. There are a total of 74 observations. Results are depicted in Table 4.2.

²⁴Because the dependent variable is bounded between 0 and 1, a link function technically should be used to map from the covariates to the dependent variable. I therefore estimated a model using a logistic link function. Because the results between this model and its linear counterpart did not substantively differ, I continue under the assumption of linearity to ease presentation, interpretation, and estimation.

Table 4.2: District Magnitude and Political Dimensionality: OLS Estimates

Variable	Model 1		Model 2		Model 3	
	Coef.	(<i>p</i> -value)	Coef.	(<i>p</i> -value)	Coef.	(<i>p</i> -value)
Mixed	0.081	(.023)				
Proportional	0.109	(.000)				
MDM (ln)			0.031	(.000)	0.033	(.000)
Socioethnic Fractionalization	0.003	(.709)	-0.000	(.967)	0.014	(.064)
MDM (ln) $\times$ Soc. Frac.					-0.008	(.040)
ENEP (ln)	-0.029	(.450)	-0.011	(.768)	-0.013	(.738)
Bicameral	0.040	(.114)	0.032	(.183)	0.027	(.259)
Freedom	-0.011	(.380)	0.011	(.129)	0.009	(.245)
Per Capita GDP	-0.002	(.419)	-0.003	(.075)	-0.003	(.056)
intercept	0.202	(.019)	0.257	(.000)	0.257	(.000)
<i>n</i>	74		74		74	
<i>R</i> ²	0.215		0.270		0.287	
Prob > F	0.000		0.000		0.000	

Estimated with robust, country clustered standard errors.
Two-sided *p*-values in parentheses.

The first model gauges electoral permissiveness with categorical variables for proportional, mixed, and majoritarian systems, with the majoritarian regressor excluded as the reference category. It is clear that mixed and proportional systems have more complex dimensional constructs than their majoritarian counterparts. In mixed systems, a single dimension explains 8% less political variation than in majoritarian systems ($p = .023$), and 11% less variation is explained in proportional systems as compared to majoritarian systems ($p = .000$).

In Model 2 I use district magnitude rather than categorical variables to capture electoral permissiveness. At the 1% significance level, logged district magnitude relates positively to dimensionality. The amount of variance in dimensionality captured by district magnitude and the other covariates is just under 30%.

To gauge the interactive effect of socioethnic fractionalization and electoral permissiveness, I include a multiplicative term in Model 3. Coefficients on continuous variable interaction terms and their constituent parts are not readily interpretable (Brambor, Clark, and Golder 2006; Braumoeller 2004).²⁵ Thus, I graphically display the conditional effect of district magnitude across the range of socioethnic fractionalization in Figure 4.5.²⁶

As expected, the marginal effect of district magnitude is largest in socioethnically homogenous nations. Additionally, in highly socioethnically diverse nations, the effect of district magnitude on dimensionality is statistically indistinguishable from zero. This confirms the expectations put forth above: only in nations of relatively low social diversity does the permissiveness of the electoral system affect political dimensionality. In fractionalized nations, the effects of electoral institutions are washed out and multiple political issues may gain prominence regardless of the electoral system employed.

The effect of bicameralism on political dimensionality is positive, but the p -value for its coefficient never reaches conventional levels of statistical significance, coming close to the 10% threshold in Models 1 and 2. Thus, the effect of bicameralism on dimensionality

²⁵In fact, the coefficients on the constituent variables are equal to their marginal effect when the other constituent variable equals zero.

²⁶This figure was produced with the help of code from a web supplement to Brambor et al. (2006), available at <http://homepages.nyu.edu/~mrg217/interaction.html>.

is essentially inconclusive, though there is weak evidence that the existence of two houses may lead to increased political dimensionality.

The coefficient on the freedom variable is also positive but never reaches statistical significance, though it is near-significant (at the 10% level) in Model 2. Thus, its effect on political dimensionality is likely null. The control variable, per capita GDP, relates negatively to political dimensionality and, at the 10% level, is significant across Models 1 and 2.

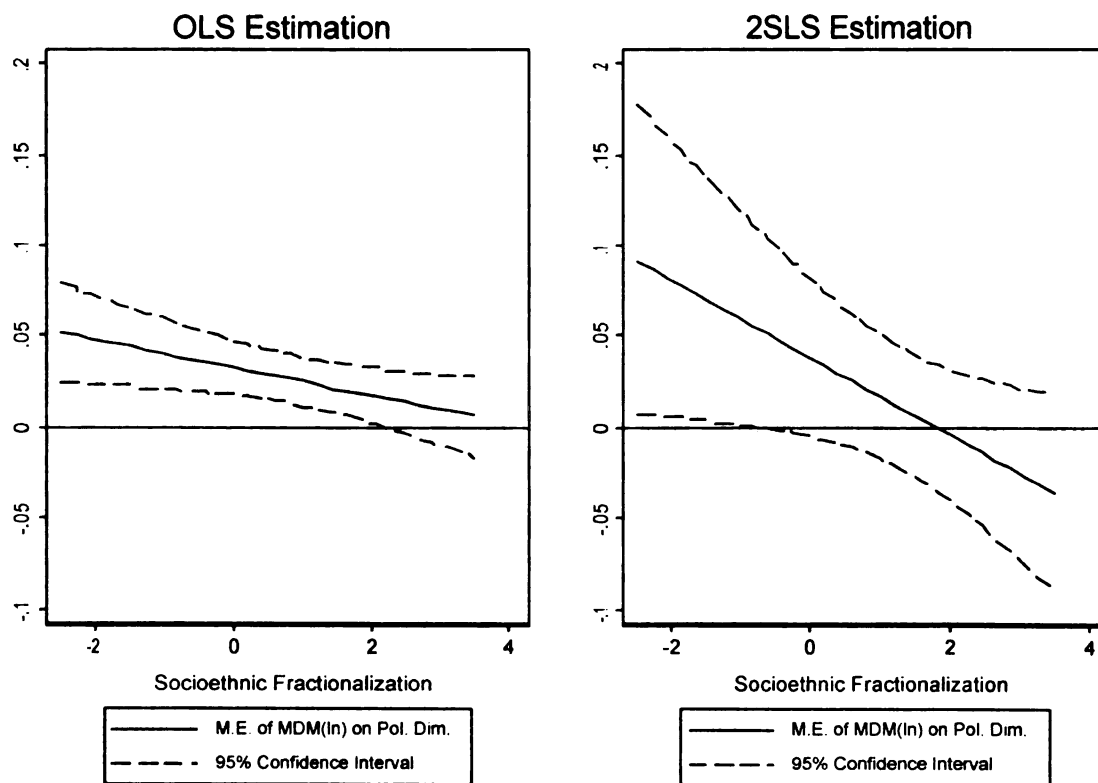


Figure 4.5: The Conditional Effect of Electoral Permissiveness on Political Dimensionality

4.3.3 An Endogeneity Problem?

A growing body of literature models electoral institutions as endogenous to various social, political, and economic phenomena (for a review, see Benoit 2007). Factors such as the

number of parties (Colomer 2005), the organization of economic interests (Cusack, Iversen, and Soskice 2007), and political ambition (Bawn 1993; Benoit 2004; Benoit and Hayden 2004) have been used to explain institutional choice. Relevant to the research at hand, Taagepera (1999) specifically posits that the number of issue dimensions in a nation may influence its choice of electoral system.

In the case of endogeneity a single-equation least-squares model will return biased and inconsistent parameter estimates.²⁷ Accordingly, I use instrumental variables to create a proxy of district magnitude that is exogenous to political dimensionality. To statistically examine whether endogeneity is a problem, I employ a Hausman test²⁸ of the null hypothesis that district magnitude can be treated as exogenous, or that the equations can be consistently estimated with OLS. The regressor was not found to be problematically endogenous, with a p -value of .471. However, because previous theory points to a potential endogeneity problem, I continue under the assumption of endogeneity, modeling electoral institutions with instrumental variables.

Good instruments are correlated with the endogenous right-hand-side variable in each equation, but uncorrelated with the error term. Therefore, I obtain variables that are theoretically related to electoral permissiveness, but unrelated to dimensionality, as predictors of the mean district magnitude variable. As noted by Blais and Massicotte (1997), colonial background influences the selection of a particular electoral setup in multiple ways. Thus, following Persson and Tabellini (2003, 129), I employ two dummy variables as in-

²⁷Estimates of the structural coefficients in nonrecursive models will be biased and inconsistent if estimated with ordinary least squares because the OLS assumption that the disturbances are uncorrelated with the explanatory variables is violated (Gujarati 2003, 725). To illustrate the endogeneity problem, imagine the system of equations

$$\begin{aligned} Y_1 &= B_{10} + B_{12}Y_2 + \gamma_{11}X_1 + \mu_1 \\ Y_2 &= B_{20} + B_{21}Y_1 + \gamma_{22}X_2 + \mu_2. \end{aligned}$$

If μ_1 increases, Y_1 increases. This, in turn, leads to an increase in Y_2 , which itself increases Y_1 . Thus, the disturbances will be related to the right-hand side variables Y_1 and Y_2 . The relationships between Y_1 and Y_2 and the dependent variables are inflated (biased) because the slope of each variable gets “credit” for increases in the disturbances (Kennedy 1998, 138). The estimates are inconsistent because this bias does not decrease as $n \rightarrow \infty$ (Gujarati 2003, 726).

²⁸Included in the *ivreg2* package for Stata by Baum, Schaffer, and Stillman (2003)

struments, one capturing nations with British-influenced institutions and another nations with Iberian heritage. Both variables are binary, coded 1 if the country meets the criterion, and 0 otherwise. Because Commonwealth nations often adopt a variant of Great Britain's FPTP electoral setup, a British history leads nations to have relatively restrictive electoral systems. Similarly, Latin American nations generally opt for versions the permissive electoral systems employed by their colonizers. Each instrument is summarized in Table 4.1.

To test the validity of the instruments in both equations, I employ a Hansen-J test²⁹ of the null hypothesis that the instruments are uncorrelated with the error terms and that excluded instruments are correctly withheld from the equations. The null hypothesis is not rejected at any conventional significance level, with a p -value of .445.

²⁹Included in the *ivreg2* package for Stata by Baum et al. (2003)

Table 4.3: District Magnitude and Political Dimensionality: 2SLS Estimates

Variable	Model 4		Model 5	
	Coef.	(<i>p</i> -value)	Coef.	(<i>p</i> -value)
MDM (ln)	0.040	(.057)	0.039	(.081)
Socioethnic Fractionalization	0.000	(.963)	0.046	(.040)
MDM (ln) $\times$ Soc. Frac.			-0.021	(.040)
ENEP (ln)	-0.021	(.645)	-0.007	(.874)
Bicameral	0.031	(.165)	0.020	(.383)
Freedom	0.016	(.103)	0.015	(.163)
Per Capita GDP	-0.003	(.064)	-0.003	(.023)
intercept	0.258	(.000)	0.257	(.000)
<i>n</i>	74		74	
R ²		0.266		0.296
Prob > F		0.000		0.000

Estimated with robust, country clustered standard errors.

Two-sided *p*-values in parentheses. MDM is instrumented.

I use two-stage least squares (2SLS) to proxy district magnitude and, in turn, predict political dimensionality. I again employ country-clustered standard errors. The results are displayed in Table 4.3. The resulting coefficients are very similar to the OLS results, though significance levels rise slightly. The interaction between electoral permissiveness and socioethnic fractionalization, which is depicted graphically in Figure 4.5, also behaves similarly, though the wider 95% confidence interval demonstrates that the marginal effects of the instrumented district magnitude variable are estimated with less precision. Nevertheless, even when the potential endogeneity of electoral institutions is taken into account, there remains a clear and significant link from electoral permissiveness to political dimensionality.³⁰

Moreover, in all five model specifications, the effective number of parties has no statistically discernable effect on political dimensionality. The measure of dimensionality employed here, which captures the structure of the space in which parties align, rather than the number of ideological or issue dimensions, as in Stoll (2009) and Lijphart (1999), is unaffected by the number of political parties. Instead, the incentives provided to political parties by the electoral system to which they are subject are what determine the underlying makeup of political space.

4.4 Conclusion

Political dimensionality is often referenced in the media, and individuals tend to think of government and ideology in dimensional terms. Reporters and pundits regularly refer to politicians and parties as “right-wing” or “left-wing,” and individuals often label themselves as “liberal” or “conservative.” Such labels assume a unidimensional and bipolar underlying political construct; even the most fundamental descriptions of politics rest on dimensional assumptions.

Scholars rely on dimensionality when studying party systems, the locations of voters,

³⁰Because sufficient historical data on dimensionality is unavailable, I am unable to test whether complex dimensional configurations lead constitutional framers to adopt permissive electoral systems.

politicians, and parties within countries, and the formulation of public policy. Research on the congruence of party and voter locations either implicitly or explicitly assumes a certain dimensional construct when locating political actors in space. Additionally, studies of the formation of public policy or governing coalitions in the “veto players” tradition (Tsebelis 2002) must assume the number of dimensions political actors align upon when coming together to make decisions.

Consequently, it is important to study what leads to certain dimensional configurations. Previous theory posits that entrenched parties will compete over fewer issues when electoral systems are restrictive, thus lowering political dimensionality. Conversely, in permissive systems, parties are inclined to adopt emerging issues out of the fear of losing parliamentary seats, thus increasing the dimensionality of the underlying political space.

In this research I employ a new measure of dimensionality derived directly from voter preference data. By quantifying the space in which voters and parties live, I am able to systematically explore theoretical predictions of dimensionality’s relationship with political and social factors. I find that electoral institutions strongly affect a nation’s political dimensionality, especially in socioethnically homogenous countries. Due to the differing incentives provided to political parties under each institutional structure, permissive electoral systems lead to complex underlying political constructs, while the politics of restrictive systems tend to conform well to a single dimension.

4.5 Appendix to Chapter 4: A Combined Measure of Socioethnic Fractionalization

I employ a principal components analysis to distill the common variance in three measures of social heterogeneity: Alesina et al.'s (2003) measures of ethnic and linguistic heterogeneity and Kok Kheng's (2001) measure of ethnic fractionalization. The eigenvalue for the first component is 2.285. Because it captures over three-fourths of the variance in the three measures, the remaining components are disregarded. Table 4.4 summarizes the analysis.

Table 4.4: PCA of Fractionalization Measures	
	Loading on Component
Alesina et al. (2003)	
Ethnic Heterogeneity	0.6116
Linguistic Heterogeneity	0.5154
Kok Kheng (2001)	
Ethnic Fractionalization	0.6002
<i>n</i>	79
Eigenvalue of Component	2.285
Variance Captured by Component	0.762

Chapter 5

Electoral Behavior and the Dimensionality of Politics: A Cross-National Examination of Proximity Voting

The defining characteristic of democracy is the right of citizens to choose their representatives. As such, a vast amount of political research examines what leads voters to a particular choice. The purpose of this research, alternatively, is not to examine *what* voters choose, but instead *how* they reach their decisions. More specifically, I examine what individual, institutional, and societal factors lead voters to follow or violate the proximity model of voting. I also expand on previous studies by examining the relationship between proximity voting and a country's underlying political structure, or "political dimensionality." I again conceptualize political dimensionality as the degree to which political conflict in a nation can be captured by a single dimension.

The proximity model of voting (Downs 1957; Hotelling 1929) is generally accepted as an accurate portrayal of voter behavior in the political science literature. Put simply, the model predicts that voters choose the candidate or party closest to them on some ideo-

logical continuum in any given election. Elegant and intuitive, the theory has withstood numerous empirical and theoretical tests throughout the past several decades (see, for example, Blais, Nadeau, Gidengil, and Nevitte 2001; Westholm 1997).

Nevertheless, many voters deviate from the proximity model of voting. This may be because they are unable to cast a well-reasoned ballot due to some individual-level characteristics or societal-level factors. On the other hand, they may choose to strategically vote for a party that is not closest to their ideal point. Finally, they may employ an entirely different criterion when casting their ballots. The directional theory of Rabinowitz and Macdonald (1989), for example, challenges proximity notions, predicting that voters choose parties that are on their side of issue space, but take extreme positions.¹ In addition, the discounting theory of voting puts forth that individuals “discount” campaign promises, taking into account the actual policies they expect governments to produce once in office (Merrill and Grofman 1999; Tomz and Van Houweling 2008).

Recognizing that voters have incomplete information about candidates and parties, Lau and Redlawsk (1997) define a correct vote as one that a citizen would make if he or she had full information. The authors operationalize this definition two ways. First, in an experimental setting, information was divulged to subjects only after they voted, and respondents were then asked whether they would switch their vote. Second, the authors used survey data to compare whether voters chose the candidate closest to them on the issues. If so, the voter was deemed to have “voted correctly.”

In later studies, Lau, Redlawsk, and coauthors expand their examination of correct voting using the second operationalization. Lau, Andersen, and Redlawsk (2008a), for example, examine the effects of individual-level factors and campaign characteristics on the probability of casting a correct vote in American presidential elections. Lau, Patel, Fahmy, and Kaufman (2008b) conduct a similar analysis, studying correct voting across countries. Finally, Lau and Redlawsk (2008) examine how the propensity to vote correctly in the United States varies with age.

¹Parties must be within a region of acceptability for voters to allow them to enter their decision calculus.

The idea of a “correct vote” is normatively pleasing, and those concerned with the representational characteristics of democracy would hope that voters tend to choose the party that suits them best. However, outside of the laboratory, operationalizing a “correct” vote is very difficult. A strategic vote is surely “correct,” but it does not necessarily follow either spatial model of voting (directional or proximity). Abstaining may also be the “correct” vote if the nonvoter is unconfident in the democratic process, or perhaps implicitly supporting the status quo by choosing to stay at home (Lau et al. 2008b).

Thus, this project does not directly consider whether voters choose “correctly,” but rather whether they vote according to the proximity model. Therefore, I am unable to normatively evaluate the various countries and democratic institutions studied. However, I develop a clear picture of how the nature of voting behavior varies with individual characteristics and across institutional contexts. Moreover, determining *how* voters choose is a first step to finding out if they do so “correctly.”

Previous comparative work on proximity voting is quite limited. As such, country-level explanations of proximity voting violations are scarce, though the number and spread of parties, the age of institutions, the electoral system, wealth, and information availability have all been empirically linked to the nature of voting. In this study I add to these macro-level explanations by considering the dimensionality of political space. I make the simple prediction that following the proximity voting model is more difficult when political space is complex. I quantify dimensionality with the measure developed in Chapter 3. I also add to the existing literature by introducing a new measure of party and voter positions - also developed in Chapter 3. Because these measures are less reliable when political dimensionality is high, I also employ expert-derived measures of party and voter locations to assure the robustness of the empirical findings.

In sum, I test the predictive power of the proximity model across several nations. At the individual level, I find party identification and political efficacy to have the strongest links to proximity voting. At the election level, the number of parties, compulsory voting, and dimensionality all affect one’s likelihood of following the proximity logic in the voting booth. Thus, in addition to personal characteristics, institutional and election-specific fac-

tors affect a voter's decision calculus. These findings elucidate the nature of voting across countries and provide important insights to those interested in normatively examining the representational qualities of democracy.

5.1 Proximity Voting in Theory

As articulated by Downs (1957), voters derive the highest utility from the election of the party closest to their ideal point. Formally, on a single dimension, the utility of voter i for party j is given as

$$u_{ij} = -(v_i - p_j)^2, \quad (5.1)$$

where v_i is voter i 's ideal point and p_j is location of party j . If a given voter chooses the party that maximizes u_{ij} , he is a proximity voter. If, however, he chooses another party, he is a proximity voting violator. The theory of proximity voting has withstood numerous theoretical and empirical tests (see, for example, Blais et al. 2001; Kramer and Rattinger 1997; Pierce 1997; Westholm 1997) and has become the foundation of voting behavior research (Adams, Merrill, and Grofman 2005, 17).

Though the utility function given in Equation 5.1 is generalizable to more than one dimension, for simplicity this research constrains parties and voters to locate along the same continuum. This continuum is thought of as the political "super dimension" of Gabel and Huber (2000), which constrains party positions over several issues. Previous research on the tendency of voters to follow the proximity logic imposes this same constraint (Boatright 2008; Wessels and Schmitt 2008). Chapter 4 shows that a single dimension is strongest under restrictive electoral systems.

Numerous individual- and country-level factors affect the utility calculus depicted in Equation 5.1. That is, voters may find it appealing to abandon the party closest to them due to some external constraints or individual-level considerations, thus casting a strategic vote. Alternatively, certain personal or societal factors may lead voters to mistakenly choose a party that is not the most proximate. Adding the parameter x_{ij} to Equation 5.1

accounts for individuals' unique considerations over each competing party or candidate, giving

$$u_{ij} = -(v_i - p_j)^2 + x_{ij}. \quad (5.2)$$

Thus, there are two separate mechanisms that may lead to proximity voting violations. First, under certain conditions, voters may not have the ability to make an informed choice. Alternatively, they may decide to abandon the party closest to them for rational reasons, thus casting a strategic vote. If, in the words of Key (1966, 7), "voters are no fools," does this lack of foolishness lead them to violate or conform to the rules of proximity voting?

