Why can voters anticipate post-election coalition formation likelihoods?

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A B S T R A C T

A number of scholars have argued that, in contexts with multi-party governing coalitions, voters can use historical patterns to anticipate the ideological composition of likely post-election coalitions and make vote choices accordingly. In this paper we analyze historical coalition formation data from the period 1960–2007 in order to determine whether the historical regularities in the party composition of coalition governments are such that voters can use this information to assess the likelihood that different coalitions would form after an election. Specifically, we examine: (1) the likelihood of party pairs joining a coalition; (2) the likelihood of different coalition permutations; and (3) the likelihood of a party occupying the Prime Ministership.

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1. Introduction

A number of scholars (Kedar, 2005; Adams et al., 2005; Duch and Stevenson, 2008) argue that vote choice in contexts with multi-party governing coalitions vote choice is shaped by voters' anticipation of the ideological composition of the coalitions likely to form after the election. The argument presumes that voters use historical information about patterns of party participation in coalition governments to form priors about what parties are likely to enter a post-election coalition government. In this paper we analyze historical coalition formation data from the period 1960–2007 in order to determine whether the historical regularities in the party composition of coalition governments are such that voters can use this information to assess the likelihood that different coalitions would form after an election. We examine a number of different historical regularities in coalition formations that we believe inform voters' anticipation of post-election coalition formation. We examine the following features of coalition formation that we believe are important for anticipating post-election coalition

formation: (1) the likelihood of party pairs joining a coalition (or not joining a coalition); (2) the likelihood of different party coalition permutations; and (3) the likelihood of a party occupying the Prime Ministership. The analysis is based on an extensive database assembled by the authors (monthly data over a 50 year period and for approximately 34 countries). The analysis shows that there is a considerable consistency in the nature and frequency of coalitions which we believe helps explain how voters can anticipate coalition agreements that in turn inform vote choice.

2. Theory

2.1. Post-election elite bargaining

There is a growing recognition in the comparative political behaviour that vote calculus, in context with multi-party governing coalitions, is not simply about parties and their ideological proximity to the voter but rather about policy outcomes that are result from bargaining amongst party elites after the election takes place (Kedar, 2009). We briefly describe the implications this has for the voter utility function. An important part of this richer characterization of the vote calculus is an assumption that voters are reasonably well informed about the coalition formation process after elections. This essay examines historical regularities in

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coalition formations and concludes that there is considerable stability in the types of coalitions that form, which greatly facilitates the voters' ability to anticipate the kinds of coalitions that form after an election.

2.2. Spatial voting

Two features of spatial voting motivate this essay. First, vote choice conforms to a variant of the classic Downsian model (Downs, 1957) in which voters locate themselves and candidates in a salient issue space and make choices based on their proximity to the issue positions of competing candidates (Enelow and Hinich, 1994). And second, the left–right ideological continuum is arguably the most important policy dimension shaping vote choice. These observations build on a literature suggesting that ideology plays a central role in contemporary democratic politics. There is overwhelming evidence that the left–right continuum shapes party competition (Laver and Budge, 1993; Budge and Robertson, 1987; Huber and Inglehart, 1995; Knutsen, 1998; Adams et al., 2004a,b); that it determines legislative voting (Poole and Rosenthal, 1997) and government spending priorities (Blais et al., 1993); and that it affects coalition outcomes (Warwick, 1992, 2005). Most importantly we know that the ideological vote is important in certain countries (Kedar, 2005; Adams et al., 2005; Merrill and Groffman, 1999; Blais et al., 2001; Westholm, 1997; Inglehart and Klingemann, 1976).