5.1.1 Individual-Level Factors

Previous academic work associates a host of characteristics with an individual's vote choice, including partisanship, economic evaluations, issue positions, candidate evaluations, and socioeconomic status.² Less research, however, examines what individual factors affect *how* people vote. Here I consider what micro-level factors shape an individual's decision calculus.

People who are knowledgeable and interested in politics are conscious of political parties and their positions. Moreover, such individuals likely have well-thought out stances on salient issues and are likely to be able to identify the party they are closest to. As such, Tomz and Van Houweling (2008) show that highly educated voters are more likely to follow the proximity logic. However, these same individuals are also likely to know when to vote tactically and abandon the proximity logic. Thus, the effect of political knowledge and interest on proximity voting is unclear.

In addition to education and interest, previous work links age and income to one's ability to cast an informed vote. First, growing old leads to a decline in cognitive abilities (Salthouse 2004), and old age can thus hamper an individual's ability to vote

²Dalton (2000) provides a comparative review of this literature.

accurately. As such, Lau and Redlawsk (2008) find “correct” voting to decline with age. Regarding income, if a voter has her basic needs met, she can spend time researching electoral choices, rather than worrying about her next meal. Thus, richer individuals should be less prone to random, uniformed voting. However, such individuals may again be more likely to cast a tactical vote, due to their clear view of political reality. In fact, Boatright (2008) tests the effect of income on proximity voting and finds inconsistent effects across Republican and Democratic groups in the U.S.

Campbell, Converse, Miller, and Stokes (1960) put forth that Americans’ partisan identifications, instilled at a young age, can affect voting behavior throughout their life. Examining this relationship cross-nationally, Green, Palmquist, and Schickler (2002, 165) note that party ID is “related to, but not identical with, the vote.” Strong partisans tend to vote based on a psychological attachment to a party, even if their preferred party does not necessary fall closest to their ideal point. Thus, such voters may violate the principles of proximity voting. Indeed, Tomz and Van Houweling (2008), in an experimental setting, find that strong partisans are less likely to vote according to the proximity logic than independents.

Alternatively, individuals may identify with a party *because* it falls close to their ideal point. In this case, having a party identification will increase the odds of a proximity vote. Again, the relationship between partisan identification and proximity voting is unclear.

Regarding efficacy, individuals who feel the political process is valid are likely to cast informed votes, whereas those who see politics as distant, non-responsive, or meaningless are prone to choosing randomly, if they decide to vote at all. Thus, individuals who see some value in politics have a higher likelihood of voting proximately.

Clearly, previous theory is scattered as to its individual-level predictions about proximity voting behavior. A single personal characteristic often has numerous factors associated with it, and these factors exert opposing forces on voters, either pulling them away from or toward proximity voting considerations.

5.1.2 Country- and Election-Specific Factors

Incentives and constraints vary with societal conditions, and previous theory examines how the tendency for voters to employ the proximity logic shifts with such conditions. However, like with individual-level factors, separate directional predictions are often associated with a single variable.

For example, an emerging body of research explicitly links the nature of voter behavior to electoral systems. Kedar (2005) theorizes that voters in majoritarian systems will choose the party closest to their ideal point, as they can safely assume that this party, if victorious, will not be impeded in the implementation of its policy goals. Contrarily, voters in proportional systems, which are often characterized by power sharing among parties, are likely to discount future outcomes and vote tactically for extreme parties, as they are aware that policy will be watered down by institutionalized bargaining. Several emerging papers further-analyze the findings of Kedar (2005), showing that voters do, in fact, cast strategic votes based on coalition preferences (Bargsted and Kedar 2008; Bowler, Donovan, and Karp 2008; Duch, May, and Armstrong 2008; Meffert and Gschwend 2008). In this vein, Karp and Banducci (2002) examine directional and proximity voting in New Zealand, a country which experienced a switch from plurality to mixed-member proportional rules, and find that the proximity model of voting held less predictive power under proportional rules.

According to this logic, proximity voting should be observed less in systems in which one party does not generally win an electoral majority, i.e. proportional systems. On the other hand, proportional systems are permissive in that they do not erect high hurdles for parties to gain parliamentary representation. As such, voters in proportional systems are free to choose sincerely; they do not have to cast a tactical vote for a less liked or less proximate party out of fear of “wasting a vote.” In restrictive systems, on the other hand, voters must often choose parties that they do not necessarily consider their first choice in order to prevent the election of a more-disliked party.³ Thus, relative to restrictive systems,

³A prominent recent example is the 2004 U.S. presidential election, in which some voters abandoned their first preference, Ralph Nader, for the Democrat, John Kerry.

proportional systems may actually lead to an *increase* in proximity voting considerations.

As noted by Budge and Farlie (1978), voting cannot be adequately examined without regard to party competition, and vice versa. As such, Wessels and Schmitt (2008) examine the impact of the number of parties, the range of their positions, and the dispersion of their distribution on the tendency of voters to choose proximately. They posit that more choices, and more differentiation among these choices, makes it easier to find a party suitable to one's preferences. Alternatively, it is plausible that increasing the number of parties makes it harder to "correctly" discern which party is most proximate.⁴ Nevertheless, they find that as the effective number of parties rises, proximity considerations become stronger. The same is true for the range of party locations. However, when parties spread out too sporadically within this range, they find that proximity considerations no longer explain one's vote choice.

Also examining party systems, Lachat (2008) argues that high levels of party system dispersion reinforce voters' reliance on ideological criteria when voting. This is because parties place greater emphasis issue positions in polarized systems. Thus, the issues associated with ideology should become "more easily accessible to voters" as dispersion increases (688). This should, in turn, increase the likelihood of a proximity vote. Lachat finds support for his expectations with data from Western European democracies. Similarly, in the British setting, Green and Hobolt (2008) show that as polarization increases, voters are more likely to choose according to ideological or spatial criteria, as opposed to competence considerations.

A country's experience with democracy and its overall wealth may also affect the nature of voting. Todosijevic (2005) hypothesizes that voters have difficulty recognizing the exact positions of parties when democracy is still young and finds support for this prediction in Hungary.⁵ Thus, older countries with an uninterrupted history of democracy may

The assumption was that a vote for Nader would make it more difficult for Kerry to defeat the incumbent, Republican George W. Bush.

⁴This is the logic given in Lau and Redlawsk (1997) and the recent studies by Lau and co-authors that have built from it.

⁵In fact, Todosijevic finds some evidence that Hungarian voters follow the directional model of voting.

experience higher levels of proximity voting. Regarding wealth, through the same mechanisms discussed at the individual level, richer countries should have a higher incidence of proximity voting. That is, citizens in countries that provide a basic level of comfort will have the time and resources to research electoral choices and make an informed decision when voting (Lau et al. 2008b). However, regardless of wealth and democratic age, without a free and fair press, voters will not have the ability to select the most proximate party; information availability is a necessary condition for proximity voting. Thus, proximity voting should be observed more in nations with a free media.

Finally, even in strong, free, and rich democracies, those who are forced to participate will likely not make an informed decision. Compulsory voting forces disinterested and uninformed citizens to vote (Jackman 2001). Thus, proximity considerations will be lower when voting is coerced, as voters may choose essentially at random when in the polling booth. Hines (2006) tests whether “correct” voting, as defined by Lau and Redlawsk (1997), is related to compulsory rules, but finds no evidence for the assertion when other factors are accounted for.

5.1.3 Dimensionality

With the term “political dimensionality” I refer to the makeup of the political space in which parties compete and voters locate. The logic behind the relationship between political dimensionality and proximity voting is straightforward: as political space becomes more complex, it becomes more difficult for voters to locate the most proximate party. More choices may make voting for a proximate party more difficult simply because it is easier to get it wrong. The same is true for the number of political dimensions.

Alternatively, if a single political “super dimension” (Gabel and Huber 2000) effectively constrains party positions over several issues, proximity voting should be relatively “easy.” In a unidimensional setting, voters can discern between the parties (or groups of parties) to their left and their right, and pick the one with the ideal point closest to their own with little effort. However, in several dimensions, the decision calculus becomes much more involved, and therefore less voters are able to select the most proximate party. Thus, the

political dimensionality of a nation will be inversely related to the tendency of citizens to cast a proximity-based vote. Previous research does not consider the relationship between political dimensionality and the likelihood of voters choosing proximately.

5.2 Research Design and Methods

Previous theory indicates that proximity voting is affected by individual- and national-level factors. That is, the x_{ij} term in Equation 5.2, which accounts for individual considerations over the utility derived from each party, is affected by both personal factors and the political environment in which elections take place. In general, the directionality of the relationships between proximity voting and these factors is tenuous. Using CSES data, I attempt to elucidate the nature of these links.

5.2.1 Constructing the Dependent Variable

The dependent variable simply gauges whether individuals voted proximately in legislative, lower house, elections. There are three measures needed to construct this variable: the location of the voter, the locations of the parties, and intended vote choice. I use the unfolded party and voter locations produced in Chapter 3 to obtain the former two measures. To gauge vote choice, I rely on self-reported vote data from the CSES. If the respondent voted for the party she was closest to, I assign a 1. If not, I assign a 0. I do not consider respondents who reported abstaining or did not report their vote choice.⁶

To assure the robustness of the findings, I also code a dependent variable based on expert party placements and self-reported voter locations. The CSES asks voters to locate themselves along a left-right continuum⁷ and also gives expert-provided locations of political parties along this continuum. I apply the same coding scheme to these questions,

⁶In mixed electoral systems voters cast a vote in a multimember district and a vote in a single member district. In such systems I consider the single member district vote. In addition, I do not consider second-round voting in run-off systems.

⁷The question states: “In politics people sometimes talk of left and right. Where would you place yourself on a scale from 0 to 10 where 0 means the left and 10 means the right?”

again assigning proximity voters a 1 and non-proximity voters a 0.

It is also possible to obtain measures of party positions based on individuals' perceptions of the political parties, as the CSES asks respondents to locate parties along the left-right continuum. Measuring party positions with such responses, however, can be problematic. Respondents may place their most-preferred party closer to their own position, regardless of that party's true position (Adams et al. 2005, 170). Additionally, they may shape their responses to meet the proximity voting criterion (Boatright 2008). Such rationalizations of perceptions lessens the reliability of individual placements (Macdonald, Rabinowitz, and Listhaug 2007). Thus, I choose not to construct a third dependent variable with such data.

5.2.2 Measuring Dimensionality

No previous research on the nature of voting (and very little research in general) examines whether voting behavior is related to dimensionality. To test this, I measure dimensionality using the index developed in Chapter 3. This measure captures how well a single dimension captures the variance in party and voter locations in a nation. I subtract it from 1.0 so that higher values correspond with poor adherence to a single dimension. I also multiply the value by 100. Thus, it captures the *percent* of variance in party and voter locations not captured by a single dimension.⁸ The variable changes over elections and is thus observed across 79 elections and 43 countries,⁹ listed in Table 5.2.¹⁰

⁸The unfolding method used to create the dimensionality measure is itself based on a spatial proximity model. More specifically, it determines how well voter preferences fit a proximity model in one dimension. However, it operates independently of voting behavior. Thus, a finding that preferences fit well to a proximity model does not necessarily mean that voting will follow a proximity logic.

⁹The Flanders and Walloon regions of Belgium are treated separately for both 1999 and 2003 in this analysis, as they have distinct party systems and dimensional configurations.

¹⁰Due to incongruence of data, the elections in New Zealand in 1999 and 2005 are not included here, as in Chapters 4 and 6.

5.2.3 Individual-Level Variables

To test the individual-level theory discussed above, I use several variables from the mass portion of Modules 1 and 2 of the CSES. Though there are no questions across both modules that directly gauge political interest and participation, the CSES does report individuals' education levels and their ability to correctly answer three trivia-type political questions. Thus, to gauge overall education, I create a dummy variable differentiating university graduates from others. As the trivia-type questions vary widely in both difficulty and content, their cross-national comparability is low.¹¹ Moreover, correct responses to these questions are strongly associated with one's level of education. Accordingly, I opt to exclude such questions and proxy political sophistication with the education variable. I interact this variable with dimensionality with the expectation that more sophisticated individuals will be able to identify the most proximate party, regardless of the underlying makeup of political space.

To capture whether or not an individual identifies with a party, I include a variable gauging partisan closeness.¹² This is again a dummy variable, coded 1 if an individual has a party ID and 0 otherwise. I gauge political efficacy with a CSES question which inquires as to whether the respondent feels that his vote makes a difference in the political process.¹³ The variable is split into five categories, with higher values corresponding to more political efficacy.

To gauge household income the CSES separates respondents into quintiles. I use this measure to capture respondents' economic well-being. In addition, I include age to account for the changes in the nature of voting that may occur as one gets older. The variable

¹¹For example, in Australia in 1996 one question asks respondents, "True or false, no one may stand for Federal parliament unless they pay a deposit". In the United States in 1996, a question asks respondents to name the Vice President. Clearly, the difficulty and substance of such questions is divergent.

¹²The question asks: "Do you usually think of yourself as close to any particular political party?"

¹³Question wording: "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. Using the scale on this card, where would you place yourself?"

is measured simply as the respondent's age in years. Finally, I include a gender control variable, coded 1 for females and 0 for males.

5.2.4 Country- and Election-Level Variables

Aside from dimensionality, several election-level factors are theorized to affect the nature of voting behavior in legislative elections. I rely on data from several sources to operationalize these variables. First, regarding the characteristics of party systems, the amount of parties and the variance in their positions may have an effect on the nature of voting in each legislative election. To measure the number of parties in each election, I use Laakso and Taagepera's (1979) effective number of electoral parties measure (ENEP).¹⁴ I obtained this measure from the CSES Macro Data.¹⁵ Under the assumption that a shift from 2 to 3 parties has a greater impact than a shift from 7 to 8 parties, I take the log of this index.

I gauge the dispersion of the parties using a measure from Ezrow (2007), which draws on the work of Alvarez and Nagler (2004). The measure takes the divergence of each party from the weighted mean position into account, as well as the vote share of each party.¹⁶ Of course, party positions are measured with either the unfolding results or the CSES expert positions depending on which dependent variable is employed.¹⁷

The theory above puts forth that voters may abandon the most proximate party by discounting outcomes in anticipation of institutionalized bargaining (for example, Kedar 2005). The permissiveness of electoral systems captures the propensity for such bargaining. In countries where more parties can gain representation, the chance that they will have to enter into coalitions to form a government, or work together to formulate policy, increases.

¹⁴The formula is given as $\frac{1}{\sum_{j=1}^m v_j^2}$, where v_j is the proportion of votes obtained by the j^{th} party.

¹⁵Available at <http://www.cses.org/download/contributions/contributionsmirror.htm>

¹⁶For each election, the formula is $\sqrt{\sum_{j=1}^m v_j (p_j - \bar{p})^2}$, where v_j is party j 's vote proportion, p_j is the position of party j , and $\bar{p}$ is the weighted mean party position.

¹⁷Some measures of dispersion are weighted by the overall distribution of voters. However, because this is a micro-level examination of voting behavior, the overall voter distribution in each election is irrelevant.

To gauge permissiveness I rely on the logged mean district magnitude, which provides a continuous measure of electoral permissiveness (see, for example, Lijphart 1984). I obtained the data from the CSES.

To capture whether people are legally coerced to the ballot box, I include a dummy variable for compulsory voting. The variable is coded 1 if voting is mandatory and 0 otherwise, and again comes from the CSES Macro Data. To gauge to freedom and openness I use Freedom House scores, which account for political rights and civil liberties. The index ranges from 1 to 10, and I reflect it over zero so that higher values correspond to more freedom.

5.2.5 Model Specification and Methodology

The data are observed at three levels: individuals (level-1) participate in elections (level-2), which themselves are nested in countries (level-3). Regarding the specific variables, the number and spread of the parties and political dimensionality vary both over time within countries and spatially across countries. Freedom and district magnitude vary greatly across countries but are relatively stable within the countries that are observed at multiple elections. The only variable that is static over time across all countries is the compulsory voting dummy.

Nevertheless, because there is very little within-country temporal variance in the macro-level variables and most countries are observed at only one time period, I opt for a simpler two-level model in which I consider individuals (level-1) to be nested within elections (level-2). In effect, I allow the intercept to vary across each election in each country. As the dependent variable is dichotomous, I use a logistic link to map from the independent variables to the probability of voting proximately. The resulting model is given in Equation 5.3:

$$\text{logit}[\Pr(PV_{ij} = 1 | \mathbf{X}_{ij}, \zeta_j)] = \mathbf{X}_{ij}\beta + \zeta_j, \quad (5.3)$$

where PV_{ij} represents the probability of individual i in election j voting proximately and $\mathbf{X}_{ij}$ is a matrix of the explanatory variables and the overall constant. β is a vector of coefficients on the explanatory variables, and ζ_j represents the election-specific random intercepts. These capture any election-specific factors not accounted for by the covariates that may affect the likelihood of voters choosing proximately (Rabe-Hesketh and Skrondal 2005).

Several of the independent variables are theoretically and empirically linked in previous research. There is a well-established link from electoral permissiveness to the number of parties and Chapter 4 shows that dimensionality is also a function of electoral systems. Moreover, Chapter 6, in addition to previous research (see, for example, Cox 1990; Dow 2001; Ezrow 2008), uncovers a relationship between the spread of parties and electoral institutions. Thus, collinearity among these variables is an issue. However, because each variable is theoretically linked to the nature of voting I opt to include them; rather than risking a misspecified model I choose to suffer from the possibly-inflated standard errors that arise from collinearity.

Also, the theoretical links from country-level wealth and individual income to the nature of voting are identical; economic comfort gives individuals more time and resources to research parties and ponder their vote. Measuring wealth solely at the country level aggregates away the individual-level variance in incomes within nations. Thus, I gauge wealth only at the individual level to test this link.

Each variable is summarized in Table 5.1. For each measure of proximity voting, about 45% of respondents follow a Downsian logic. Because the party and voter placements from the unfolding results cover a much wider scale than the expert placements, the dispersion variable has a higher mean for the former (both are non-negative).

Missing data arises in the sample at both the individual and election levels. At the individual level, the CSES asks a nearly identical battery of questions across each election. However, in some of the elections included in this study, questions needed for the variables of interest were not included, thus leading to missing data for entire elections. In other election years, there is random missing data across individuals, though it is not serious

Table 5.1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	<i>n</i>
Individual-Level Variables					
Proximity Voting (Expert)	0.429	0.495	0	1	57610
Proximity Voting (Unfolded)	0.455	0.498	0	1	59855
Age	45.653	16.876	15	102	120461
Gender	0.523	0.499	0	1	125214
Education	0.152	0.359	0	1	124017
Income	2.935	1.374	1	5	102504
Party Identity	0.458	0.498	0	1	116710
Efficacy	3.809	1.299	1	5	117369
Election-Level Variables					
Dispersion (Expert)	1.860	0.583	0.710	3.819	63
Dispersion (Unfolded)	3.687	1.269	0.525	7.443	69
ENEP	4.795	1.733	2.174	9.761	74
MDM	21.506	37.579	0.800	150	79
Political Dimensionality	25.277	9.967	4.465	45.924	79
Compulsory	0.241	0.430	0	1	79
Freedom	-1.854	1.199	-6	-1	79

enough to warrant dropping the entire election from the data set.

Regarding election-level variables, because party vote shares and locations are needed to construct the measures of dispersion, these variables are missing when either party placements or aggregate election results are unavailable. The effective number of parties data are also unavailable for some elections. In addition, as the theory and mechanisms above correspond to legislative voting, I do not consider any elections which were purely executive.¹⁸

Finally, as noted, to construct the dependent variables, data on the placements of the parties, the placements of the individuals, and individuals' intended vote choices are needed. Thus, elections in which any of this data are unavailable were dropped from the analysis. Table 5.2 displays all elections covered in Modules 1 and 2 of the CSES and indicates which were included in the sample. Though several elections had to be discarded, there remain 56 elections in the sample using expert locations and 60 in the sample using unfolded locations. These elections cover a broad range of countries with

¹⁸In the CSES sample, Belarus in 2001, Chile in 1999, and Russia in 2000 and 2004 conducted only presidential elections.

respect to electoral and party systems, level of development, and world region.

Table 5.2: Included CSES Elections

Country	Election Year	Expert	Unfolded
Albania	2005	X	X
Australia	1996	X	X
Australia	2004	X	X
Belarus	2001		
Belgium-Flanders	1999	X	X
Belgium-Flanders	2003		
Belgium-Walloon	1999		
Belgium-Walloon	2003		
Brazil	2002	X	X
Bulgaria	2001	X	X
Canada	1997	X	X
Canada	2004	X	X
Chile	1999		
Chile	2005	X	X
Czech Republic	1996	X	X
Czech Republic	2002	X	X
Denmark	1998	X	X
Denmark	2001	X	X
Finland	2003	X	X
France	2002		
Germany	1998	X	X
Germany	2002	X	X
Hong Kong	1998		
Hong Kong	2000		
Hong Kong	2004	X	X
Hungary	1998	X	X
Hungary	2002	X	X
Iceland	1999		X
Iceland	2003	X	X
Ireland	2002	X	X
Israel	1996	X	X
Israel	2003	X	X
Italy	2006	X	X
Japan	1996		X
Japan	2004		
Korea	2000	X	X
Korea	2004	X	X
Kyrgyzstan	2005		
Lithuania	1997		
Mexico	1997	X	X
Mexico	2000	X	X
Mexico	2003	X	X
Continued on next page			

Table 5.2 (cont'd)			
Country	Election Year	Expert	Unfolded
Netherlands	1998	X	X
Netherlands	2002		
New Zealand	1996	X	X
New Zealand	2002	X	X
Norway	1997		X
Norway	2001	X	X
Peru	2000		
Peru	2001		
Peru	2006	X	X
Philippines	2004		
Poland	1997	X	X
Poland	2001	X	X
Portugal	2002	X	X
Portugal	2005	X	X
Romania	1996	X	X
Romania	2004	X	X
Russia	1999	X	X
Russia	2000		
Russia	2004		
Slovenia	1996	X	X
Slovenia	2004	X	X
Spain	1996	X	X
Spain	2000		X
Spain	2004	X	X
Sweden	1998	X	X
Sweden	2002	X	X
Switzerland	1999	X	X
Switzerland	2003	X	X
Taiwan	1996	X	X
Taiwan	2001	X	X
Taiwan	2004		
Thailand	2001		
Ukraine	1998	X	X
U.K.	1997	X	X
U.K.	2005	X	X
United States	1996	X	X
United States	2004	X	X

5.3 Results

The results of the estimation of Equation 5.3 are given in Table 5.3. As logistic regression coefficients are not easily interpreted, I report the factor change in the odds of voting

proximately associated with a unit change in each variable.¹⁹ Because previous theory is quite scattered in its directional predictions regarding the included covariates, I adopt a strict standard for accepting the significance of each. First, the p -value on the variable must be less than .10, two-sided, in both models. (In fact, most variables are significant at $p < .01$). Second, the variable must maintain consistent directionality across the models. The effects of education, income, and freedom do not meet these criteria, as they reverse directionality across the models. In addition, age, gender, district magnitude, and dispersion are considered insignificant, as they do not reach the $p < .10$ threshold in one or both of the models.

Regarding the significant results, the estimation sheds light on some interesting effects of the individual- and election-level explanatory variables. At the individual-level, identifying with a party increases the odds of a proximate vote by a positive factor (in Model 1, 1.36; in Model 2, 1.19). Also, as expected, seeing elections as worthwhile has a positive effect on proximate voting across both models.

At the election level, the effective number of parties is negatively associated with proximate voting. That is, an increase in the number of parties makes it more difficult for voters to “correctly” identify the party closest to them. Compulsory voting rules also negatively impact proximity voting. When individuals are forced to vote, they are less likely to cast an informed ballot and thus less likely to follow the proximity logic.

Finally, across both analyses, political dimensionality has a strong and significant negative effect on proximity voting. The interaction term with education gives little evidence that this effect varies with an individual’s level of sophistication. In fact, Model 1 reports a weak negative interaction between sophistication and dimensionality. This counterintuitive result suggests that complex political space hampers the proximity considerations of college-educated individuals more so than their counterparts.

Based on the analysis done with expert placements, a 25% increase in the dimension-

¹⁹Odds ratios are given as $\frac{\Pr(y=1)|x+1}{\Pr(y=0)|x+1} / \frac{\Pr(y=1)|x}{\Pr(y=0)|x}$ and have a direct association with the estimated β s: for β_k , the odds ratio is equal to e^{β_k} .

ality variable corresponds to a .778 factor change in the odds of being a proximity voter.²⁰ Thus, all else equal, the odds of a person living in New Zealand in 2002, in which political variation is not unidimensional, voting proximately are only 78% of those of an individual residing in Australia in 2004, in which politics conformed well to a single dimension. As the complexity of political space increases, it becomes more difficult for individuals to discern between parties, and ultimately, to choose proximately.

²⁰To get this value, multiply the original coefficient on dimensionality, $\ln(.990) = -.01005$, by 25 and use the resulting value as an exponent of e : $e^{-.251} = .778$.

Table 5.3: Proximate Voting across Elections

	Model 1: Expert Placements		Model 2: Unfolded Placements	
	Change in Odds	(<i>p</i> -value)	Change in Odds	(<i>p</i> -value)
Individual-Level Variables				
Age	1.000	(.613)	0.999	(.369)
Gender	0.966	(.204)	0.991	(.729)
Education	1.415	(.001)	0.810	(.045)
Income	1.032	(.003)	0.971	(.005)
Party Identity	1.357	(.000)	1.193	(.000)
Efficacy	1.022	(.065)	1.057	(.000)
Election-Level Variables				
Dispersion	1.037	(.206)	1.251	(.000)
ENEP (ln)	0.815	(.000)	0.314	(.000)
MDM (ln)	0.905	(.000)	0.997	(.844)
Dimensionality	0.990	(.000)	0.984	(.000)
Compulsory	0.886	(.004)	0.726	(.000)
Freedom	1.188	(.000)	0.835	(.000)
Interaction Term				
Education × Dimensionality	0.992	(.032)	1.003	(.443)
<i>n</i>	45617		46443	
Number of Elections	56		60	
$\sqrt{\psi}$	0.648		0.558	
ρ	0.113		0.086	
Log Likelihood	-25724.506		-26694.301	

Two-sided *p*-values in parentheses. Table values from a multilevel logit estimation.

In each model, $\sqrt{\psi}$ gives the estimated standard error of the election-specific intercepts and ρ indicates how much variance in proximity voting is attributable to election-specific factors.²¹ In Model 1, ρ is .113, indicating that about 11% of the variance in proximity voting propensity is due to such factors. In Model 2 ρ is .086. Likelihood ratio tests indicate that the values of ρ for each model are significantly greater than zero ($p = .00$), meaning that a simple pooled logistic regression would not suffice; the random-intercepts approach is useful.

5.4 Conclusion

As shown throughout volumes of previous literature, the Downsian proximity logic of voting is powerful. In fact, about one half of CSES survey respondents follow the model. The purpose of this research is to examine what causes the other half of voters to abandon the party closest to them. I find that partisan identifiers are more likely to vote proximately, as are those who see the political process as valid. At the election level, when political dimensionality or the number of parties is high, voters are more likely to abandon the proximity model of voting.

These findings indicate that the environment to which voters are subject affects how they formulate their decisions. That is, individually-held characteristics are not solely important to the nature of voting behavior. Party systems and political dimensionality also play an important role in the rational (or irrational) cognitive processes that enter into one's vote choice. Thus, the character of voting in the world's democracies is affected by societal conditions; certain environments encourage proximity voting, while others induce voters to abandon the proximity logic.

This has broad implications for the study of voting behavior and democratic representation. Clearly, voters are affected not only by their personal considerations come election

²¹ $\rho = \frac{\psi}{\psi + \pi^2/3}$, where $\pi^2/3$ is the assumed variance of the residuals in a logistic regression. As the variance in the intercepts accounts for election-specific factors not captured by the level-2 covariates, ρ indicates how much variance in proximity voting is due to unobserved election dependence.

day, but are also influenced by the political context of the election at hand. Thus, future cross-national studies of voting behavior, or studies over time in one country, can better-explain voting by looking beyond individuals to broader institutional and societal conditions. In addition, studies of the representational quality of democracy may take into account the societal factors that affect the nature of voting; political parties are likely to adjust their strategies based on the constraints and incentives placed on voters. While it is still unclear which societal conditions lead to a “correct” vote, it is apparent that the tendency of voters to follow the proximity model systematically varies with both macro- and micro-level factors.

Chapter 6

Electoral Systems, the Dimensionality of Politics, and Party-Voter Correspondence across Nations

In democracies, the relationship between the constituent and the representative is of fundamental importance. Yet the nature of representation is not uniform throughout the world. In this chapter I expand upon the cross-national examination of representation, examining how it varies with the dimensionality of politics across nations. I expect that party-voter correspondence will be high in nations with simple dimensional constructs. Alternatively, in countries where political space is not defined by a single dimension, the probability of parties and voters converging on the same ideal points decreases. In addition, previous work puts forth that political institutions place constraints on leaders and citizens that shape their behavior, and thereby the character of representation. To test these expectations, I examine how well parties mirror both the median and spread of voter preferences, conditional on the electoral institutions and the dimensionality of politics across nations. Using data from a wide sample of nations and a new measure of dimensionality, I find

that the positions of parties correspond more closely to those of voters in countries with low-dimensional political space, whereas electoral systems play a smaller role in the nature of representation.

Popular sovereignty, the idea that the highest political authority is the will of the people, is a core value of contemporary republican democracy. As such, the representative must strive to carry out the desires and interests of his constituents in government. In doing so, the representative may act as either an “accountable guardian” or an “instructed delegate.” Instructed delegates merely communicate the wishes of their constituents in government, while accountable guardians use their intellect and reasoning skills to make the decisions best for their constituents, without necessarily considering their wishes.

Whereas Hobbes preferred the instructed delegate vision of representation, so as to constrain the “vanity” of elected delegates (Mansfield 1971), Burke saw the representative as an elected official, not expected to sacrifice “his unbiased opinion, his mature judgement,” and “his enlightened conscience” to constituents. This sacrifice, Burke felt, would betray, rather than serve, constituents (Hoffman and Levack 1949, 114). Madison also preferred the accountable guardian vision of representation, reasoning that representatives deliberate to reach the common good, which is more productive than simply reflecting the will of the people (Pitkin 1967, 193).

In what Huber and Powell (1994) term the “Majority Control” vision of democracy, elections exist to create strong, unconstrained, single-party majority governments. In this vision, governments are likely to produce policy in line with the preferences of the median voter, as they will not be constrained by other actors in parliament. In the “Proportionate Influence” vision, conversely, elections exist to produce legislatures that reflect the preferences of all citizens. Though these visions of democracy differ as to *who* is represented, they both follow the “instructed delegate” model of representation in that they assess governments according to how well they match the preferences of citizens.

With the host of institutional configurations in place across countries, the nature of representation is unlikely to be uniform across the globe. As such, in this chapter I examine how well parties represent both the median and spread of voter preferences, conditional

on the electoral institutions and dimensional configurations of nations. I again quantify dimensionality with the measure developed in Chapter 3. In sum, I examine what societal conditions lead to representation of the “instructed delegate” brand, and, conversely, what causes political parties to stray from the positions of voters.

While previous research has found the nature of representation to be conditioned by electoral rules (Ezrow 2007; McDonald, Mendes, and Budge 2004), I find evidence that the dimensionality of politics explains more variation in party-voter correspondence across nations. More specifically, quantitative results indicate that parties generally reflect the positions of voters in when political variation in a nation is unidimensional. However, when political space is complex, there is no discernable link between party and voter positions. Thus, the delegate model of representation does exist across countries, but only when political dimensionality is low enough that parties are able to accurately discern the positions of voters before responding to their desires.

6.1 Party System Variance

To increase their share of votes, parties position themselves in issue space with regard to the location of voters (Adams, Clark, Ezrow, and Glasgow 2004; Kollman, Miller, and Page 1992; Laver 2005), and it is established that the strategies parties adopt to do so differ across institutional configurations. For example, Downs (1957) posits that parties in two-party systems converge to the center in order to maximize vote shares, while in multiparty systems parties will spread out, offering the electorate a range of ideological choice. Sartori (1976) confirms this expectation, emphasizing that multiparty systems place centrifugal incentives on parties. Likewise, Cox (1990), through an inductive formal analysis, finds that proportionality of the electoral systems relates positively to the amount of outward pressure on parties. Dow (2001) tests this theory empirically and finds that parties do indeed tend to gravitate to the median voter in systems which erect barriers for smaller parties.

Ezrow (2008), alternatively, finds that the predictions of the above theory are not con-

sistently empirically realized. That is, he finds no clear systematic relationship between electoral permissiveness and the divergence of party positions. He attributes this result to a body of theory by Schofield and coauthors, which posits that parties stake out positions by appealing to specific constituents (Schofield and Sened 2005), or to put themselves in a favorable position for post-electoral bargaining (Schofield, Martin, Quinn, and Nixon 1998). Adams and Merrill (2009), using a formal approach, find that proportional representation leads parties to take extreme positions only when the electorate positively evaluates characteristics such as honesty and competence - when they have enhanced “valence images.” Alternatively, when valence images deteriorate, parties are induced to moderate their policies.

6.2 Party-Voter Correspondence

Examining party system variance is useful because as the dispersion of parties changes, so may the character of representation, or the correspondence between the positions of parties and voters. This is illustrated in Figure 6.1, which displays the positions of three parties, A, B, and C, in relation to two voter distributions in a hypothetical election.¹ Clearly, if the voter ideal points are distributed consistent with Distribution A, correspondence between party and voter positions will be greater than if the voters are characterized by Distribution B.

Early on, Miller and Stokes (1963) found that, though voter-representative correspondence was imperfect and differed across policy domains, the roll call behavior of representatives in the United States was generally influenced by their perceptions of the preferences of their constituency.² Following in this tradition, Erikson, MacKuen, and Stimson (2002) and Stimson, MacKuen, and Erikson (1995) study “dynamic representation,” the phenomenon of public policy changing in response to shifts in public opinion. The authors find

¹This figure is based on that found in Ezrow (2007, 184).

²It should be noted that Achen (1977) points out the perils of comparing correlation coefficients across districts, the approach taken by Miller and Stokes, thus calling into question their conclusions.

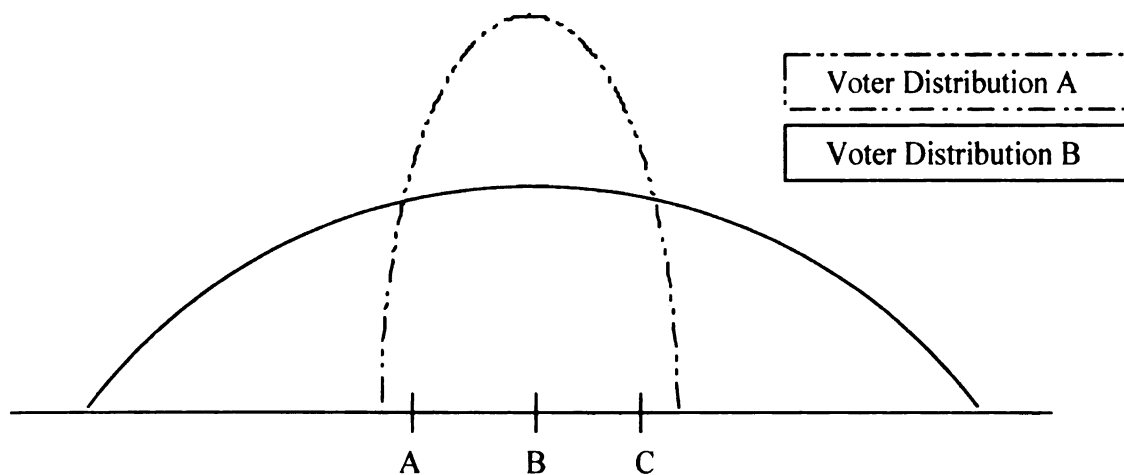


Figure 6.1: Hypothetical Party and Voter Positions

that dynamic representation does exist in the United States, varying in character across institutions of government (the House, Senate, and Courts). From a comparative perspective, Adams, Haupt, and Stoll (2009) find that centrist and right-wing parties adjust their positions in response to both public opinion and the global economy, while parties of the left tend not to adjust their behavior based on the prevailing public mood.

6.2.1 Electoral Rules and Party-Voter Correspondence

Other research examines the nature representation in relation to electoral systems. Cox (1997, 230), for example, shows that, in equilibrium, parties have incentives to disperse across the percentiles of the voter distribution as district magnitude, and thus proportionality, increases. This, in turn, should increase representative-voter correspondence. This finding is similar to that of Austen-Smith and Banks (1988), who find that, with three parties, one will locate at the median with the two others dispersed equally in opposite directions. Thus, in multiparty systems, it is expected that the median voter will be represented by a party (Powell and Vanberg 2000, 396).

McDonald et al. (2004) examine how well the median party in parliament corresponds to the median voter in the electorate. They find that correspondence is accurate across several nations, though proportional systems are better at “conferring the median mandate.”

This conclusion also echoes those of Powell and Vanberg (2000), who find that “median correspondence” is higher under proportional representation (PR), especially when the electoral threshold is low.

Blais and Bodet (2006) also examine the ideological correspondence between parties and citizens in PR systems. They find that, while PR leads to more parties than majoritarian democracy, its centrifugal pressures increase the distances of parties in the legislature from the median voter. However, the frequency of coalition governments in PR systems pulls governments to the center and thus decreases the distance between parties and voters, making the net impact of PR marginal. This latter finding corresponds with the predictions of Huber and Powell (1994), Lijphart (1999, 288), and Powell (2000), who suggest that the bargaining associated with the government formation process leads to governments that ideologically match the median voter. Powell (2009) examines the association between election rules and congruence over time, finding that while PR generally leads to closer median congruence, in recent years this advantage has waned.

Instead of examining the locations of the median party and voter, Ezrow (2007) investigates the correspondence of the variance in party and voter positions across nations, finding it to be weaker in proportional systems. This is attributed to the fact that restrictive, non-proportional systems punish smaller parties, thereby inducing them to adopt aggressive vote-seeking strategies and move towards the thickest distributions of voters. Dow (2001) attributes this aggressive behavior to “winner-take-all” feature of such electoral arrangements. Conversely, proportional systems motivate parties to merely find ideological niches large enough to obtain the amount of votes needed to overcome a low electoral threshold (Ezrow 2007, 184).³

³Taking this work in a direction outside of the scope of this project, Tavits (2007) finds that voters reward parties for shifts on pragmatic issues, such as economic policy, but punish parties for shifts on principled issues, such as core values, as these latter shifts signal inconsistency. Alternatively, Adams et al. (2004) find that public opinion shifts lead parties to adjust their ideologies, but only if these shifts are in a direction harmful to the party (for example, if a rightist party, did opinion move to the left?).

6.2.2 Dimensionality and Party-Voter Correspondence

While previous comparative studies of representation focus on party systems and institutional constructs, in this research I also examine how the dimensionality of political space affects the nature of representation across countries. The relationship between dimensionality and representation is simple: if dimensionality increases, so does the overall space for parties and voters to locate. This, in turn, lowers the probability that voters and parties will adopt common ideological positions.

Thus, even if representatives do wish to act as “instructed delegates” and perfectly represent voters, determining voter locations when political space is complex will be relatively difficult. If voters are spread out along a left-right, socioeconomic dimension, it is relatively easy for parties to locate the voters and make adjustments to best match their positions. However, if a new dimension is introduced, parties must work to determine where voters are in a more complex political space. This task becomes more and more formidable as the number of dimensions continues to rise; it is harder to find a needle in a haystack than a pincushion.

It is well established that parties locate themselves in a fashion designed to increase their vote shares (Adams et al. 2004; Kollman et al. 1992; Laver 2005) and voters tend to choose parties that are close to them ideologically (Downs 1957). Thus, a repeated game emerges in which voters choose parties or answer opinion surveys and parties adjust accordingly. Once they perceive of these adjustments, voters again choose parties and respond to opinion polls, and parties again adjust accordingly.

Thus, the lack of correspondence in more complex dimensional settings also arises from “incorrect” cues given by voters. On a single dimension, it is relatively easy for voters to choose the party closest to their ideal point, and thus parties’ adjustments to voter opinions will be reasonably accurate. However, when political variation does not conform to a single dimension, voters may have a difficult time locating the party most proximate to them and may vote or answer opinion surveys “incorrectly” (see Chapter 5). Thus, the cues parties take when making adjustments will be wrong, and the disparity between party and voter positions will be exacerbated. Because both voters and parties will have

difficulty locating each other as the dimensionality of political space increases, it is more difficult for parties to accurately (and adequately) represent voter preferences in nations where political variation is not unidimensional.

6.3 Expectations, Variables, and Measurement

The above theory makes clear directional predictions about the positioning of parties and the nature of representation across democracies. Following authors such as Ezrow (2007) and McDonald et al. (2004), I put forth the following hypotheses:

Hypothesis 1: In proportional electoral systems, the correspondence between the variance of voter preferences and the variance of parties will be lower than in majoritarian systems.

Hypothesis 2: In proportional electoral systems, the correspondence between the median voter and the median legislative party will be higher than in majoritarian systems.

The electoral institution of a nation is the conditioning variable of interest in Hypotheses 1 and 2, while dimensionality is left unconsidered. Thus, I also put forth the following hypotheses, derived from the theory in Section 6.2.2:

Hypothesis 3: There will be a positive link between the variance of voter preferences and the variance of parties only when political variation is well-captured by a single dimension.

Hypothesis 4: There will be a positive link between the median voter and the median party only when political variation is well-captured by a single dimension.

I determine party and voter positions using the empirical method described in Section 2.3. To assure the robustness of the analyses, I also obtain expert party locations from the CSES. The CSES asks experts to locate parties along a left-right continuum and asks respondents to locate themselves on this same continuum,⁴ which makes gauging

⁴The question states: “In politics people sometimes talk of left and right. Where would you place yourself on a scale from 0 to 10 where 0 means the left and 10 means the right?”

the relative positions of voters and parties straightforward. It is also possible to obtain measures of party positions based on individuals' perceptions of the political parties, as the CSES also asks respondents to locate parties along the left-right continuum. Such measures, however, can be problematic. Respondents may place their most-preferred party closer to their own position, regardless of that party's true position (Adams, Merrill, and Grofman 2005, 170). Additionally, they may shape their responses to meet a proximity voting criterion (Boatright 2008). Thus, I choose not place parties using individual-level party placements.