One of the most influential theoretical developments in the study of vote choice is the notion that vote utility is informed by spatial distance. Certainly the most influential early use of spatial distance in a theory of voting is Anthony Downs' An Economic Theory of Democracy. Downs (1957) argued that individuals make vote choices based on their comparison of expected utilities for each of the competing parties. In Downs' model, voters are instrumentally rational which implies that they are motivated to select parties that are ideologically proximate. This translates into the conventional characterization of the ideological vote in terms of Euclidean distance,

$$u(j_i) = -(x_i - p_j)^2 \qquad (1)$$

where x_i represents the ideological position of voter i and p_j represents the ideological position of party j. A smaller Euclidean distance translates into more utility and hence contributes to the likelihood that a voter would vote for that party. This is what we characterize as sincere ideological voting. If all voters adopt this proximate ideological voting decision rule, we would find homogeneity in the importance of ideology in explaining vote choice across all democratic contexts.

Over the last 50 years since Downs' work appeared, the basic Euclidean expression in Eq. (1) has undergone extensive elaboration and revision. In particular, many have explored how this Euclidean reasoning works in contexts with multi-party coalition governments. Downs (1957, p. 146) himself points out that one of the factors complicating the voter's decision calculus is a political context with coalition governments. Downs (1957) in fact was less than sanguine about the average voter's ability to undertake these calculations (Downs, 1957, 256). In these coalition contexts, coalitions form after elections as a result of

bargain amongst parties over the policies to be enacted by the government (Austen-Smith and Banks, 1988; Persson and Tabellini, 2000). Policy outcomes in coalition government reflect the policy preferences of the parties forming the governing coalition weighted by their legislative seats (Indridason, 2007; Duch and Stevenson, 2008; Schofield and Laver, 1985).[2] We believe that in coalition contexts voters anticipate these policy outcomes and they use these to condition their ideological vote calculus represented in Eq. (1).[3] Strategic voters, concerned with final policy outcomes (as opposed to party platforms), condition their vote choices on coalition bargaining outcomes that occur after the election (Austen-Smith and Banks, 1988). In multi-party contexts with coalition governments, Austen-Smith and Banks (1988) argue, sincere ideological voting is not rational. The implication of the Austen-Smith and Banks (1988) insight here is that the link between ideology and vote choice is conditioned by rational voters engaging in strategic voting. Voters anticipate the likely coalition formation negotiations that occur after the election and they condition their vote choices accordingly in order to maximize the likelihood that a coalition government forms that best represents their policy preferences.

This argument suggests that voters are reasonably well informed about post-election coalition formation outcomes and this conditions the ideological vote. Kedar (2005) argues that the rational voter focuses on policy outcomes and hence on the issue positions that are ultimately adopted by the coalition government that forms after an election. And she demonstrates that in political systems with coalition governments this leads to "compensational voting", rather than ideological proximity voting, aimed at minimizing the policy distance between the policy compromises negotiated by the governing coalition and the voters ideal policy position.

2.3. Voters anticipate the likely coalitions that form after an election

Coalition-directed voting implies that voters' utility for a particular party will be determined by the likely coalition government the party will enter. This is the case because what matters to the voter is the policy outcome that will be implemented by the government that is formed after the election. Hence the relevant spatial distance in the vote utility function is the distance between the respondents

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[2] An alternative, and in our view less plausible, perspective is that the policy outcomes adopted in multi-party contexts reflect the weighted preferences of all parties elected to the legislature (Ortuno-Ortin, 1997; De Sinopoli and Iannantuoni, 2007). This of course significantly reduces the second-order strategic incentives for voters.

[3] This anticipation of post-election policy compromises is not restricted to multi-party coalition contexts. Alesina and Rosenthal (1995), for example, suggest that voters in the U.S. context exercise a policy balancing vote, anticipating the policy differences between Congress and the President. Kedar (2006) makes a more general claim suggesting that this occurs in all Presidential regimes. Adams et al. (2004a,b) analyze individual and aggregate-level data related to U.S. Senate elections and find support for the argument that voters anticipate the moderating effect of the legislative process and hence vote for candidates with more extreme positions. Although they are careful to point out that their data could not distinguish this discounting argument from a directional voting explanation.

Left–Right self-placement and the Left–Right location of the coalition that forms with this particular party. Hence in this model voters are assumed to be knowledgeable about the likelihoods of different coalition permutations forming after an election. They are also able to assess the Left–Right policy compromise that is conditioned on the Left–Right ideal points of each coalition party.

Theories of coalition-directed voting (Kedar, 2005; Adams et al., 2005; Duch and Stevenson, 2008; Duch et al., 2010) imply that voters are informed about certain features of the coalition "landscape". And this is unlikely to be the case if the costs associated with gathering this information are prohibitive for the average voter. In this essay we analyze historical coalition formation data indicating that the cost of informing themselves about the likelihood of coalition outcomes is not high.

Voters in these models use historical information regarding participation in governing coalitions to establish the probabilities that parties will participate in the government after an election. These theories assume that voters are knowledgeable about the likelihoods of different combinations of parties making up the governing coalition that forms after an election. And there is evidence to suggest in fact that they are quite knowledgeable about these probabilities (Bargsted and Kedar, 2009; Duch and Stevenson, 2008; Irwin and van Holsteyn, 2003; Meffert and Gschwend, 2010). We will argue here that patterns of coalition formation in most national contexts are quite stable which facilitates the voter's ability to anticipate the kinds of coalitions that are most likely to form after an election.

3. Assessing theoretical assumptions about voter coalition information

The claims we make in this theory presume that certain regularities in the coalition formation process register with the voter and they use this information in assessing coalition formation patterns after an election. What are these regularities? We will analyze five: coalition permutations; effective number of coalition parties; effective number of PM parties; re-election probabilities; and the ideological composition of governing coalitions. Before moving to these we comment on the data and methods.

3.1. Data and methods

First we turn to a brief discussion of the data. To answer the questions posed above, we have collected data concerning the make-up of governments covering 34 countries from the years 1960 (or the outset of democratic elections) through their most recent elections. These are an updated version of those used in Duch and Stevenson (2008). We paired these data with those from the Comparative Manifestos Project (Budge et al., 2001; Klingemann et al., 2007) specifically in order to use the data on the timing of legislative elections. The sample of countries in this analysis represents OECD mature democracies and the new democracies of East and Central Europe. These were countries for which we able to assemble extensive and reliable information on the composition of cabinet governments over a 50 year time period. A major group of countries excluded here are Latin American democracies which are typically Presidential systems; where coalition formation traditions are quite

distinct from our sample of countries; and also where data is proved much more difficult to assemble.

The data employed here are structured by the country-party-month. Thus, each row of our dataset identifies a particular party within a particular country at a particular time. The only pieces of information we need for the ensuing analysis are the names of the parties in government and the name of the party holding the Prime Ministerial position. The figure in Appendix 1 shows the country–years for which we have data.

3.2. Coalition permutations

We begin with Fig. 1 that simply indicates the frequency with which countries in our sample have been governed by a multi-party coalition. Note that with the exception of three countries, coalition governments are the norm and in fact the median country in our study has coalition governments about 65% of the time. Thus, for voters in most Western democracies coalition governments and post-election bargaining to form a coalition is the norm.