These measurement strategies assume that positions along the left-right continuum provide a meaningful representation of preference. While this assumption is not always justifiable, a substantial amount of research has established the left-right scale as a reasonable distillation of voter and party ideologies at the national level, even in instances of multidimensionality (Powell and Vanberg 2000, 385; see also Huber 1989; Inglehart 1984). I also choose to use a unidimensional approach to facilitate the testing of the previous work outlined here, which also models parties and voters along a single dimension.

To gauge the dispersion of parties, I use a formula from Ezrow (2007), which itself draws on the work of Alvarez and Nagler (2004). The measure takes the divergence of each party from the weighted mean position into account, as well as the vote share of each party.⁵ For each election, the formula is $\sqrt{\sum_{j=1}^m v_j(p_j - \bar{p})^2}$, where v_j is party j 's vote proportion, p_j is the position of party j , and $\bar{p}$ is the weighted mean party position.⁶ To measure voter polarization I take the standard deviation of voters' self-reported positions on the aforementioned 0-10 left-right scale (expert placements) or their ideal points (unfolded placements). I calculate median voter and median party position across each CSES election using the same party and voter placements.

⁵Vote shares were obtained from the CSES Macro Data, available at <http://www.cses.org/download/contributions/contributionsmirror.htm>

⁶Each party's contribution to the mean is weighted by its share of the vote. The formula for the weighted mean is thus $\sum_{j=1}^m (v_j \times p_j)$, where v_j is party j 's vote proportion.

Following Ezrow (2007) I gauge the disproportionality of electoral systems using Gallagher's (1991) least squares index. The formula is $\sqrt{\frac{\sum_{j=1}^m (v_j - s_j)^2}{2}}$, where v_j is the percentage of votes for party j and s_j is the percentage of seats won.⁷ The index theoretically ranges from 0 to 100, with 0 indicating perfect proportionality.

To gauge dimensionality, I use the index developed in Chapter 3. A value of 1.0 indicates that voter preferences in a given nation are entirely generated by a single dimension. I subtract this value from 1 so that higher values correspond with poor adherence to a single dimension. I also multiply the value by 100. The resulting variable thus measures the percent of variance in party and voter locations not captured by a single dimension, with a value of 0 indicating that voter preferences in a given nation are entirely generated by a single dimension. As noted, I term this new measure "political dimensionality."

Ezrow (2008) posits that the spread of parties increases with the overall number of parties. Therefore, I use the effective number of parliamentary parties (ENPP) as a control variable. The variable is created using the common Laakso and Taagepera (1979) index.⁸ Because there is broad disparity in the wealth of the countries in the dataset, I also control for each country's overall level of development using GDP per capita, adjusted for purchasing power and measured in thousands of constant international dollars. I obtain this measure from the World Bank's Development Indicators.⁹ Each variable is summarized in Table 6.2.

6.4 Model Specification and Methodology

I collected on data on 81 elections covered in the Comparative Study of Electoral Systems and the New Zealand Election Study (see Chapter 3). Because the above theory is based

⁷Vote and seat shares were obtained from the CSES Macro Data.

⁸The index is given as $\frac{1}{\sum_{i=1}^n s_i^2}$, where s_i is the proportion of seats obtained by the i^{th} party.

⁹Taiwan's per capita GDP is taken from the WTO and Wu (2004).

on legislative party behavior, I do not examine presidential elections. I thus dropped the purely executive elections of Belarus in 2001, Chile in 1999, and Russia in 2000 and 2004. In addition, data on the percentage of votes received by parties was unavailable for certain elections. As these values are needed for the dispersion and disproportionality measures, the elections were dropped. Moreover, expert opinions on the positions of parties and voters' self-reported positions were not available across all countries and elections. The elections covered across each model thus vary due to the variables included and the measures used. Table 6.1 lists the countries and election years included in each model, and the variables used in the analyses are summarized across all available elections in Table 6.2.

Table 6.1: Included CSES Elections by Model Number

Country	Election Year	1	2	3	4	5	6	7	8	9	10
Albania	2005	X	X	X	X	X	X	X	X	X	X
Australia	1996	X	X	X	X	X	X	X	X	X	X
Australia	2004	X	X	X	X	X	X	X	X	X	X
Belarus	2001										
Belgium-Flanders	1999	X	X	X	X	X	X	X	X	X	X
Belgium-Flanders	2003	X	X	X	X	X	X		X		X
Belgium-Walloon	1999				X	X	X		X		X
Belgium-Walloon	2003	X	X	X	X	X	X		X		X
Brazil	2002	X	X	X	X	X	X	X	X	X	X
Bulgaria	2001	X	X	X	X	X	X	X	X	X	X
Canada	1997	X	X	X	X	X	X	X	X	X	X
Canada	2004	X	X	X	X	X	X	X	X	X	X
Chile	1999										
Chile	2005	X	X	X	X	X	X	X	X	X	X
Czech Republic	1996	X	X	X	X	X	X	X	X	X	X
Czech Republic	2002	X	X	X	X	X	X	X	X	X	X
Denmark	1998	X	X	X	X	X	X	X	X	X	X
Denmark	2001	X	X	X	X	X	X	X	X	X	X
Finland	2003	X	X	X	X	X	X	X	X	X	X
France	2002									X	X
Germany	1998	X	X	X	X	X	X	X	X	X	X
Germany	2002	X	X	X	X	X	X	X	X	X	X
Hong Kong	1998		X	X		X	X				
Hong Kong	2000		X	X		X	X				
Hong Kong	2004		X	X		X	X				
Hungary	1998	X	X	X	X	X	X	X	X	X	X
Hungary	2002	X	X	X	X	X	X	X	X	X	X

Continued on next page

Table 6.1 (cont'd)											
Country	Election Year	1	2	3	4	5	6	7	8	9	10
Iceland	1999				X	X	X		X		X
Iceland	2003	X	X	X	X	X	X	X	X	X	X
Ireland	2002	X	X	X	X	X	X	X	X	X	X
Israel	1996	X	X	X	X	X	X	X	X	X	X
Israel	2003	X	X	X	X	X	X	X	X	X	X
Italy	2006	X	X	X	X	X	X	X	X	X	X
Japan	1996	X	X	X	X	X	X		X		X
Japan	2004										X
Korea	2000	X	X	X	X	X	X	X	X	X	X
Korea	2004	X	X	X	X	X	X	X	X	X	X
Kyrgyzstan	2005										
Lithuania	1997										X
Mexico	1997	X	X	X	X	X	X	X	X	X	X
Mexico	2000	X	X	X	X	X	X	X	X	X	X
Mexico	2003	X	X	X	X	X	X	X	X	X	X
Netherlands	1998	X	X	X	X	X	X	X	X	X	X
Netherlands	2002	X	X	X	X	X	X	X	X	X	X
New Zealand	1996	X	X	X	X	X	X	X	X	X	X
New Zealand	1999	X	X	X	X	X	X	X	X	X	X
New Zealand	2002	X	X	X	X	X	X	X	X	X	X
New Zealand	2005	X	X	X	X	X	X	X	X	X	X
Norway	1997				X	X	X		X		X
Norway	2001	X	X	X	X	X	X	X	X	X	X
Peru	2000	X	X	X	X	X	X	X	X	X	X
Peru	2001				X	X	X		X		X
Peru	2006	X	X	X	X	X	X	X	X	X	X
Philippines	2004										
Poland	1997	X	X	X	X	X	X	X	X	X	X
Poland	2001	X	X	X	X	X	X	X	X	X	X
Portugal	2002	X	X	X	X	X	X	X	X	X	X
Portugal	2005	X	X	X	X	X	X	X	X	X	X
Romania	1996	X	X	X	X	X	X	X	X	X	X
Romania	2004	X	X	X	X	X	X	X	X	X	X
Russia	1999	X	X	X	X	X	X	X	X	X	X
Russia	2000										
Russia	2004										
Slovenia	1996	X	X	X	X	X	X	X	X	X	X
Slovenia	2004	X	X	X	X	X	X	X	X	X	X
Spain	1996	X	X	X	X	X	X	X	X	X	X
Spain	2000				X	X	X		X		X
Spain	2004	X	X	X	X	X	X	X	X	X	X
Sweden	1998	X	X	X	X	X	X	X	X	X	X
Sweden	2002	X	X	X	X	X	X	X	X	X	X
Switzerland	1999	X	X	X	X	X	X	X	X	X	X

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Table 6.1 (cont'd)											
Country	Election Year	1	2	3	4	5	6	7	8	9	10
Switzerland	2003	X	X	X	X	X	X	X	X	X	X
Taiwan	1996	X	X	X	X	X	X	X	X	X	X
Taiwan	2001	X	X	X	X	X	X	X	X	X	X
Taiwan	2004									X	X
Thailand	2001				X	X	X		X		X
Ukraine	1998	X	X	X	X	X	X	X	X	X	X
United Kingdom	1997	X	X	X	X	X	X	X	X	X	X
United Kingdom	2005	X	X	X	X	X	X	X	X	X	X
United States	1996	X	X	X	X	X	X	X	X	X	X
United States	2004	X	X	X	X	X	X	X	X	X	X

Table 6.2: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	<i>n</i>
Party Polarization (Unfolded)	3.714	1.261	0.643	6.609	71
Voter Dispersion (Unfolded)	2.760	1.166	1.018	6.558	81
Median Party (Unfolded)	-0.008	4.292	-7.247	10.091	81
Median Voter (Unfolded)	-0.142	0.904	-3.714	2.657	81
Party Polarization (Expert)	1.864	0.575	0.710	3.819	65
Voter Dispersion (Self Placements)	2.412	0.449	1.318	3.873	76
Median Party (Expert)	4.979	1.158	1.000	7.500	72
Median Voter (Self Placements)	5.079	0.744	1.000	8.000	76
Disproportionality	6.828	4.464	0.080	21.97	75
Political Dimensionality	25.354	9.848	4.465	45.924	81
MDM	21.589	37.111	0.800	150	81
Majoritarian	0.148	0.357	0	1	81
Mixed	0.358	0.482	0	1	81
Proportional	0.494	0.503	0	1	81
ENPP	3.865	1.593	1.173	9.051	78
Per Capita GDP	19.295	9.456	1.722	36.451	81

The main explanatory variables in the analyses are the variance and mean of voter locations. To test the link between voter and party positions across electoral systems, I interact these variables with disproportionality. I also create interactions with the new dimensionality variable to examine the nature of representation across dimensional configurations. According to the theory developed in this project, the interaction terms should reveal a positive link from voter positions to party positions in countries with low dimensional political space. Conversely, in countries where political variation is not unidimensional, there should be little or no relationship between voter and party locations.

I estimate the relationships between party positioning and the explanatory variables with ordinary least-squares (OLS) regression. As several countries appear more than once in the data, the standard OLS assumption that observations are independent is unmet. I therefore cluster the standard errors by country to account for intranational correlation.

6.5 Results

Before testing Hypotheses 1-4, I revisit the contending findings of Dow (2001) and Ezrow (2008) regarding the relationship between electoral permissiveness and the spread of party systems. I gauge electoral rules in three ways: Gallagher's disproportionality index, mean district magnitude, and a three-category dummy variable for majoritarian, mixed, and proportional systems. As is standard practice in the comparative literature, I take the logarithm of district magnitude. Results are shown in Tables 6.3 and 6.4.

As found by Ezrow (2008), the models estimated with unfolded party locations show an absence of a relationship between electoral rules and party system dispersion. The models estimated with expert placements, alternatively, show signs of a relationship more in line with Downsian predictions and the findings of Dow (2001). Though the coefficient is only marginally significant, Model 1 in Table 6.3 shows that an increase in disproportionality leads to a decrease in party system dispersion. Likewise, Model 3, estimated with a categorical variable (proportional systems are left out as the reference category) shows that parties are significantly more clustered in majoritarian systems. Party system variance is also lower in mixed systems, though this result again slightly misses conventional levels of statistical significance.

Table 6.3: Electoral Rules and Party System Variance: Expert Placements

Variable	1: Disproportionality		2: District Magnitude		3: Categorical Variables	
	Coefficient	(p-value)	Coefficient	(p-value)	Coefficient	(p-value)
Disproportionality	-0.023	(.139)				
MDM (ln)			0.047	(.474)		
Majoritarian					-0.594	(.001)
Mixed					-0.255	(.110)
constant	2.025	(.000)	1.759	(.000)	2.027	(.000)
n	62		65		65	
R^2	0.025		0.012		0.123	
Prob > F	0.139		0.474		0.004	

Two-sided p -values in parentheses. Standard errors clustered on countries.

Table 6.4: Electoral Rules and Party System Variance: Unfolded Placements

Variable	4: Disproportionality		5: District Magnitude		6: Categorical Variables	
	Coefficient	(p-value)	Coefficient	(p-value)	Coefficient	(p-value)
Disproportionality	0.040	(.373)				
MDM (ln)			-0.071	(.682)		
Majoritarian					0.138	(.827)
Mixed					0.179	(.654)
constant	3.548	(.000)	3.870	(.000)	3.638	(.000)
n	68		71		71	
R^2	0.017		0.005		0.005	
Prob > F	0.373		0.682		0.892	

Two-sided p -values in parentheses. Standard errors cluster on countries.

Table 6.5: Determinants of Party/Voter Variance Correspondence

Variable	7: Expert Placements		8: Unfolded Placements	
	Coefficient	(<i>p</i> -value)	Coefficient	(<i>p</i> -value)
Voter Dispersion	1.356	(.084)	-1.214	(.002)
Disproportionality	0.075	(.414)	-0.048	(.595)
Dispersion $\times$ Disprop.	-0.036	(.343)	0.023	(.428)
Political Dimensionality	0.101	(.047)	-0.069	(.026)
Dispersion $\times$ Dimen.	-0.043	(.042)	0.016	(.171)
ENPP	0.057	(.171)	-0.059	(.497)
Per Capita GDP	-0.013	(.320)	-0.014	(.288)
constant	-1.146	(.559)	8.222	(.000)
<i>n</i>	59		68	
R ²	0.126		0.417	
Prob > F	0.112		0.000	

Two-sided *p*-values in parentheses. Standard errors clustered on countries.

Table 6.6: Determinants of Party/Voter Median Correspondence

Variable	9: Expert Placements		10: Unfolded Placements	
	Coefficient	(<i>p</i> -value)	Coefficient	(<i>p</i> -value)
Median Voter	1.745	(.009)	3.517	(.077)
Disproportionality	0.342	(.466)	-0.025	(.847)
Median Voter $\times$ Disprop.	-0.079	(.386)	-0.087	(.260)
Political Dimensionality	0.252	(.001)	-0.102	(.085)
Median Voter $\times$ Dimen.	-0.050	(.002)	-0.178	(.032)
Per Capita GDP	-0.005	(.771)	-0.026	(.640)
constant	-3.297	(.288)	3.116	(.252)
<i>n</i>	61		72	
R ²	0.125		0.171	
Prob > F	0.000		0.002	

Two-sided *p*-values in parentheses. Standard errors clustered on countries.

To test variance correspondence, I regress the spread of parties on the spread of voters, electoral disproportionality,¹⁰ dimensionality, the interaction terms, the number of parties, and per capita GDP. Additionally, to test correspondence between the median party

¹⁰Electoral rules and dimensionality are systematically linked, as shown in Chapter 4. In addition, electoral rules are clearly linked to the number of parties that gain representation. Collinearity is thus an issue. However, because each variable is theoretically linked to the dependent variable, I opt to include them; rather than risking a misspecified model I choose to suffer from the possibly-inflated standard errors that arise from collinearity.

and the median voter, I regress the median party position on the median voter position, electoral disproportionality, dimensionality, the interaction terms, and per capita GDP. Because the number of parties is not theoretically linked to the median party position, I do not include it in this equation.

The models indicate that parties do adjust their positions in response to those of voters. However, this phenomenon occurs independent of electoral rules; the interaction term between disproportionality and voter positions is insignificant across each model. Thus, no support is found for Hypotheses 1 and 2. Yet, there is indeed an interactive relationship of dimensionality and voter positions on party positions. In Models 7, 9, and 10 the coefficient on political dimensionality and its interaction with voter positions is statistically significant ($p < .10$, two-sided).

Coefficients on continuous variable interaction terms and their constituent parts are not readily interpretable (Brambor, Clark, and Golder 2006; Braumoeller 2004).¹¹ Thus, I graphically display the conditional effect of voter positions on party positions across the range of political dimensionality in Figures 6.2 and 6.3.¹² Figure 6.2, which is produced with the coefficients from the models estimated with the expert party positions, confirms the theoretical expectations. The left panel of the figure shows that when politics are well-captured by a single continuum, an increase in the spread of voters corresponds with an increase in the spread of parties. However, when political variation is not unidimensional, this link deteriorates. The same is true for the link from the median voter to the median party; the right panel of the figure shows that when politics are well-captured by a single continuum, a rightward shift of the median voter corresponds to a rightward shift of the median party. And, when political variation is not unidimensional, this link is again no longer significant. Thus, Figure 6.2 provides strong support for Hypotheses 3 and 4.

Figure 6.3, which is produced using the models estimated with the unfolded party and voter positions, however, does not provide support for these hypotheses. First, the

¹¹In fact, the coefficients on the constituent variables are equal to their marginal effect when the other constituent variable equals zero.

¹²These figures were produced with the help of code from a web supplement to Brambor et al. (2006), available at <http://homepages.nyu.edu/~mrg217/interaction.html>.

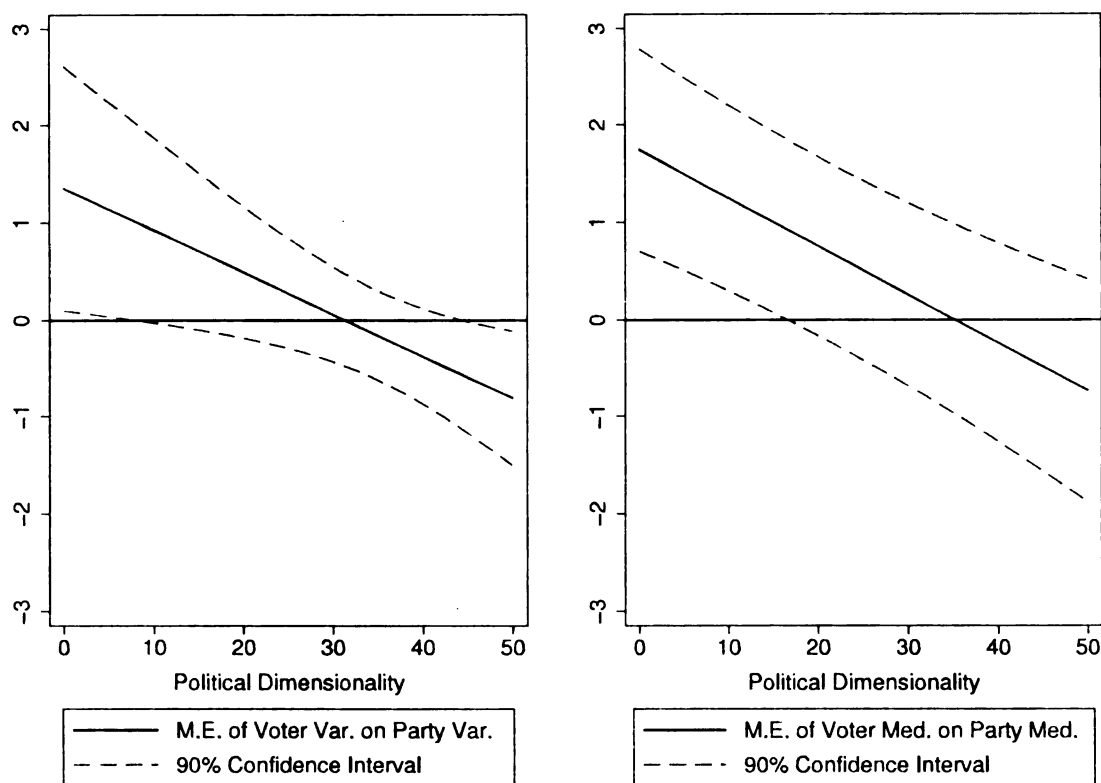


Figure 6.2: The Effect of Voter Positions on Party Positions (Expert Placements)

left panel indicates an unexpectedly negative relationship between voter dispersion and party system dispersion across all levels of political dimensionality. The right panel shows that there is indeed a positive link between the position of the median voter and the median party when dimensionality is low. However, when political dimensionality is not unidimensional, there is a strong and significant *negative* link between the position of the median voter and the median party. No matter how complex political variation in a nation is, it is unexpected that parties will move in a direction *opposite* of the voters.