3.3. Effective number of coalition parties

Our concern in this essay is to understand the complexity of coalition formation outcomes that voters must anticipate as resulting after an election. One metric is the number of "governing" parties in a political system. At one end of the continuum is a two-party system in which two parties alternate in government. Voters can anticipate post-election government formation with certainty – the party with the majority of seats in the legislature will form the government – typically the case in Canada or the UK, for example. But of course in coalition government contexts the permutations of possible governing coalitions that occur after an election are greater than 2. And as these possible permutations rise in number we might expect it to become increasingly
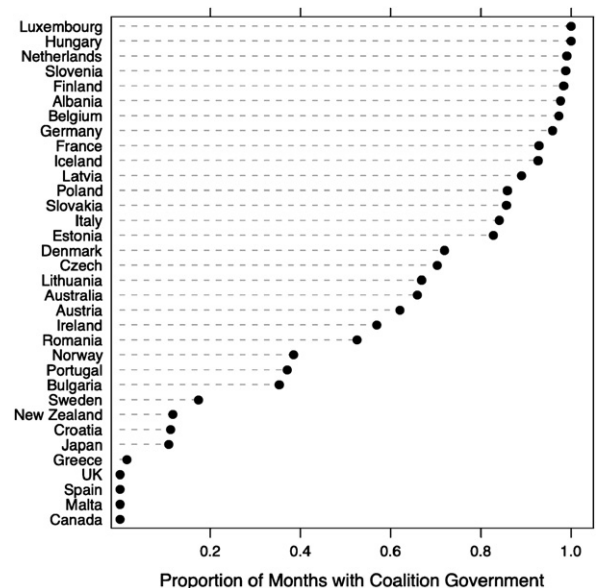

Fig. 1. Frequency with which coalition governments occur.

difficult for voters to anticipate the likely coalition negotiations that occur after an election.

We propose a metric for studying this post-election behaviour that we believe captures this complexity. In general, we refer to this as the effective number of coalition parties (C) calculated, following Laasko and Taagepara (1979), as:

$$C = \frac{1}{\sum_i P_i^2} \qquad (2)$$

where P_i is defined as the proportion of times the entity in question occupies a seat in the government. To properly address the complexity of the situation and the variety of information voters have to engage, we define P_i in different ways below.

The formation of a governing coalition consists of two particularly important outcomes: the designation of the parties receiving portfolios in the newly formed governing coalition; and the designation of the Prime Minster, and specifically, the party from which the Prime Minister is chosen. We begin by characterizing the effective number of Prime Ministerial parties in each of the countries in our sample, C_{pm}. This is calculated by first finding the proportion of the entire time covered by the data in each country that someone from each party has served as Prime Minister. These proportions are squared, then summed and the inverse of the result is taken resulting in the numbers presented in Fig. 2. A C_{pm} of 2 indicates that two parties effectively alternate in controlling the Prime Ministership in a governing coalition. As this value rises above two, voters face an increasingly complex task of assessing which party would provide the Prime Minister in post-election coalition bargaining.

What is interesting here is that there is considerable stability in terms of the party serving as the Prime Minister in coalition governments. Note that in some countries the C_{pm} value is less than 2 suggesting that one party is highly likely to be selected as the Prime Minister party in virtually all of the coalitions that form after an election. This is the case, for example in Netherlands where the CDA is virtually always designated as the PM party and hence the country has a C_{pm} score of 1.8. Japan is at the extreme low end with a value of 1 since the same party has held the Prime Ministership over the entire time period covered by our data. Hence in some countries this particular element of the post-election negotiation process is known with near certainty, not unlike the situation in two-party systems where the post-election designation of the governing party is known with certainty. Note that the median C_{pm} value for all of the countries in our sample is 2. But note also that a number of countries have quite high values, greater than 3. These tend to be the relatively new democracies of Eastern Europe where we find much less stability in designation of the Prime Minister party.

A second metric that characterizes the complexity of the post-election coalition bargaining outcomes is the effective number of coalition parties, C_p. To calculate this, we first calculate the proportion of party government months that each party was in government. For example, if over 5 years (60 months) in the Netherlands, the CDA held the government by itself for one year and then was in coalition with the VVD for the remaining 4 years, the total number of party government months would be $(12 \times 1) + (48 \times 2) = 12 + 96 = 108$. Since the CDA served all five years, the CDA's proportion would be $60/108 = 0.56$ whereas the proportion
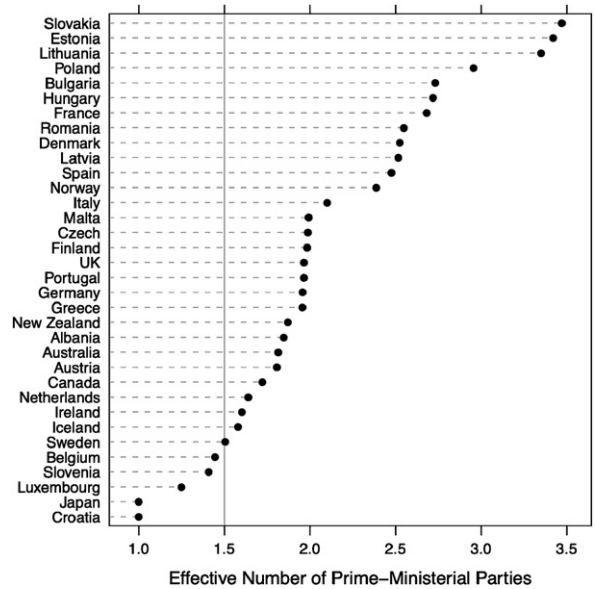

Fig. 2. Effective number of Prime ministerial parties.

for the VVD would be $(48/108) = 0.44$. The remainder of the calculation proceeds in the same fashion as above.

Rising values of this measure indicate an increasingly large number of parties historically have been likely candidates for entering the governing coalition after the election. As Fig. 3 illustrates, our sample of countries vary in terms of this effective coalition party metric. Overall, the median number of effective coalition parties is 3.65. A typical voter anticipating post-election coalition formation patterns would need to consider the likelihood of 3–4 parties entering into a governing coalition – not a particularly demanding task. Nevertheless, as we would expect, there are countries in which the effective number of coalition parties is quite high. Italy has the highest effective number of coalition parties (eight) amongst the mature European democracies. Typically, though, it is the more recent democracies of Eastern Europe that have the highest number of effective coalition parties.

A third interesting measure we consider is the effective number of coalitions, C_c. This is meant to tap the extent to which there is variance in coalition make-up over time. The number proposed here increases with the frequency of coalition re-shuffles, either due to elections or intra-election cycle bargaining. The measure here is calculated in a similar fashion to the others. First, we calculate the proportion of all months that each coalition was in power. As above, we sum these squared proportions and take the inverse of the sum. An effective coalition figure of around 2 would suggest, perhaps, that two blocks of parties are vying for power, but that if the coalition is a coalition of the left, for example, that its composition is essentially certain. Here, numbers bigger than two suggest that there is more complexity to post- election coalition formation.

Fig. 4 shows the effective number of coalitions by country. Note that the single-party governments in the UK and Canada occupy their rightful spots at very low values of effective coalitions. Despite their relatively short history as
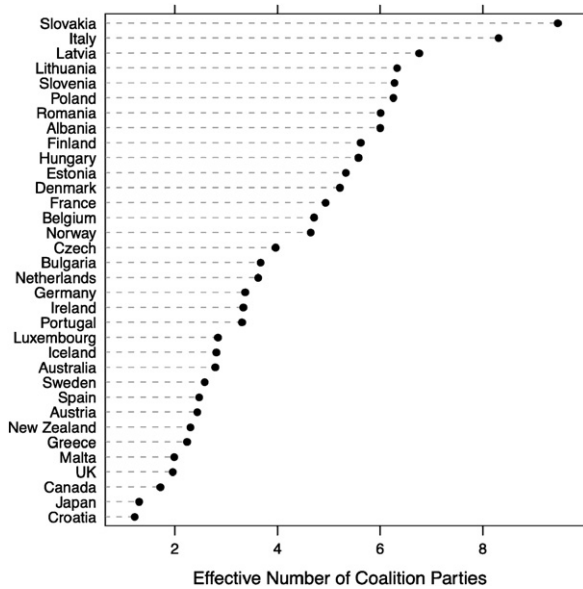
Fig. 3. Effective number of coalition parties.