Thus, the quantitative results provide only partial evidence that political dimensionality plays a role in the nature of representation in countries. In the models estimated with expert party positions and self-provided voter locations, it is shown that dimensionality affects the degree to which parties mirror the preferences of voters. However, in the models estimated with the unfolded party and voter positions, theoretical expectations are

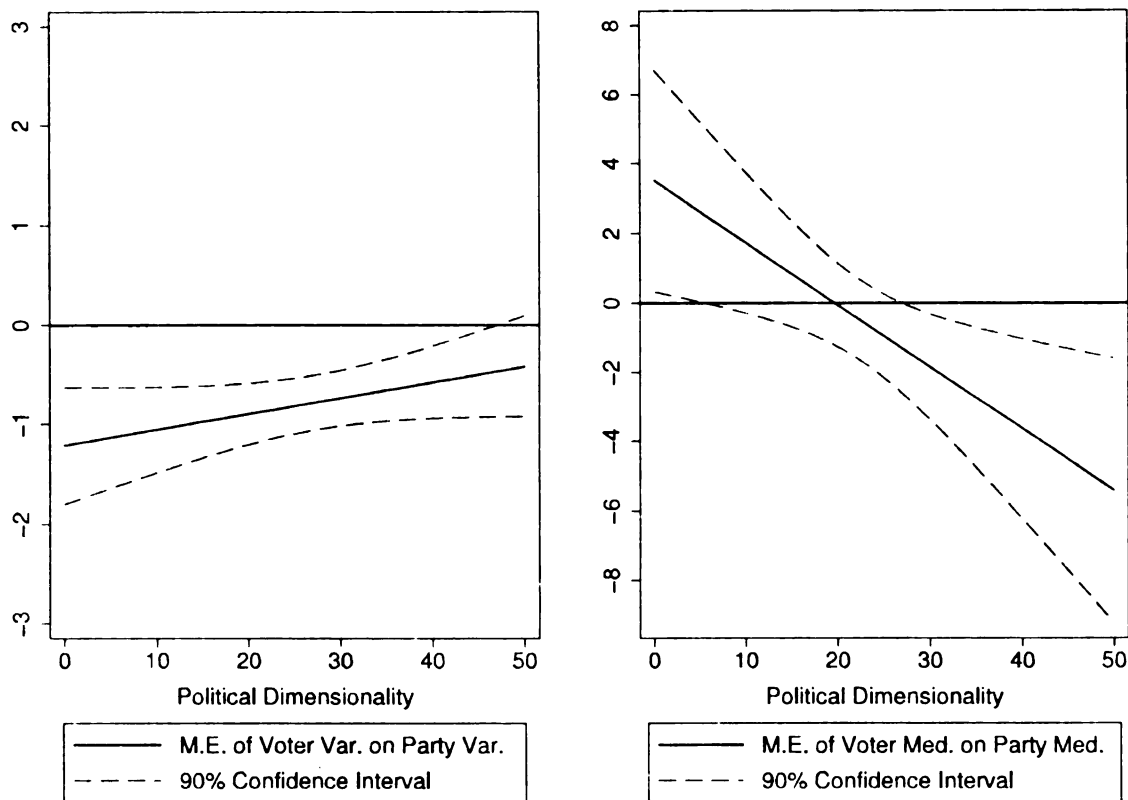


Figure 6.3: The Effect of Voter Positions on Party Positions (Unfolded Placements)

not met. Regarding electoral rules, there is little evidence that representation varies with electoral disproportionality once the dimensionality of politics is accounted for.

6.6 Conclusion

While the representative in the guardian model of democracy uses his superior intellect and reasoning skills when governing, the delegate model of democracy puts forth that representatives should reflect the desires of voters. Thus, in the delegate model of democracy it is the duty of the representative to transmit the true interests of the represented in government. Following this model, there should be strong correspondence between the positions of parties and voters across the range of issues and political matters in a country.

Examining the positions of parties and voters on every politically significant topic,

however, is altogether impossible. As such, researchers place voters and parties in a political space which summarizes their overall preferences. In this work parties and voters are organized unidimensionally along a left-right continuum. The strength of this continuum in explaining political variation in a nation is taken into account with the measure of “political dimensionality” produced in Chapter 3.

The findings provide evidence that the positions of parties correspond more closely to those of voters in countries with low-dimensional political space, whereas the nature of representation does not appear to be directly influenced by electoral rules. However, as Chapter 4 shows a relationship between electoral systems and the dimensionality of politics, there is likely an indirect link to party-voter correspondence; dimensionality acts as a catalyst in the relationship between electoral rules and the nature of political representation.

Chapter 7

The Dimensionality of Politics and Voter Behavior in Preferential Systems: The Case of Australia

When studying voter preferences in systems that employ preferential voting,¹ researchers must consider all parties on the ballot. Voters in such systems are required to assign a ranking to competing parties or candidates, rather than simply choosing their most preferred alternative. From these rankings, various preference allocation schemes are used to nominate one or more candidates to parliament. Empirical spatial analysis allows for inferences as to how voters will order parties or candidates on their ballots, as the approach recovers voter and party positions in the same space.

In this research I study the nature of voter preferences in Australia. As a stable and transparent democracy, Australia is an attractive nation in which to study voting behavior. Moreover, because it employs the alternative vote (AV), a preferential electoral formula, for its lower house elections, it is interesting to examine voter preferences over each party

¹The most common form of preferential voting is the alternative vote (AV), also known as “the alternative transferable vote,” “instant-runoff voting,” or simply “preferential voting.” The alternative vote is used for elections in Australia, Ireland, Papua New Guinea, and Fiji. Preferential voting is also used in various non-AV forms in countries such as Sri Lanka, Malta, India, Northern Ireland, and Scotland.

in Australia. In contrast, much of the previous literature on Australian voting accounts solely for the first preferences of voters.

To proceed, I review previous literature on the dimensionality of politics and voting behavior in Australia. Then, I use the unfolding method described in Chapter 2 to assess dimensionality in Australia in 2004 and recover party and voter ideal points. The model asserts that voters rate Australian parties according to a unidimensional proximity logic. Results indicate a good data-to-model fit, and evidence of a strong socioeconomic political dimension in Australia is found. Using voter ideal points obtained from the analysis, I then examine how several social and demographic characteristics affect voter preferences over six² Australian political parties. Finally, I show these ideal points to relate strongly to actual vote choice over major and minor parties in Australia. These findings have important implications for the future study of voting in Australia and other countries that employ preferential voting institutions. In preferential systems, studying voter preferences over all available alternatives is more informative than solely examining voters' first preferences. Thus, this study adds to the literature by introducing a new way to study voting behavior in preferential systems, and by reexamining the nature of voter behavior and the dimensionality of politics in Australia.

7.1 Australian Political Dimensionality and Voter Behavior in Theory

The Australian House of Representatives is perennially divided between “The Coalition,” which is composed of the Liberal and National parties,³ and the Labor party. As two-party competition is unidimensional and bipolar by definition (Jackman 2003, 280), it stands to reason that Australian political space should be as well. However, the existence of several viable parties, each with unique platforms and leaders, may plausibly lead to

²The parties examined received the most votes for the lower house in the 2001 Federal Election.

³“The Coalition” is quite stable. In fact, the last time the Liberal and National parties directly competed with one another for seats was the 1987 Federal Election.

multidimensionality in Australian politics. Table 7.1 provides a short description of each of the six parties under examination.

Table 7.1: Party Descriptions

Party	General Description
Australian Democrats	Social liberal ideology. Support gay and indigenous rights and the welfare system. Maintain interventionist economic policies.
Australian Greens	Social progressive ideology. Promote universal health coverage, progressive taxation, and a broad welfare state. Strongly oppose militarization and war.
Australian Labor Party (ALP)	Democratic socialist ideology. Combines both the environmental and socially liberal issues of the left with a support of workers. Officially affiliated with labor unions.
Liberal Party of Australia	Conservative liberal ideology. Takes a relatively hands-off approach to economic affairs. Supports free trade, family values, and small government.
National Party of Australia	Conservative agrarian ideology. Supportive of rural peoples. Currently urges free enterprise and conservative social values. Much policy overlap with the Liberals.
One Nation Party	Nationalist conservative ideology. Opposes immigration (mostly ethnic) without approval through referenda. Pro-gun and pro-free speech, favors a strict justice system. Favors a drastic reduction in taxes on individuals.

A sizeable body of research examines what factors lead Australian voters to choose among the political parties. Some of this work puts forth that postmaterialist Australian voters align with minor parties such as the Greens or the Democrats (Papadakis 1990; Weakliem and Western 1999), and several voting studies include postmaterialism as a variable of interest (see, for example, Blount 1998; Western and Tranter 2001). As such, Charnock and Ellis (2004) conclude that the left-right economic dimension performs well

at predicting vote choice, but deem it inadequate for describing minor party locations.

McAllister and Studlar (1995, 205) also find minor party voting to be associated with a postmaterialist, “new politics” dimension, but also provide evidence of a prevalent socioeconomic dimension. Using 1990 survey data, they employ factor analysis to examine various issue attitudes of Australian voters and elites. Though they find a new politics dimension among both groups, it explains only 12.3% and 11.3% of the variance in issue attitudes among voters and elites respectively. The social and economic dimensions, on the other hand, explain 41.0% of the variance among voters and 52.7% among elites.

Huber and Inglehart (1995) employ an expert survey to examine Australian political dimensionality. The survey asks respondents to not only locate the parties on a single dimension, but also to state whether there is a second dimension of political conflict within the nation (77). The respondents did not identify a clear second dimension in Australia and 65% agreed that political conflict in Australia takes place along a single economic, or “class conflict” dimension (87).

Recognizing the importance of the socioeconomic dimension, several studies use social and economic variables to predict Australian voting behavior. For example, Cameron and Crosby (2000, 354) and Wolfers and Leigh (2002) find macroeconomic factors to be fairly good predictors of election results. At the individual level, Gow (1990) notes that electoral choice is highly dependent on voters’ perceptions of the economy. McAllister and Bean (2000, 395) explain, “By far the most important and consistent influences in defection [from Liberal to Labor] were the positions on the four major economic issues that were debated during the [1998 federal] election.”

Regarding class, though the social-structural approach was once paramount to the understanding of Australian electoral behavior (Jackman 2003), the importance of class as an explanatory variable has diminished. Jaensch (1995, 130) notes that class has weakened as an explanatory factor because more significant cleavages have formed. In addition, he explains that voters have “de-aligned” themselves from “social cleavages as a basis for electoral behavior.”

However, class, along with other demographic factors, such as religion, gender, age,

ethnicity, and geographic location are still present in the voting literature. For example, Charnock (1997) finds that, in the 1996 federal election, religion and union membership significantly affected voting behavior, while age and place of residence were less consequential. Leigh (2005) concludes that vote choice is affected by nationality, income level, and age, with age impacting the voting choices of women more than men.

Further examining the gender divide, Renfrow (2003) notes that women are “more liberal than men in their political attitudes and their vote choice.” However, she concludes that a merger of men’s and women’s social and economic standings may lead to a convergence of political attitudes and behavior (310-312). This conclusion is also reached by Studlar, McAllister, and Hayes (1998), who find gender differences in voting behavior in Australia are inconsequential once factors such as age, education, marital status, and employment are accounted for. Such conclusions correspond with Jaensch’s (1995) and Charnock’s (1997) findings of an insignificant gender effect.

The “Michigan model” of Campbell, Converse, Miller, and Stokes (1960), which connects psychological attachments to political parties with voter behavior, is also prevalent in the Australian voting literature. Aitkin and Stokes (1977) first examined party identification in Australia, emphasizing its stability over time (Jackman 2003, 275). Accordingly, Jaensch (1995, 18) notes, “In Australian elections, the main explanatory factor is party identification” and “the keystone [of party support] in Australia appears to be stability.” In fact, the strength of partisanship in Australia may be due to the nation’s unique voting rules. While compulsory voting obligatorily reinforces party identification at each election, the alternative vote allows one to maintain an attachment to a minor party without fear of “wasting a vote” (Marks 1993, 141).

In general, previous research on Australian voting and dimensionality links individuals’ vote choices to demographic characteristics, psychological attachments, and economic factors. A second line of research finds minor party voting to be associated with postmaterialist ideals. To disentangle the effects of various factors on Australian voting behavior, I revisit previous research using a new approach to the study of voting behavior.

7.2 A New Look at Dimensionality and Voting Behavior

In this analysis of Australian voting, I examine whether voter positions along a single dimension are related to vote choice. To do so, I test whether a single dimension captures the party preferences of Australians using the unfolding method developed in Chapter 2 and the party and voter locations produced in Chapter 3. As shown in Chapter 4, political variation in countries with majoritarian electoral systems generally conforms well to a single dimension. And, as expected, Australian political space is well captured by a single dimension.

Figure 7.1 displays the recovered party positions. The R^2 value is 0.809, meaning that a single dimension explains about 81% of the variance in individual evaluations of the parties. The parties are aligned with the Democrats on the far left and One Nation on the far right. The numerical values in Figure 7.1 represent the locations of each party on the continuum. On the left the Democrats and Greens are very close to each other, with Labor roughly two units toward the center. On the right, One Nation is roughly three units to the right of the Coalition parties, which themselves are separated by about 1.5 units.

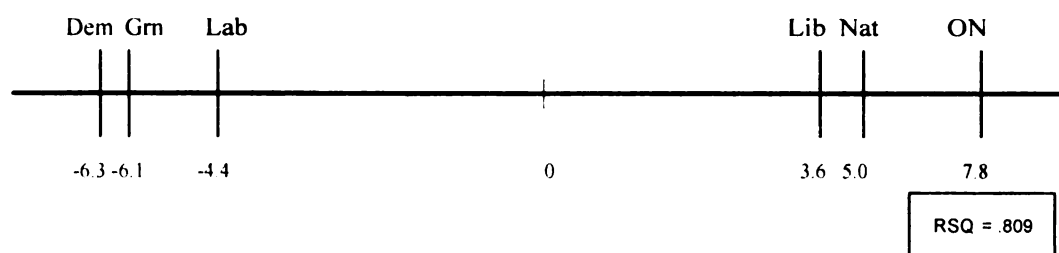


Figure 7.1: Party Locations on the Underlying Dimension

Preference orderings can be determined from voters' ideal points. Based on the Downsian proximity voting assumption, voters will rank the parties on their ballots in accordance with these preference orders. For example, consider a voter with ideal point -5.0. This point corresponds to the preference ordering Labor-Green-Democrat-Liberal-National-One

Nation, indicating that this voter will order the parties as such on her ballot. A voter with ideal point 1.0, alternatively, will order the parties Liberal-National-Labor-One Nation-Green-Democrat.

Figure 7.2 displays a smoothed histogram of the voter ideal points, showing that the majority of Australian voters in 2004 have ideal points near the center of the distribution. At the mean (0.0) of this distribution the corresponding preference ordering places the Liberals over the ALP. This result is expected, given the victory of the Coalition in the 2004 election.

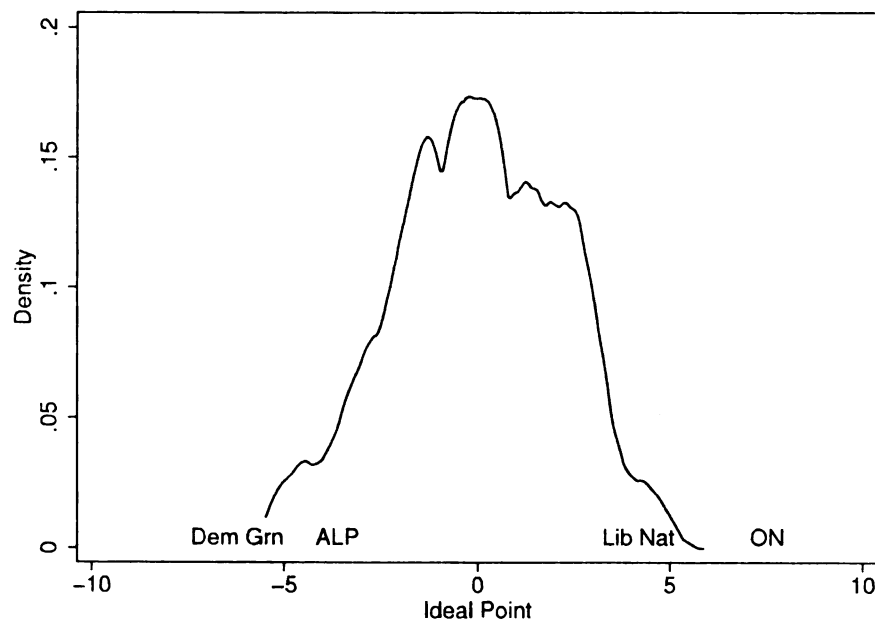


Figure 7.2: Density Plot of Individual Ideal Points

7.3 What is the Underlying Dimension?

The parties are aligned from left to right along the dimension in accordance with their social and economic policy stances. On the far left are the Democrats and Greens, both of which are relatively progressive in both their social and economic policies. On the far right is One Nation, which maintains socially conservative stances, such as swift and harsh punishment of criminals and a return to family values, as well as economically libertarian

stances, such as the elimination of taxes on profits, capital gains, income, and savings. The ALP, which moderates its progressive socioeconomic stances to appeal to a greater proportion of voters, is situated at the center-left of the continuum. The Coalition parties, which govern from a conservative standpoint, but temper their platforms so as to remain viable, are located on the right, between the zero point and One Nation.

Thus, I contend that the underlying continuum recovered in this analysis is the common “socioeconomic” political dimension. Note that Ganghof and Brauninger (2006), using expert survey data from Laver and Hunt (1992) to examine Australian parties along the socioeconomic dimension, obtain party locations that reflect the findings in this study. Though they only examine four parties, they locate the Democrats on the far left, the ALP to their immediate right, and the Coalition parties nearby each other on the far right. Furthermore, Huber and Inglehart (1995), placing the same four parties using a different expert survey, also obtain party locations of the same order found in this study.

The assertion that Australian politics are well-described by a single, socioeconomic continuum runs counter to previous studies which emphasize the postmaterialist dimension (Blount 1998; Western and Tranter 2001). However, to develop their measures of postmaterialism, these studies rely on a survey question based on Inglehart’s (1977, 28) 4-item index.⁴ Davis, Dowley, and Silver (1999), based on analysis of this same question and others from the World Values Survey, give evidence that rejects its usefulness as a gauge of a “materialist-postmaterialist” dimension. They instead find that answers are “related to conditions in society.” Furthermore, they expect stability in these positions due to both “the relationship between broad economic and social conditions and people’s concern with specific material issues” (960).

⁴The question states, “Here is a list of four aims that different people would give priority:

1. Maintain order in the nation.
2. Give people more say in important government decisions.
3. Fight rising prices.
4. Protect freedom of speech.

If you had to choose among these four aims, which would be your first choice? And which would be your second choice?” Those who choose any combination of responses 2 and 4 are labeled “Postmaterialists,” while those choosing any combination of responses 1 and 3 are called “Materialists.” All other responses are assigned to a mixed category.

Therefore, while Blount (1998) and Western and Tranter (2001) are likely accurate in their statistical conclusions that minor party voting is associated with postmaterialism, their measure of the concept may be skewed. These authors rely on a question that gauges opinions based on economic and social societal conditions rather than postmaterialism, and can therefore be captured with the socioeconomic dimension. However, note that this glitch in the survey mechanism does not affect the findings of McAllister and Studlar (1995), who show minor party voting to be associated with a postmaterialist, new politics dimension through an examination of issue attitudes.

Thus, to further test whether a postmaterialist dimension exists in Australia, I correlated the postmaterialist variables environmentalism and religiosity, defined in Table 7.2, with the residuals⁵ from the unfolding analysis. The absolute value of every correlation coefficient is below .30, with most falling in the .10 to .20 range. To check for a dimension based on immigration or race, I correlated the residuals with the immigration variable defined in Table 7.2. In this case every correlation coefficient had an absolute value below .10. The information left unexplained by the single dimension does not arise from either postmaterialist or immigration-based dimensions.

7.4 Determinants of Party Preferences

Past work on Australian voting examines vote choice either as a dichotomous decision between Labor and the Coalition parties (for example, Gow 1990) or arbitrarily assigns values to each party.⁶ Other research, making use of multinomial regression models, does not assign an order to the parties (for example, Western and Tranter 2001). To its credit, this approach avoids arbitrarily classifying parties along a single continuum. However, it does not give insight into how the parties are dimensionally situated. Furthermore, as

⁵The residuals are defined for each party and measure the difference between an individual's observed rating of a given party and their distance from that party on the recovered continuum.

⁶Bean (1994) assigns values of 0, .5, and 1 to Labor, the Democrats, and the Coalition respectively. Blount (1998) assigns a 1 to the Coalition, .5 to Labor, and 0 to any minor party.

Table 7.2: Variable Definitions and Descriptive Statistics

Variable	Description	<i>n</i>	Mean	S.D.
Ideal Point	Ideal point from the unfolding analysis	1627	0.00	2.21
Demographic				
Income	Income quintile	1513	2.92	1.42
Age	Age in years	1554	49.29	16.74
Female	Dummy: 1 = Female	1640	0.51	0.50
University Education	Dummy: 1 = R has attended university	1606	0.33	0.47
Unemployment	Dummy: 1 = Unemployed	1607	0.02	0.16
Birth Nation	Dummy: 1 = Born in Australia	1637	0.77	0.42
Religiosity	Attendance of religious services 1 = "Never" thru 6 = "Once a Week"	1615	2.40	1.70
Rural	Dummy: 1 = Rural	1668	0.22	0.41
Union Member	Dummy: 1 = Union Member	1527	0.25	0.43
Blue Collar	Dummy: 1 = Blue Collar	1473	0.21	0.41
White Collar	Dummy: 1 = White Collar	1473	0.77	0.42
farmer	Dummy: 1 = Farmer	1473	0.03	0.16
Partisanship				
id Democrat	Dummy: 1 = Party ID is Democrat	1362	0.01	0.09
id Green	Dummy: 1 = Party ID is Green	1362	0.06	0.24
id Labor	Dummy: 1 = Party ID is ALP	1362	0.38	0.49
id Liberal	Dummy: 1 = Party ID is Liberal	1362	0.49	0.50
id National	Dummy: 1 = Party ID is National	1362	0.04	0.19
id One Nation	Dummy: 1 = Party ID is One Nation	1362	0.01	0.09
Opinion and Info.				
Ideology	0 = "Left", 10 = "Right"	1399	5.32	2.10
Protest	Dummy: 1 = R has protested or demonstrated in past 5 years	1552	0.14	0.35
Pol. Information	Dummy: 1 = R answered three political information questions correctly	1067	0.45	0.50
Gov. Performance	1 = "Very Bad", 4 = "Very Good"	1611	2.83	0.70
Dem. Satisfaction	1 = "Not Satisfied", 4 = "Very Satisfied"	1634	2.98	0.71
Terrorism	Dummy: 1 = R feels terrorism is the most important election issue	1603	0.05	0.21
Defense	Dummy: 1 = R feels defense is the most important election issue	1603	0.06	0.23
Environment	Dummy: 1 = R feels the environment is the most important election issue	1603	0.06	0.23
Iraq	Dummy: 1 = R feels the Iraq war is the most important election issue	1603	0.04	0.20
Immigration	Dummy: 1 = R feels immigration is the most important election issue	1603	0.02	0.13

the unfolding results indicate that Australian political space is well-captured by a single dimension, multinomial regression methods are unnecessarily complex.

To determine preferences over all parties, I instead examine individuals' ideal points, recovered by the unfolding analysis. I model the ideal points as a linear function of several individual-level variables, derived from previous theory. Table 7.2 summarizes the independent variables used in the analysis and Table 7.3 displays the results of the regressions. Because there are missing data on each of the covariates, the number of observations decreases from 1627 to 711 in Model 1. I include dummy variables for partisanship⁷ in Model 2, in which missing data drops the number of observations to 600. The effects of most of the explanatory variables do not change across the models and there is only slight variation in the significance levels of the coefficients across the models. Because it is the more complete model, I refer solely to the results in Model 2 from now on.

In line with previous theory, I find that partisanship plays an important role in Australian voter behavior. The differences between the conditional intercepts for all of the included partisan categories and the reference category (Liberal) are significant at the .01 level and in the expected direction, with the exception of One Nation. The magnitude of the differences between partisan groups is quite large. For example, all else constant, a Labor identifier is expected to be about 3.5 units to the left of a National identifier.

Of the variables in the "opinion and information" category, ideology, which captures an individual's values, beliefs, and attitudes about government, is significant at the .01 level and large in magnitude. In addition, those who protested recently or listed the Iraq War as the most important election issue are considerably to the left on the underlying continuum. As the 2004 Election took place soon after the U.S.-led invasion of Iraq, which was supported by the Coalition parties, it is likely that those who claimed to have recently

⁷I exclude these regressors from Model 1 due to the possibility that an individual will assign a higher value to the party he or she identifies with. In this case including partisanship on the right-hand side of the model will introduce simultaneity problems. However, the literature on partisanship, starting with Campbell et al. (1960), establishes that psychological attachments to parties do not necessarily correspond with agreement on issue positions. Thus, a voter may assign a high rating to a party which she currently agrees with on the issues, whether or not she has a psychological attachment to the party.

Table 7.3: Determinants of Ideal Point

	Model 1		Model 2	
Variable	Coef.	(p-value)	Coef.	(p-value)
Demographic				
Income	0.007	(.881)	-0.052	(.257)
Age	0.004	(.413)	0.004	(.372)
Female	-0.984	(.013)	-1.216	(.001)
Female $\times$ Age	0.016	(.037)	0.021	(.004)
University Education	-0.127	(.345)	-0.234	(.076)
Unemployment	-0.879	(.074)	-0.973	(.042)
Birth Nation	0.561	(.000)	0.559	(.000)
Religiosity	0.032	(.362)	0.017	(.625)
Rural	0.390	(.009)	0.131	(.347)
Union Member	-0.326	(.013)	-0.125	(.323)
Blue Collar	0.058	(.736)	-0.054	(.742)
Farmer	0.612	(.101)	0.153	(.668)
Partisanship				
id Democrat			-1.432	(.010)
id Green			-2.366	(.000)
id Labor			-2.314	(.000)
id National			1.094	(.001)
id One Nation			1.232	(.104)
Opinion and Information				
Ideology	0.363	(.000)	0.174	(.000)
Protest	-0.786	(.000)	-0.405	(.011)
Pol. Information	0.085	(.488)	0.005	(.965)
Gov. Performance	1.099	(.000)	0.634	(.000)
Dem. Satisfaction	0.090	(.355)	-0.011	(.908)
Terrorism	0.193	(.529)	0.242	(.400)
Defense	0.278	(.272)	0.130	(.593)
Environment	-0.704	(.002)	-0.382	(.096)
Iraq	-0.700	(.013)	-0.739	(.012)
Immigration	-0.123	(.775)	0.321	(.447)
constant	-5.889	(.000)	-2.071	(.000)
R ²	0.604		0.735	
Prob > F	0.000		0.000	
n	711		600	

protested were protesting the war. The fact that these individuals have ideal points to the left of their counterparts is of little surprise, as the three parties on the left of the continuum, Labor, the Greens, and the Democrats, all ran on anti-war platforms.

Also in the “opinion and information” category, the government performance variable is significant. A one point increase in ratings of the government’s performance corresponds with a .63 unit shift to the right on the underlying continuum, all else held constant. As the “government” being evaluated at the time of the survey consisted of the Liberal and National parties, this result is sensible; both parties fall on the right side of the continuum. Finally, the coefficient indicating that those who see the environment as the most important election issue are to the left of their counterparts (and more toward the Greens) on the continuum is significant at the .10 level.

Regarding the demographic variables, the unemployed have ideal points significantly to the left of the employed and those born in Australia have ideal points to the right of the foreign-born. In addition, at the .10 significance level, the results indicate that individuals with a university education lie to the left of those without on the underlying continuum. In addition, there is an interactive relationship between gender and age. Gender has a significant effect, with females tending to have ideal points to the left of males, a finding in conflict with some previous research (for example, Jaensch 1995; Charnock 1997). In addition, confirming Leigh’s (2005) finding that older women are less likely to vote Labor than Coalition, the interaction term shows that as women age, their ideal points shift to the right.

7.4.1 Shifting Preferences

How do party preferences diverge due to differences in individual-level variable values? First, consider a leftist voter, voter 1, with an ideal point at -4.0. As shown in Figure 7.3, under the proximity voting assumption, this voter will order the parties Labor-Green-Democrat-Liberal-National-One Nation. Now imagine an individual, voter 2, who is essentially identical to this voter, except he is unemployed, and unlike his counterpart he sees the Iraq war as very important and thus joins some protests. The OLS results indicate

that his ideal point will be $973 + .739 + .405 = 2.12$ units to the left of his counterpart's. He thus will list the Greens first on his ballot, followed by the Democrats, Labor, the Liberals, the Nationals, and One Nation. These two voters will order the parties differently on their ballots based on differences in their values on the individual-level variables.

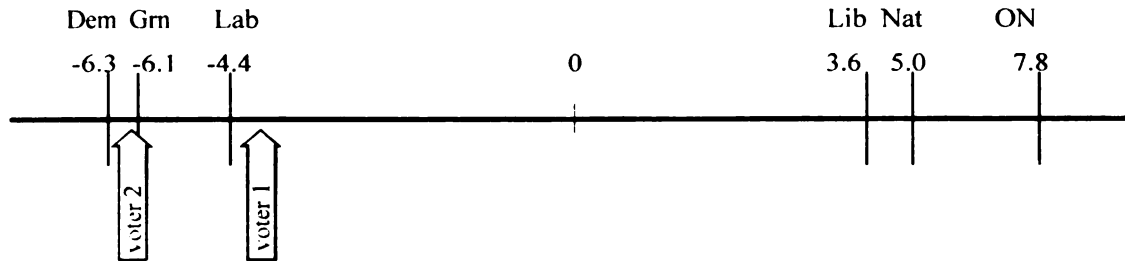


Figure 7.3: Two Hypothetical Voters in Relation to the Six Parties

7.5 Ideal Point and Vote Choice: A Corroborating Test

Do the conclusions reached from a sole examination of the spatial proximity model, estimated with unfolding analysis, hold when actual vote choice data is introduced? Previous research that uses unfolding has found a direct link between actual vote choice and the distance between individuals and parties or candidates. For example, Lin, Chu, and Hinich (1996) find vote choice in Taiwan to relate to a voter's proximity to a party. This conclusion is also reached by Hinich, Khmelko, and Ordeshook (1999) in a study of Ukrainian voting, and Dow (1998), also using unfolding analysis, shows the proximity of voter and party ideal points to relate to vote choice in Chile.

Based on the insights from the cross-national analyses conducted in Chapter 5, proximity voting behavior should be prevalent in Australia; because its political variation arises from a single dimension, voters are likely to correctly identify the party closest to them in political space. To test whether the distance from a voter's ideal point to a party's ideal point truly corresponds to vote choice in Australia, I use multinomial logistic regression.

While data on how the voters surveyed in the CSES actually ranked the parties is not included, information on the party each voter planned to assign their first preference to is available. This variable is observed across 1474 respondents. The independent variable is individual ideal point from the unfolding results. Table 7.4 summarizes the results of the regression.

Table 7.4: Ideal Point and Vote Choice		
Variable	Coefficient	(<i>p</i> -value)
Democrats/Liberal		
Ideal Point	-1.054	(.000)
constant	-3.702	(.000)
Greens/Liberal		
Ideal Point	-1.395	(.000)
constant	-2.196	(.000)
Labor/Liberal		
Ideal Point	-1.185	(.000)
constant	-0.341	(.000)
National/Liberal		
Ideal Point	0.349	(.000)
constant	-2.985	(.000)
One Nation/Liberal		
Ideal Point	0.557	(.002)
constant	-5.296	(.000)
<i>n</i>	1474	
Log Likelihood	-1206.082	
Pseudo-R ²	0.294	

The coefficients on ideal point for each equation in the multinomial model are in the expected direction and significant; as a voter's ideal point moves rightward, she is more likely to select a party of the right as her first preference. As these coefficients in their raw form are not easily interpretable, I display the predicted probabilities of voting Labor and voting Liberal across the range of ideal points in Figure 7.4.⁸

Preferences for Labor and Liberal peak once on either side of the continuum and then decline quite rapidly. This supports the proximity voting assumption; the propensity of voters to select a given party decreases as the distance between their ideal points and the

⁸The figure was produced using *Spss*, with reference to Long and Freese (2006).

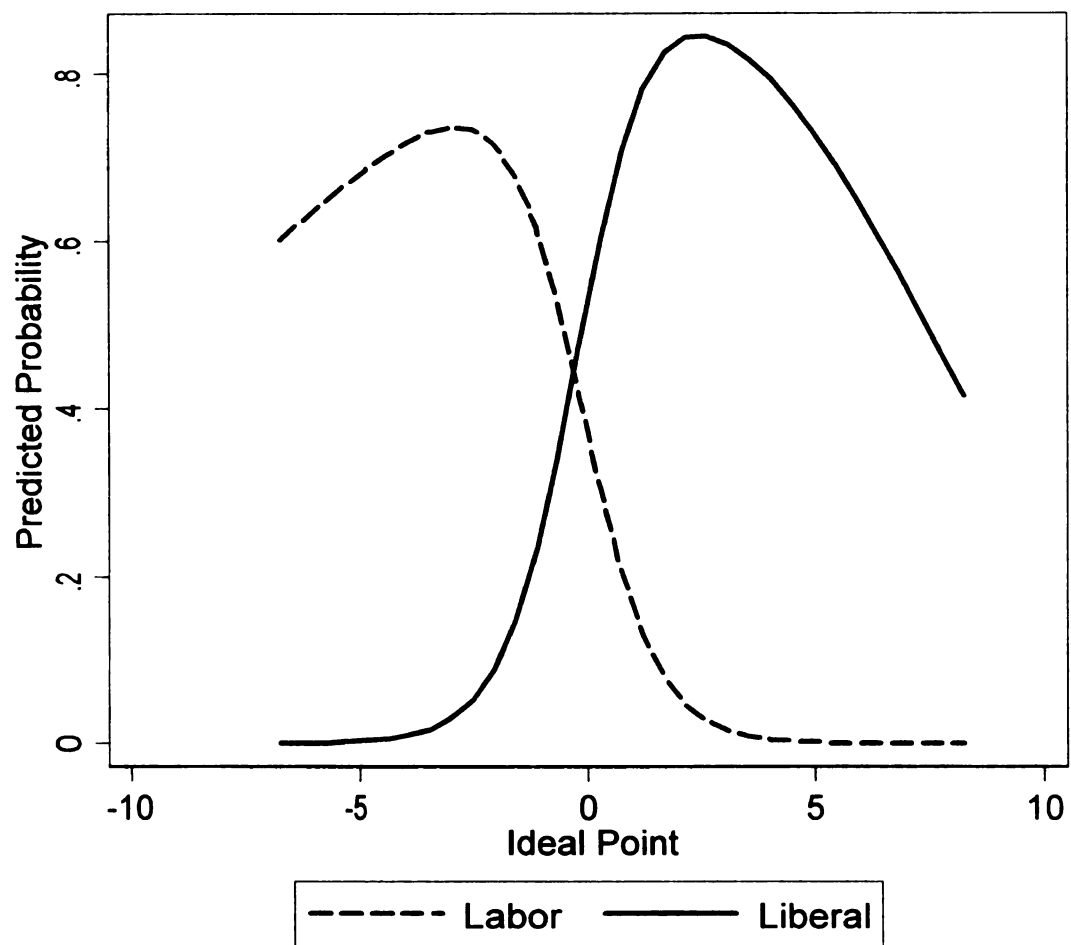


Figure 7.4: Predicted Probability of Voting ALP or Liberal across Ideal Points

party's location on the underlying dimension increases. The point of indifference between Liberal and Labor predicted by the multinomial logit model is at ideal point $-.29$. This is a striking result, as the point of indifference predicted by the spatial proximity model is at ideal point $-.40$. The indifference points between Labor and Liberal predicted by the proximity model and the multinomial logit model differ by only $.11$ units, less than 1% of the entire range of the ideal points. Clearly the proximity voting assumption is met and voter positions on the underlying continuum do predict vote choice.

The four smaller parties are not included in Figure 7.4. To be sure that voter ideal points along the recovered socioeconomic dimension also correspond to vote choice for minor parties, I produced a similar plot (Figure 7.5) to examine the relationship between ideal point and vote choice for the Democrats, the Greens, the National Party, and One Nation. The figure is again produced using predicted probabilities derived from the multinomial logit estimation depicted in Table 7.4.

Regarding One Nation, the figure shows that as a voter's ideal point moves rightward, the probability of assigning a first preference to One Nation increases. The same is true for the National Party, and the probability of picking the Nationals is consistently higher than the probability selecting One Nation. On the left, the figure shows that the probability of voting Green systematically increases as ideal point moves leftward. Finally, the probability of assigning a first preference to the Democrats is low for all voters sampled, irrespective of ideal point. Nevertheless, there is a slight boost in the probability of voting Democrat for individuals with left-of-center ideal points. Thus, voter locations along the socioeconomic continuum predict vote choice not only for Labor and Liberal, but also for the smaller Australian political parties. While this result does not eliminate the possibility that postmaterialism helps to explain minor party voting, it further demonstrates the importance of the socioeconomic dimension in Australia for vote choice over *all* political parties.

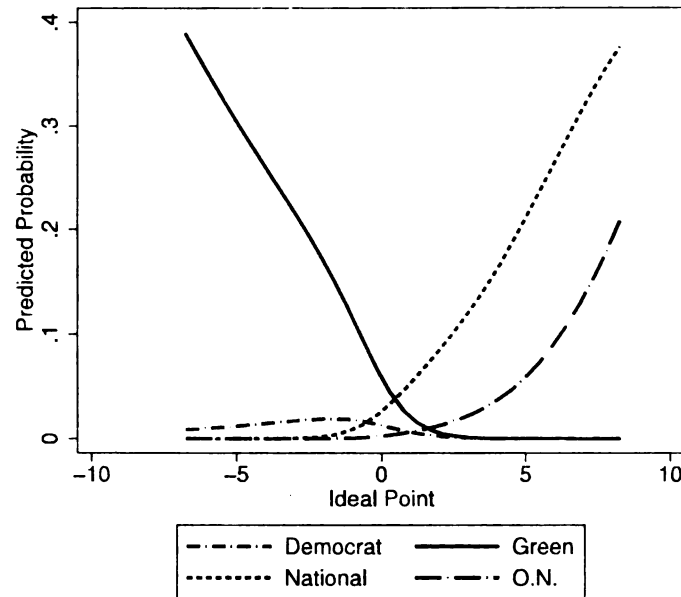


Figure 7.5: Predicted Probability of Voting Democrat, Green, National, or One Nation across Ideal Points

7.6 Conclusion

In elections to the Australian House of Representatives, the use of alternative vote requires that voters rank order *all* of the competing parties on their ballots according to their preferences. Thus, studies of voting in Australia, or other multiparty systems that employ preferential ballots, should take into account all competing parties and the unique nature of the balloting formulae employed. To do so, this chapter uses the unfolding method developed in Chapter 2 to examine voting in Australia.

I find Australian party and voter positions to be well-described by a single dimension - the common socioeconomic continuum. Parties are aligned from left to right on this dimension according to their social and economic policy stances. In addition, voters' positions along the continuum are shown to vary with a host of individual-level factors.

Thus, this study enhances the literature on Australian voting behavior in three ways. First, it confirms that the socioeconomic dimension is paramount to vote choice in Australia. Second, it identifies a host of variables that are empirically related to voter ideal

points along the socioeconomic dimension, and these ideal points are shown to predict vote choice for both major and minor parties in 2004. Lastly, it uncovers a clear and simple picture of party and voter locations in Australian political space using an empirical spatial analysis.

Finally, this study adds to the comparative political science literature by introducing a new way to study voting behavior in preferential systems. By recovering voter ideal points, preferences over each competing party can be obtained. As simply considering first preferences of voters in preferential systems does not fully account for the mechanics of these institutions, future studies of voting behavior in such nations may benefit from the approach employed in this project.

Chapter 8

The Dimensionality of Politics and Voter Behavior under Proportional Representation: The Case of Peru

Alberto Fujimori won the presidency of Peru in 1990 in part due to his ability to moderate his rightist credentials and appeal to a wide spectrum of voters. In fact, many voters normally supportive of leftist candidates cast their ballots for the political newcomer. Thus the explanatory power of traditional link from socioeconomic class to vote choice was diminished. This hints that vote choice in Peru is very complex and may not conform to traditional theories of voter behavior. Can vote choice in Peru be predicted with quantitative models, or does its nascent party system, unique candidates, and numerous other idiosyncracies preclude such generalizations of voter behavior?

Peru is a developing country situated on the western coast of South America. Having proclaimed independence from Spain 1821, Peru has since remained sovereign. With roughly 29 million people and a per capita GDP of U.S.\$7,800(PPP), it falls in the middle of Latin American countries in terms of both population and wealth. In 1979, democratic

government returned after 30 years of military rule.

Peru's unicameral legislature contains 120 members and is elected with open-list proportional representation via the d'Hondt electoral formula. Legislators were elected from 25 different districts in 2001 and 2006, meaning district magnitude was 4.8, and in 2000 Peru used a single national district to elect its lower house. Thus, the Peruvian electoral system is very permissive to small party entry. The effective number of parties in congress, using Laakso and Taagepera's (1979) measure, was roughly four in 2000, 2001, and 2006,¹ and in each election at least seven parties gained one or more seats in congress.

As shown in Chapter 4, political variation in countries with permissive electoral systems generally does not conform well to a single dimension. And, as expected, Peruvian political space is not unidimensional. In fact, the R^2 values from the unfolding results produced in Chapter 3 are .63 in 2000, 0.62 in 2001, and 0.72 in 2006, each below the mean value of 0.75. This means that a single dimension explained less than two-thirds of variation in party and voter positions in Peru in 2000 and 2001, and less than three-fourths of this variation in 2006.

Using data from the Comparative Study of Electoral Systems, which conducted comprehensive surveys of Peruvian voters during the presidential and congressional elections of 2001 and 2006, I conduct an in depth analysis of voter behavior. Because the theory advanced in this project does not consider presidential elections, I only examine voter behavior in the congressional contests. The CSES also surveyed Peruvian voters in 2000, but did not record congressional vote choice.

Based on the insights from the cross-national analyses conducted in Chapter 5, proximity voting behavior should not be observed in Peru; because political variation does not arise from a single dimension, voters are less likely to correctly identify the party closest to them in political space. In addition, Peru's multiparty elections and compulsory voting rules should negatively affect the likelihood of casting a proximity vote.

I test these expectations with an alternative-specific multinomial probit model, which is well-suited for the study of multiparty elections. As anticipated, I find that proximity

¹In 2000 it was 3.84, in 2001, it was 4.37, and in 2006 it was 3.95.

voting did not occur in Peru in 2001. In 2006, proximity considerations did enter the voting calculus, but had a minimal role relative to the effects of other factors, including both partisanship and positive affect for political parties. In addition, education, gender, income, and evaluations of government performance each affected voter behavior in 2006, while faith in the political process and education levels shaped vote choice in 2001. The links from the independent variables vote choice are not uniform across the election years, demonstrating a lack of systematic empirical relationships between external factors and vote choice in Peru.

8.1 The 2001 and 2006 Congressional Elections in Peru

The decade leading up to Peru's 2001 elections was colored by the presidency of Alberto Fujimori. Much of Fujimori's rise to power in 1990 was due to the ineptness his main competitor and a deterioration of the party system throughout the 1980s, which left a hole in the middle of the political spectrum. Peru's use of open-list proportional representation with a high district magnitude also weakened party loyalties and set up rivalries within right-wing parties. Though Fujimori was a candidate of the right, he appealed to the center by speaking in broad generalities (Schmidt 1996). Fujimori's presidency, however, was riddled with scandal and nondemocratic reforms, and his 2000 reelection was widely condemned as being neither free or fair. And, by late that year, Fujimori fled to Japan facing allegations of corruption (Schmidt 2002).

Peru's 2001 elections were conducted in the wake of the 2000 debacle. However, unlike the 2000 election, the 2001 contests were internationally praised. The winner of the presidential race was Alejandro Toledo, who ran as a candidate of the Possible Peru (PP) party that he founded.

In terms of votes received, the main competing parties in the 2001 congressional elections were Possible Peru, the American Popular Revolutionary Alliance (APRA), National Unity (UN), and the Independent Moralizing Front (FIM). The PP finished in first place

in 15 of Peru's 25 districts and won 26.5% of the vote and 37.5% of congressional seats. APRA benefited from a split of the center-right, which was caused by Fujimori's exit from Peruvian politics (Schmidt 2003), and received 19.7% of the vote and 23.3% of seats. UN received 13.8% of the vote and 14.2% of seats, while FIM received 11.0% of the vote and 9.2% of the 120 elected seats. Several smaller parties also competed, but none received more than 6% of the vote.

Table 8.1: Main Peruvian Parties in the 2001 and 2006 National Elections

Party	General Description
Alliance for the Future (AF)	Right-wing ideology. Contested 2006 elections. Associated with Alberto Fujimori.
American Popular Revolutionary Alliance (APRA)	Social democratic ideology. Won presidency in 2006. Strong showing in both 2001 and 2006. Has existed in Peru since 1920s.
Independent Moralizing Front (FIM)	Centrist ideology. Contested 2001 elections. Aligned with Possible Peru. Disbanded after poor showing in 2006 elections.
National Unity (UN)	Christian democratic ideology. Contested 2001 and 2006 elections.
Possible Peru (PP)	Centrist ideology. Won presidency and congressional majority in 2001. Won only two seats in 2006.
Union for Peru (UPP)	Social democratic ideology. Won congressional majority in 2006.

President Toledo and his PP led Peru through a half-decade of robust economic growth. However, voters became disillusioned with the president's extravagant lifestyle and the corruption within his government, and the PP did not put forth a presidential candidate in 2006 (Schmidt 2007). Instead, APRA won the presidency behind the leadership of Alan

García and enjoyed another strong showing in congress, winning 20.6% of the votes and 30.0% of the seats. The Union for Peru (UPP) won the largest share of the congressional vote at 21.2%, which translated to 37.5% of seats. UN had another solid showing with 15.3% of the vote and 14.2% of seats. Finally, the Alliance for the Future (AF), formed through an alliance of pro-Fujimori parties, came in fourth place in the congressional elections with 13.1% of the vote and 10.8% of seats. Several smaller parties also contested the election, all receiving less than 8% of the vote. In this research I only examine parties that received 10% or more of the vote congressional elections. Each party examined in this chapter is described in Table 8.1.

8.2 Previous Research, Variables, and Expectations

There is an extensive subfield of research on voting behavior and elections dating back several decades. Using previous comparative and American voting research as a guide, I identify several variables related to vote choice. I also make some specific predictions about vote choice in Peru based on the limited body of research on Peruvian voting behavior.

First, positive affect for a party will influence one's vote. Put simply, individuals will vote for parties that they like. As expected, Echegaray (2005, 138-140) finds that, in the 1995 presidential election, voters were much more likely to vote for the incumbent if they held a favorable view of him. In 2001 and 2006 the CSES asks voters to rate most or all of the competing political parties in their home nation.² I use this question to gauge each individual's feelings over each party.

The "Michigan model" of Campbell, Converse, Miller, and Stokes (1960) connects psychological attachments to political parties with voter behavior. These attachments,

²Question wording: "I'd like to know what you think about each of our political parties. After I read the name of a political party, please rate it on a scale from 0 to 10, where 0 means you strongly dislike that party and 10 means that you strongly like that party. If I come to a party you haven't heard of or you feel you do not know enough about, just say so."

instilled at a young age, can affect voting behavior throughout an individual's life. Scores of studies have reaffirmed the notion that partisanship is related to vote choice, both in the U.S. and cross-nationally (Bartels 2000; Green, Palmquist, and Schickler 2002; Miller and Shanks 2001; Nadeau and Lewis-Beck 2001). Thus, although partisanship is comparatively weak in Peru (Norris 2004, 139), voters there do rely on partisan attachments when casting their ballots (Echegaray 2005, 138-139). In the 2001 and 2006 election cycles the CSES asked respondents which major parties competing in the election they most identified with, if any. Using this question, I create a dummy variable which equals 1 if an individual most identifies with a given party and 0 otherwise.

Regarding socioeconomic status and class, Roberts and Arce (1998), who examine the patterns of support for Alberto Fujimori in the mid-1990s, find that the rightist candidate enjoyed significant support from the lower-class. Fujimori was a unique candidate with numerous idiosyncracies voters found pleasing and an ability to appeal to a broad range of voters. While this achievement may not have been possible for most rightist candidates, it demonstrates a breakdown of Peru's once-polarized class-based voting patterns (Schmidt 1996). In addition, Echegaray (2005, 138) finds that class is only weakly related to vote choice in Peru. As such, there may not be a clear relationship between socioeconomic status and voting patterns. To gauge household income, the CSES separates respondents into quintiles. I use this measure to capture respondents' socioeconomic class.

The retrospective theory of economic voting³ posits that voters reward or punish governments and politicians for recent economic outcomes, whereas prospective theory argues that voters choose based on future expectations of performance.⁴ Perceptions of economic outcomes may be either egotropic, based on the voter's own well-being, or sociotropic, based on the well-being of society as a whole. Thus, if the economy is functioning well, incumbents should enjoy an electoral bump, and in periods of recession, incumbents should

³In the American context, see Key (1966) and Fiorina (1981). In the comparative context, see Lewis-Beck and Stegmaier (2000).

⁴For example, MacKuen, Erikson, and, Stimson (1992) claim that long-term expectations of the economy affect presidential approval, which is tied to voting, rather than past performance, rejecting long-standing claims that the electorate views parties and leaders retrospectively.

expect to be punished.

Echegaray (2005) surveyed 519 voters in Peru shortly before the 1995 election to examine what variables affected incumbent support. He finds strong evidence that Peruvian voters base their decisions on both retrospective and prospective evaluations of the economy. Other studies examine presidential approval in relation to economic concerns. This is a useful approach, as presidential approval is strongly tied to an individual's vote decision (Abramson, Aldrich, and Rohde 2007; Fiorina 1981). First, Morgan Kelly (2003), examining approval in Peru throughout the 1990s, concludes that Peruvians hold politicians accountable for both the economic past and "future implications of past actions" (864). Weyland (2000) finds that approval of President Fujimori depended on approval of his economic policies, and individuals were more likely to vote for him when the economy was performing well. Finally, Singer (2007) finds that support for President Toledo's government from 2001-2006 was positively related to prospective sociotropic evaluations of the economy (82, 197), and approval of President Fujimori in 2000 was related to both prospective and retrospective evaluations (131, 204).

The CSES in 2001 asks voters only their retrospective sociotropic opinions of the economy,⁵ limiting my ability to compare the predictive power of the prospective and retrospective theories of economic voting. The variable is coded from 1 to 5, with higher values indicating positive feelings about the economy. For the 2006 election the CSES does not ask respondents to evaluate the economy specifically, but instead asks their opinions of government performance on the issue they saw as most important.⁶ The variable is coded from 1 to 4, with higher values indicating positive feelings about governmental performance. Note that 55% of voters saw economic issues as most important.

Seeing the political process as valid may also affect one's vote choice; those who are upset by the current state of affairs may cast a protest vote for an "outsider" party, if

⁵Question wording: "What do you think about the state of the economy these days in Peru? Would you say that the state of the economy is very good, good, neither good nor bad, bad, or very bad?"

⁶Question wording: "And thinking about [the issue you see as most important], how good or bad a job do you think the government/president in Lima has done over the past five years. Has it/he done a very good job? A good job? A bad job? A very bad job?"

they choose to vote at all. I gauge political efficacy with a CSES question which inquires whether a respondent feels that his or her vote makes a difference in the political process.⁷ The variable is split into five categories, with higher values corresponding to more political efficacy.

I also include variables for age, education, and gender. In 2001, age is measured in quartiles,⁸ and in 2006 it is measured simply as a respondent's age in years. To gauge education, I create a dummy variable differentiating university graduates, coded 1, from others, coded 0. Gender is coded as a dummy variable, 1 for females and 0 for males. Each variable is obtained from the CSES and is summarized in Table 8.2.

Table 8.2: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	n
2001 Elections					
Distance	2.317	1.853	0.057	7.404	4072
Affect	4.559	3.281	0	10	4339
Party ID	0.062	0.241	0	1	4472
Age	2.394	1.149	1	4	1118
Female	0.498	0.500	0	1	1118
Income	3.021	1.196	1	5	1118
Education	0.216	0.412	0	1	1115
Efficacy	4.229	1.203	1	5	1102
Econ. Performance	2.107	0.852	1	5	1117
2006 Elections					
Distance	2.494	1.937	0.009	7.268	6716
Affect	3.333	3.252	0	10	7439
Party ID	0.082	0.274	0	1	8128
Age	37.947	14.438	18	95	2032
Female	0.501	0.500	0	1	2032
Income	2.985	1.422	1	5	1907
Education	0.113	0.317	0	1	2031
Efficacy	3.761	1.380	1	5	1924
Gov. Performance	2.208	0.767	1	4	1958

⁷Question wording: "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. Using the scale on this card, where would you place yourself?"

⁸The categories are: 1, 18-25 years; 2, 26-35 years; 3, 36-45 ; 4, 46-65 years

8.2.1 Proximity Voting in Peru

The proximity model of voting (Downs 1957; Hotelling 1929) is generally accepted as an accurate portrayal of voter behavior in the political science literature and has weathered several theoretical and empirical tests throughout the past several decades (see, for example, Blais, Nadeau, Gidengil, and Nevitte 2001; Westholm 1997). The model predicts that voters choose the candidate or party closest to them on some ideological continuum in any given election.

If the theoretical predictions of the proximity model hold, an increase in the distance from a particular party should decrease the likelihood of voting for that party. However, as shown in Chapter 5, proximity behavior is less likely in countries where political variation is not captured by a single dimension. The logic behind this relationship is straightforward: as political space becomes more complex, it becomes more difficult for voters to locate the most proximate party and cast their vote accordingly.

In addition, multipartism and compulsory voting⁹ in Peru should negatively affect the likelihood of casting a proximity vote. Chapter 5 shows that multiparty elections lessen the likelihood of a proximity vote, as increasing the number of parties makes it harder to “correctly” discern which party is most proximate (Lau and Redlawsk 1997). Additionally, compulsory voting increases turnout among disinterested and uninformed citizens (Jackman 2001). Thus, proximity considerations will be less likely when voting is coerced, as disinterested voters may choose essentially at random when in the polling booth. Thus, I do not expect to find strong evidence of proximity voting in Peru.

Party and voter positions are available from the unfolded placements produced in Chapter 3. I do not, however, use these positions to obtain the distance of each party from each voter. Political variation in Peru did not arise from a single dimension in either 2001 or 2006. As mentioned, the R^2 value from the unfolding results in Peru is 0.62 in 2001 and 0.72 in 2006, both below the mean value of 0.75. Thus, the recovered unidimensional party and voter placements do not necessarily correspond to a logical ordering of political players.

⁹Voting is mandatory for citizens under 70 years of age.

Instead, I obtain party positions from aggregated individual perceptions of the political parties' positions, as the CSES asks respondents to locate parties along the left-right continuum with a number between 0 and 10. Measuring party positions with such responses can be problematic. Respondents may place their most-preferred party closer to their own position, regardless of that party's true position (Adams, Merrill, and Grofman 2005, 170). Additionally, they may shape their responses to meet the proximity voting criterion (Boatright 2008). Such rationalization of perceptions lessens the reliability of individual placements (Macdonald, Rabinowitz, and Listhaug 2007). While I would have preferred to use expert party placements, these were available only for the 2006 survey. Thus, to maintain consistency, I use averaged individual-level placements for each year. To minimize the potential problems with these placements, I consider only the perceptions of college-educated respondents.

The CSES asks voters to locate themselves along the same left-right continuum on which they place the parties.¹⁰ I compare each voter's self-reported location to each party's position to gauge proximity. The resulting variable, *distance*, is summarized in Table 8.2.

Figure 8.1 displays party locations and the distribution of the self-reported voter locations. UN is further to the right than expected, based on its moderate dispositions (Schmidt 2002, 345). In addition, in 2006, the pro-Fujimori AF is located at the center of the spectrum, which is surprising in light of Fujimori's right-wing policies. However, this may reflect the fact the Fujimori was particularly adept at reaching out to centrist voters.

8.3 Methodology

To assess vote choice in Peru I use an alternative-specific multinomial probit model (ASMNP). This model is commonly employed to study the decisions of individual voters over several political parties (Alvarez and Nagler 1995; 1998). Like case-specific multino-

¹⁰Question wording: "In politics people sometimes talk of left and right. Where would you place yourself on a scale from 0 to 10 where 0 means the left and 10 means the right?"

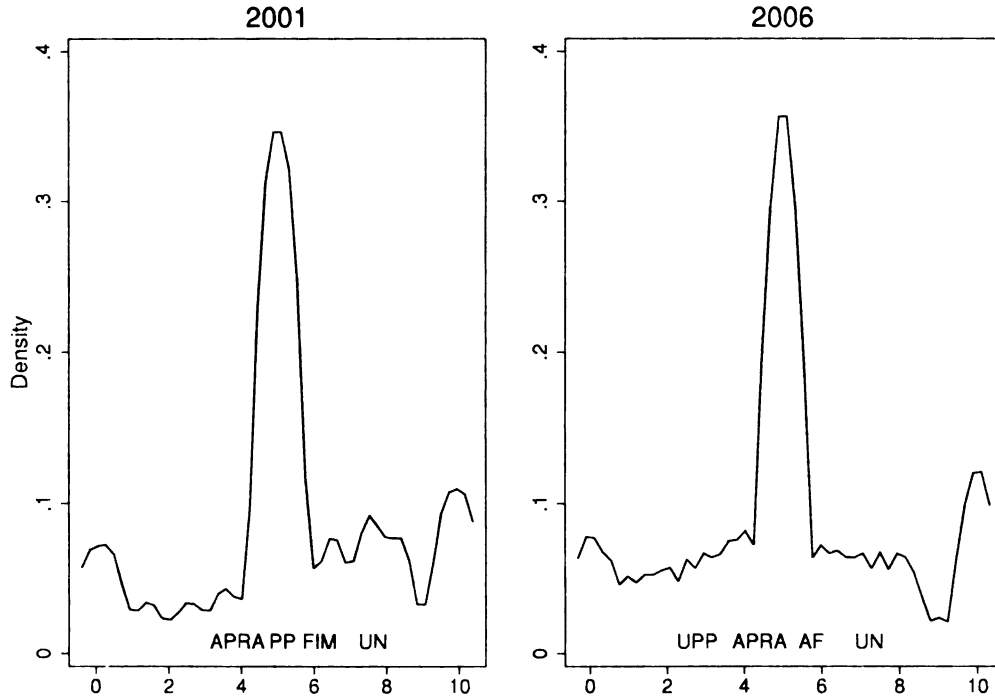


Figure 8.1: Voter and Party Positions in Peru

mial probit, ASMNP is designed to assess choice over nominal categories. However, true to its name, ASMNP also accounts for alternative-specific variables. For example, in a model of an election where an individual is choosing among several parties, there are many case-specific variables, such as age, gender, and education, which vary only across individuals. However, there are also alternative-specific variables, such as feelings about a party and distance from a party, which vary across both individuals and parties (alternatives).

Formally, following Alvarez and Nagler (1995), ASMNP assumes each voter's utility is a function of both alternative-specific and case-specific variables, giving the equation:

$$u_{ij} = a_i \Psi_j + x_{ij} \beta + \varepsilon_{ij}. \quad (8.1)$$

where u_{ij} represents the utility of voter i for the election of party j , a_i represents the case-specific characteristics of voter i , x_{ij} represents the characteristics of party j relative

to voter i , Ψ_j captures the coefficients which relate each voter's case-specific characteristics to each voter's utility over each of the j parties, β captures the coefficients relating the characteristics of each party, relative to each voter, to each voter's utility over each of the j parties, and ε_{ij} is a random homoscedastic error term for the i^{th} voter over the j^{th} party which is distributed multivariate normal. Each voter is assumed to choose the party that offers the most utility.

ASMNP is conceptually equivalent to the conditional logit model (CLM). However, the CLM assumes the independence of irrelevant alternatives (IIA), which is problematic for the study of voting. The IIA assumption holds that adding or removing a party from the election does not affect the odds of picking an existing alternative (Long and Freese 2006, 243). Thus, consider an election in which a centrist voter is choosing between two equidistant parties, one on the left and one on the right. Her likelihood of picking either party is 50%. Now imagine another very similar leftist party enters the election. By IIA, the likelihood of picking a party of the left is still 50% and the probability of picking the rightist party is 50%. However, in truth, because the voter is indifferent between all three parties, the likelihood of choosing each is one third.

ASMNP, unlike the CLM, does not make the IIA assumption. This is because it allows the errors (ε_{ij}) to be correlated across the parties. Thus, adding an additional party will affect the probability of choosing among the existing parties. Therefore, it is the most appropriate model for assessing the Peruvian elections at hand.

8.4 Results

Tables 8.3 and 8.4 display the results of the analyses. Due to missing data, the number of case-specific observations is 612 for the 2001 election and 686 for the 2006 election. The number of alternative-specific observations is 2448 in 2001 and 2744 in 2006. In each model, a single party was excluded as a reference category for identification purposes, and the coefficients on each case-specific variable are interpreted relative to this party. The reference party is Possible Peru in 2001 and Union for Peru in 2006. Because the

coefficients from probit analyses are not readily interpretable, I also express these values as predicted probabilities in Tables 8.5 and 8.6.

Several of the case-specific variables meet conventional levels of statistical significance. First, in the 2001 sample, educated voters are drawn to the PP; the probability of college educated individuals voting for PP was .11 more than the probability of others choosing the party. In addition, people with faith in the political process are less likely to choose APRA and more likely to vote PP in 2001. Expressed as a change in probability, the chance of an individual with the maximum value on the efficacy variable (5) voting for APRA is .14 lower than the probability of an individual with the minimum value (1) voting for the party. Contrary to expectations, this means that those who see the political process as valid are *less* likely to vote for the established party, instead choosing the newer Possible Peru.

In the 2006 sample, there does appear to be a class component in Peruvian voting behavior. Wealthier voters were drawn to APRA and the UN, and were less likely to vote for the UPP, likely due to its far left social-democratic ideology. Expressed as a change in probability, an increase from the minimum value of income, which is measured in quintiles, to the maximum value increases the chance of voting for APRA by .09 and the probability of voting for UN by .14. In addition, the probability of an individual with the highest income level voting UPP is .17 less than an individual with the least income. Regarding education, in 2006 the probability of college educated individuals voting for APRA was .19 less than the probability of others. As APRA is the oldest, and arguably the most recognizable, party in Peruvian politics, it may be the “easier” and more familiar choice for less educated individuals.

In addition, female voters preferred the AF in 2006; a female voter's probability of choosing AF was .08 higher than a male voter's. Because the AF was led by a female, Martha Chávez Cossio, and Alberto Fujimori's daughter, Keiko Fujimori,¹¹ was a visible (and victorious) congressional candidate, women may have identified with the AF in 2006.

¹¹In a unique series of events, Keiko Fujimori was actually appointed First Lady of Peru in 1994 at the age of 19. Her father appointed her to the post after a contentious and public divorce from her mother.

These female voters may have been seeking “symbolic representation,” which is achieved through demographic correspondence of voters and elected officials (Powell 2004, 291).

Finally, though retrospective economic voting was not a factor in the 2001 congressional election, in 2006 voters who positively evaluated the previous government’s performance on economic and other issues were less likely to vote AF. As the incumbent party of the presidency and the congressional majority, Possible Peru, was not contesting the election, voters seeking to dole out punishment or rewards for government performance did not have an outlet to do so. It appears, however, that voters disenchanted with government performance punished the Fujimoristas associated with the Alliance for the Future. Though Fujimori had been absent from Peruvian politics for six years, angry voters may still have attributed poor governmental performance to his corruption-laden decade of rule.

The alternative-specific variables are interpreted relative to each competing party. That is, a positive coefficient indicates that an increase in the associated variable for a particular party corresponds to an increase in the likelihood of voting for that party. The effects of the alternative-specific variables are also displayed in Tables 8.5 and 8.6 as predicted probabilities.

In both 2001 and 2006, affect is positively and significantly related to vote choice. Thus, an increase in favorable dispositions toward a given party raises the likelihood that one will vote for that party. For example, a change from the mean of affect for PP to one standard deviation above the mean in 2001 increases the probability of voting for PP by .27. The coefficient on party ID is also positive and significant in both 2001 and 2006; identifying with a particular party increases the likelihood of voting for that party. In 2001, the probability of a voter who identifies with PP choosing the party is .30 higher than a voter who identifies with another party or has no party ID.

Table 8.3: Vote Choice in the 2001 Peruvian Congressional Elections

Variable	Coefficient	(<i>p</i> -value)
Alternative-Specific Variables		
Distance	-0.006	(.890)
Affect	0.254	(.000)
Party ID	0.947	(.000)
APRA/PP		
Age	0.103	(.247)
Female	0.057	(.784)
Income	-0.107	(.227)
Education	-0.195	(.480)
Efficacy	-0.184	(.012)
Econ. Performance	0.165	(.126)
UN/PP		
Age	-0.002	(.985)
Female	-0.107	(.574)
Income	0.027	(.725)
Education	-0.362	(.123)
Efficacy	-0.055	(.410)
Econ. Performance	-0.002	(.986)
FIM/PP		
Age	0.052	(.587)
Female	-0.301	(.182)
Income	-0.101	(.269)
Education	-0.464	(.100)
Efficacy	-0.103	(.204)
Econ. Performance	0.093	(.442)
<i>n</i> (case-specific)	612	
<i>n</i> (alternative-specific)	2448	
Log Likelihood	-511.266	
Prob > χ^2	0.000	

Table 8.4: Vote Choice in the 2006 Peruvian Congressional Elections

Variable	Coefficient	(p-value)
Alternative-Specific Variables		
Distance	-0.094	(.007)
Affect	0.240	(.000)
Party ID	0.986	(.00)
APRA/UPP		
Age	-0.005	(.499)
Female	0.277	(.199)
Income	0.176	(.024)
Education	-0.878	(.012)
Efficacy	0.004	(.953)
Gov. Performance	-0.082	(.524)
UN/UPP		
Age	-0.001	(.844)
Female	0.356	(.121)
Income	0.229	(.007)
Education	-0.086	(.798)
Efficacy	-0.125	(.108)
Gov. Performance	-0.119	(.383)
AF/UPP		
Age	-0.021	(.195)
Female	1.197	(.012)
Income	-0.026	(.874)
Education	-0.538	(.453)
Efficacy	0.010	(.945)
Gov. Performance	-0.806	(.015)
n (case-specific)	686	
n (alternative-specific)	2744	
Log Likelihood	-553.346	
Prob > χ^2	0.000	

Table 8.5: Changes in Voting Probabilities, 2001

Alternative-Specific Variables		Case-Specific Variables	
Party	Affect μ to $(\mu+\sigma)$	Party ID Not IDing to IDing	Efficacy No Uni. to Uni. Min. to Max.
PP	0.266	0.300	0.107 0.135
APRA	0.225	0.260	0.003 -0.139
UN	0.278	0.319	-0.053 0.032
FIM	0.197	0.228	-0.057 -0.029

Predicted probabilities calculated from significant coefficients in Table 8.3.

Table 8.6: Changes in Voting Probabilities, 2006

Alternative-Specific Variables		Case-Specific Variables					
Party	Distance μ to $(\mu+\sigma)$	Affect μ to $(\mu+\sigma)$	Party ID Not IDing to IDing	Gender M to F	Income Min. to Mlax.	Education No Uni. to Uni.	Performance Min. to Max.
Δ							
UPP	-0.041	0.202	0.256	-0.090	-0.173	0.107	0.108
APRA	-0.052	0.267	0.336	-0.023	0.086	-0.192	0.080
UN	-0.046	0.228	0.287	0.034	0.142	0.095	-0.022
AF	-0.014	0.070	0.091	0.079	-0.544	-0.009	-0.166
Predicted probabilities calculated from significant coefficients in Table 8.4.							

As expected, the coefficient on the distance variable is insignificant in the 2001 election. However, in the 2006 election, the coefficient on the distance variable is negative and significant; supporting Downsian predictions, as the distance between a given party and voter on an underlying ideological continuum increases, the probability of voting for that party decreases. Nevertheless, Table 8.6 shows that the substantive effect of this variable is minimal in 2006; a shift from the mean of the distance variable to one standard deviation above the mean decreases the probability of voting for a particular party by only a very small margin, relative to the effects of the other variables.

8.5 Conclusion

Peru is an independent Latin American nation with 30 years of continuous democracy. The country elects its unicameral legislature with open-list proportional representation, which fosters a robust multiparty system. Chapter 4 shows that political variation in countries with permissive electoral systems generally does not conform well to a single dimension. And, as expected, Peruvian politics are not unidimensional; a single dimension explained less than two-thirds of variation in party and voter positions in Peru in 2000 and 2001, and less than three-fourths of this variation in 2006.

Using data from the Comparative Study of Electoral Systems, in this chapter I conduct an in depth analysis of Peruvian voter behavior in the 2001 and 2006 congressional elections. Based on the conclusions of the cross-national analyses conducted in Chapter 5, I expect that proximity voting should be minimal in Peru. That is, because political variation in the country does not arise from a single dimension, voters are less likely to correctly identify the party closest to them in political space. In addition, Peru's multiparty elections and compulsory voting rules should negatively affect the likelihood of casting a proximity vote.

I use a sophisticated alternative-specific multinomial probit model, which is well suited to the study of multiparty elections, to test these expectations. As anticipated, I find that proximity voting did not occur in Peru in 2001. Moreover, in 2006, while proximity

considerations did enter the voting calculus, they played only a minor role as compared to the effects of other factors. In sum, this case study of Peru confirms the expectations derived from the cross-national analyses, while providing an in depth analysis of Peruvian elections in 2001 and 2006. Moreover, it demonstrates that the links from the independent variables to vote choice are not uniform across the two elections; there are few systematic empirical relationships between external factors and vote choice in Peru.

Chapter 9

Conclusion

Previous research identifies a clear relationship between political institutions and electoral behavior. However, the avenues through which institutions affect behavior are frequently muddled. The causal chain I put forth in this dissertation connects party and voter behavior to the underlying dimensional configuration of a country's political space. I introduce new measures of dimensionality and party and voter locations, and I show that dimensional configurations are themselves affected by electoral institutions. As such, dimensionality acts as a catalyst in the well-established relationship between institutions and political behavior. In short, this research identifies and measures a previously unconsidered mediary between institutions and behavior.

In researching this causal chain, this work examines the subfields of voter behavior, party behavior, and electoral institutions, connecting each chapter to the next with the common theme of dimensionality. The overall contribution of this dissertation, then, is twofold: First, I add a new variable, "political dimensionality," and empirically derived party and voter locations to the existing cross-national electoral research. Second, I uncover a theoretical and empirical link between a nation's dimensionality, its institutional setup, and its political outcomes.

9.1 So What?

The conclusions of this dissertation are of value to politically interested academics, journalists, and casual observers. While it provides a foundation for terms commonly used by journalists and commentators, it also introduces unique explanations of empirical phenomena and original data to academic researchers.

9.1.1 Real-World Importance

Journalists and commentators often couch their speech and writing in dimensional terms. When a politician is described as “left-wing,” there is an implication that he is on the left side of a single continuum that accounts for most of the variance in the political outcomes of a given country. However, we do not know what differentiates “left” from “right” in this context, how much variance this continuum accounts for, or whether there is another dimension which differentiates this politician from others. This work explicitly examines the oft-referred to left-right continuum, testing its validity and examining whether the construct varies systematically across nations. In the end a clearer understanding of “left” and “right” across countries emerges. Thus, this work adds empirical and theoretical substance to these everyday concepts.

For example, politics in the United Kingdom and Australia are well-captured by a single dimension, which is defined by common socioeconomic political positions. Thus, describing a voter as “left” in either of these nations should conjure up thoughts such as support for workers, fair trade, and decreased governmental involvement in personal moral decisions. In addition, this simple one-word label accurately places a voter in space in either of these countries as other dimensions either do not exist or are much less salient than the socioeconomic continuum.

Alternatively, in countries such as Hong Kong or Taiwan, describing a voter as “left” invokes entirely different political positions. In these nations, though politics are quite well-captured by a single dimension, it does not describe socioeconomic positions. Instead, the dimension generally captures orientations toward the People’s Republic of China. Again,

this one-word label accurately places a voter in space in either of these countries, as other dimensions do not play an important role in capturing political variation.

Finally, in countries such as Peru and Mexico describing a voter as “left” does little to convey information about this individual. Because political variation in these nations is not well-captured by a single dimension, unipolar descriptions of voter locations are not sufficient for distinguishing their political inclinations. Instead, to convey information about an individual, one must also consider her position along a second, third, or even fourth dimension.

Thus, this work shows that the implications of the terms “left” and “right” vary in both substance and explanatory power cross-nationally. While it is well understood in individual countries have unique political variation due to their idiosyncratic histories, cultures, religions, economies, and traditions, no previous work has systematically examined the underlying political space which captures such variation. This work takes a step in this direction, providing a rigorous treatment of the differences in the dimensionality of politics across countries.

9.1.2 Academic Importance

Most institutionalists do not consider the dimensions of conflict in the nations they study. And, if they do, these dimensions are hypothesized by formal models and rarely extracted empirically. Thus, this project’s first contribution is new empirical measures of dimensionality and party and voter positions. Previous work measures party positions using various data sources and methods. For example, expert surveys, which rely on well-informed individuals’ subjective judgements of party locations, usually along one dimension, are often used to gauge party positions. Recent work by McDonald and Mendes (2001) notes that the party positions found in three previous studies that used expert scales all correlate highly (Huber and Inglehart 1995; Laver and Hunt 1992; Castles and Mair 1984).

Other researchers, such as Laver, Benoit, and Garry (2003) and Budge, Klingemann, Volkens, Bara, and Tanenbaum (2001) gauge positions based on party manifestos, interpreting them either with human coders or computer-assisted analysis. This approach has

an advantage over expert surveys in that it provides a means of estimating party positions over time (Gabel and Huber 2000). However, it is heavily reliant on the subjective evaluations of those who code the manifestos (though computer-aided analysis helps ameliorate this problem). Another emerging method uses the words spoken during parliamentary deliberation to estimate policy positions (see, for example, Monroe, Colaresi, and Quinn 2008).

As noted by Marks (2007, 3), "There are two ways to increase the volume of information: one can repeat an observation that one has already made, trying to keep all relevant conditions the same, or one can observe from a different angle, using a different method." In this work I do the latter, determining party and voter positions using an empirical method. I surmise that the method used to locate parties and voters, empirical estimation of a spatial proximity model with unfolding analysis, is more objective than the methods employed by previous measures; as it extracts party positions from actual data on voter opinions, it creates a picture of political space based solely on individuals' party preferences within a given nation.

In addition, the technique employed provides an overall gauge of how well a single dimension represents these preferences. More specifically, this measure quantifies the proportion of variation in party and voter locations captured by a single dimension. Thus, I provide much new data to comparative researchers, including a measure of dimensionality, voter positions, and party positions, all extracted from information supplied by voters.

No previous research explains the link between electoral institutions and sociopolitical outcomes with dimensionality. Thus, the second contribution of this work is the introduction of dimensionality as an intermediate step in this link. This project uses the dimensionality of politics to tie together several political science subtopics, including party behavior, voter behavior, and electoral systems. Linking these areas with a unifying concept provides a parsimonious explanation of their relationships. I show that the dimensionality of politics is dependent on a nation's electoral system, and, in turn, it affects voting behavior and party behavior. As such, a clearer picture of the link from electoral institutions to parties and voters is drawn, and several interesting and important academic

observations about political behavior are made.

9.2 Summary of the Project

This dissertation is broken into three parts. The first part of the project, put forth in Chapters 2 and 3, details the methodology used to measure dimensionality and displays and explores this new measure. The second part, put forth in Chapters 4-6, cross-nationally examines the interplay between the dimensionality of politics, electoral institutions, voter behavior, and party behavior. The last part, put forth in Chapters 7 and 8, employs in depth country-level analyses to substantiate and test the cross-national findings. Below I provide a short summary of each substantive chapter.

Chapter 2: Methodology and Measures

In this chapter I introduce a new way to conceptualize and measure the dimensionality of politics across countries. While previous measures are concerned with the number of issues or ideological divides in a country, the measure introduced here explicitly gauges the space in which political parties compete. The measure is created with unfolding analysis. The method, which is based on an underlying geometric model of spatial proximity, recovers the dimensionality of the space it is applied to and locates stimuli (parties) and individuals (survey respondents) along these dimensions with interval-level values. Associated with these results are statistics indicating the “goodness of fit” of the model, or how much variance in voter preferences the recovered dimensional construct explains. From these statistics I derive the new measure introduced here, “political dimensionality.”

Chapter 3: Political Dimensionality across Nations

In this chapter I introduce the new measure of political dimensionality derived from the unfolding analysis. The measure covers several countries across the years 1996-2006.

Comparing the measure to other variables indicates that, for most countries, the most salient political dimension is the common left-right, socioeconomic continuum. However, in nations where national politics are defined by atypical forces, the substance of the dimension is different. I also report the party and voter locations associated with the new measure in this chapter. In many nations, especially those without fringe parties, the placement of the political parties is intuitive. In other nations party placements along a single dimension do not correspond to expectations. For example, parties that embody separatist issues are often placed at nonintuitive locations. This is likely because such parties base their existence on a second dimension that is highly unrelated to, or even orthogonal with, the primary dimension in their home country.

Chapter 4: Electoral Systems and the Dimensionality of Politics

Electoral systems are known to shape numerous political, social, and economic outcomes. However, their relationship with the dimensionality of politics in a country is scarcely explored. Previous theory posits that entrenched parties compete over fewer issues when electoral systems are restrictive to party entry, thus lowering political dimensionality. Conversely, in permissive systems, parties are inclined to adopt emerging issues out of the fear of losing parliamentary seats, thus increasing the dimensionality of underlying political space. In this chapter I examine these expectations with the new measure of dimensionality. I find that electoral rules do systematically affect the character of a nation's underlying political space, even when other potentially salient factors and endogeneity are accounted for. Majoritarian electoral institutions lead to unidimensional political space, while the politics of countries with proportional systems do not conform to a single dimension. This provides an important contribution to the understanding of dimensionality across nations.

Chapter 5: Electoral Behavior and the Dimensionality of Politics: A Cross-National Examination of Proximity Voting

It is generally held that individuals vote for the party that most closely aligns with their preferences, yet previous research identifies numerous factors which lead individuals to stray from the proximity logic. To shed light on this phenomenon, in this chapter I examine proximity voting from a comparative perspective. Results from a multilevel model indicate that several individual- and election-level factors affect the likelihood of a proximity vote. I also find proximity voting to occur less in countries where political variation is not well-captured by a single dimension. These findings shed light on the bases of proximity voting and add to the general understanding of the nature of voting behavior.

Chapter 6: Electoral Rules, the Dimensionality of Politics, and Party-Voter Correspondence across Nations

In democracies the relationship between the constituent and the representative is of fundamental importance. Yet the nature of representation is not uniform throughout the world; political institutions are known to place constraints on leaders and citizens that shape their behavior, and thereby the character of representation. In this chapter I expand upon the cross-national examination of representation, examining how it varies with the dimensionality of politics in nations. I expect that party-voter correspondence will be high in nations with simple dimensional constructs. Alternatively, in countries where political space is not well-captured by a single dimension, representatives are less likely to accurately reflect the desires of constituents. To test these expectations, I examine how well party positions mirror both the median and spread of voter preferences, conditional on the electoral institutions and political dimensionality of nations. Using data from a wide sample of nations and the new measure of dimensionality, I find that the positions of parties correspond more closely to those of voters in countries with low-dimensional political space, whereas electoral systems play a smaller role in the nature of representation.

Chapter 7: The Dimensionality of Politics and Voter Behavior in Preferential

Systems: The Case of Australia

This chapter examines the dimensionality of politics and voter preferences in Australia. As the theory in Chapter 4 predicts, parties and voters are well-organized along a unidimensional socioeconomic continuum in Australia's majoritarian electoral system. Individual-level variables, derived from previous theory, are used to predict voter ideal points on this continuum. From the ideal points, voter preferences over each party are ascertained. Thus, this analysis adds credence to the cross-national portions of this dissertation while providing an in depth analysis Australian electoral behavior. In addition, it introduces a new way to study voter behavior in preferential electoral systems; because this approach allows for a full examination of voter preference orderings, it is important to the study of voting behavior and representation under such electoral arrangements.

Chapter 8: The Dimensionality of Politics and Voter Behavior under Proportional Representation: The Case of Peru

In this chapter I conduct an in depth analysis of Peruvian voter behavior in the 2001 and 2006 congressional elections. As shown in Chapter 5, because political variation in Peru does not arise from a single dimension, voters are less likely to correctly identify the party closest to them in political space. As such, I expect that proximity voting should be minimal in Peru. Using an alternative-specific multinomial probit model, I find that proximity voting did not occur in Peru in 2001. Moreover, in 2006, while proximity considerations did enter the voting calculus, they played only a minor role as compared to the effects of other factors. This analysis confirms the expectations derived from the cross-national portions of this dissertation, while providing an in depth analysis of Peruvian elections in 2001 and 2006.

9.3 Shortcomings

Though this project makes several important contributions to comparative political science, it also has its share of drawbacks. First, while this project introduces new measures of voter and party positions across countries, the recovered unidimensional party and voter placements do not necessarily correspond to a logical ordering of political players. This is because political space is poorly captured by a single dimension in some countries, making voter and party placements nonintuitive or sometimes downright nonsensical. To combat this problem, I substantiate all quantitative analyses with party locations derived from either expert opinions or aggregate perceptions of voters. In addition, I consider self-reported voter positions in addition to those derived from the unfolding model.

In addition, in nations where unidimensional space does not sufficiently capture political variation, this project ignores the potentially-salient extra dimensions. While multidimensional unfolding models do exist and could be used to explicitly model complex political space, the focus of this project is on the strength of the first dimension. Thus, this project leaves something to be desired. Future work should aim to explore the politics of nations with complex political space and determine the substantive character of each dimension in these countries.

Lastly, the measure of dimensionality introduced in this work spans only 42 countries. As some nations are surveyed across multiple elections, there are a total of 81 cases. While this expands the coverage of previous measures of dimensionality, an increase in sample size is desired to better-facilitate the estimation of advanced statistical models and increase the generalizability of findings. Fortunately, as the CSES continues to survey more and more countries and elections, new measures of “political dimensionality” can be produced for each election.

9.4 Final Thoughts: *Flatland* and the Dimensionality of Politics

In his 1884 novel, *Flatland*, Edwin Abbott describes the life of a humble square living in two dimensions (2006). One night, the square has a dream about a journey to a unidimensional world called Lineland. While in Lineland, he tries to convince the domain's ruler of the existence a second dimension. However, as the ruler's perspective is myopic due to a life of unidimensionality, the square is unable to convince him to envision life beyond the single dimension in which he lives.

Similarly, the square himself knows nothing of a third dimension until he is visited by a sphere from Spaceland. Initially hesitant to believe in the existence of extra dimensions, the sphere eventually provides enough evidence to convince the square of their reality. The square then tries to spread this knowledge to the other inhabitants of Flatland. However, he is unsuccessful in doing so, as other Flatlanders are hesitant to accept his outlandish ideas. In addition, he upsets the sphere when he suggests the existence of dimensions beyond the third.

This dissertation, written in a three-dimensional universe on a two-dimensional screen, examines the salience of the first dimension to political outcomes across countries. In other words, this work examines whether politics across countries live in Lineland. In many instances, political variation is indeed unidimensional. In other cases, Lineland is insufficient for explaining politics. This dissertation develops and tests theory about why this variation exists - why the dimensionality of politics varies across countries. In doing so, it finds many interesting patterns across nations and makes important contributions to comparative and quantitative political science.

Nevertheless, just as the square in *Flatland* saw the world more clearly once he learned of Spaceland, in many countries we may see politics more clearly if we go beyond Lineland. However, this work does not venture into multidimensional spaces. What remains to be done, then, is a systematic cross-national study of the second, third, fourth, ..., and n th political dimensions. Hopefully in the end, just as the eyes of the two-dimensional

protagonist in *Flatland* were opened to a new world when he was visited by a sphere, a cross-national visit to n -space may well open the eyes of political scientists to new and important measures, empirical patterns, and theories.

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