Fig. 4. Effective number of coalitions.

multi-party democracies, many of the central and eastern European countries have quite high values here illustrating the considerable volatility in post-election bargaining in these countries. The median here is 3.25 and you can see that many countries are clustered together below 4. The remaining 10 countries have increasingly spread-out values with Italy at the maximum of over 8. We would argue that voters in countries with relatively fewer coalitions should be better able to understand and predict the post-election bargaining environment which would allow them to condition their vote decision on these predictions.

3.4. Re-election probabilities

As we pointed out earlier, one of the defining characteristics of coalition government contexts is that election results, while certainly affecting post-election coalition negotiations, are not determinative. Hence, this raises the possibility of either exaggerated or moderated volatility in government turnover as a result of elections. In this section we explore whether the volatility of government turnover in coalition government contexts significantly increases the difficulty for voters trying to anticipate likely post-election bargaining. We will explore a number of different measures of volatility in order to establish this degree of post-election bargaining complexity.

First, probably one of the most restricted measures of volatility is the degree to which an incumbent coalition is returned to power with exactly the same party composition. Our sample includes 316 elections over 34 countries from 1960 (independence) to their most recent elections. Fig. 5 presents, for each country, the frequency with which coalitions are returned to power intact after an election. As one might expect, countries that typically have single-party governments (Japan, Canada, Germany, Australia and the UK) stand out as having the highest re-election frequency. What is interesting though is that even in countries with a long history of multi-party coalitions (Belgium, Italy,
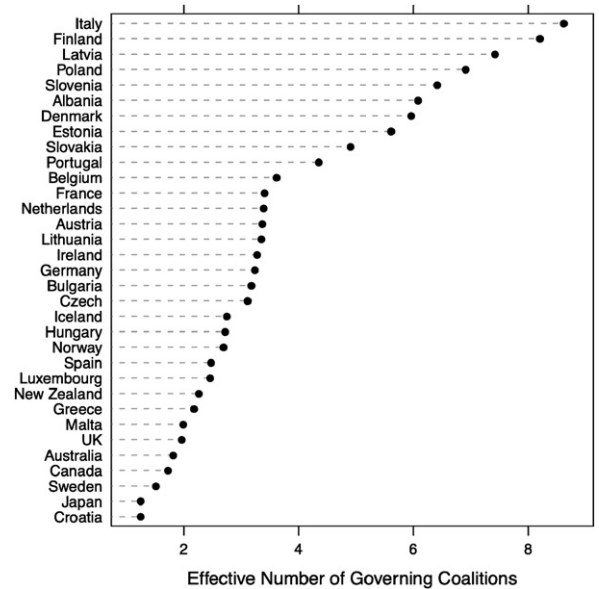
Norway and the Netherlands to name some) we find that around 40% of the time the coalitions that form after an election look exactly like the incumbent coalition government. The newly democratized countries have very low frequencies of re-electing the precise same coalition although this is simply likely to the fact that we have very few observations (i.e., elections) for these cases.

A second, somewhat less restrictive, measure of volatility is the frequency with which the Prime Ministerial party in the incumbent governing coalition is returned to power after an election. Fig. 6 presents the frequency with which the PM party is returned. Note that for the majority of countries in our sample, the probability of re-electing the PM party is greater than 0.5 – in fact the median country has a probability of 0.6. And many of the countries at or above the median are those with a long history of multi-party coalition governments. In Belgium the PM party has an 80% chance of re-election; 75% in the Netherlands; and 65% in Italy.

Fig. 7 presents the frequency with which at least one party is returned. Again this reinforces our earlier observations regarding the stability of government transitions after elections. The median case in our sample has a probability of 0.6 of having at least one coalition party returned in the election.

3.5. Summary

The goal of these analyses is to provide an assessment of the historical regularities in the party composition of coalition governments. We believe that voters can use this information to assess the likelihood that different coalitions would form after an election. The results point to considerable regularity. First, it is clear that coalition governments are the norm and in fact the median country in our study has coalition governments about 65% of the time. But there is actually considerable regularity with respect to the types of coalitions that form. Following Laasko and Taagepara (1979) we calculate the "effective number" for what we believe are
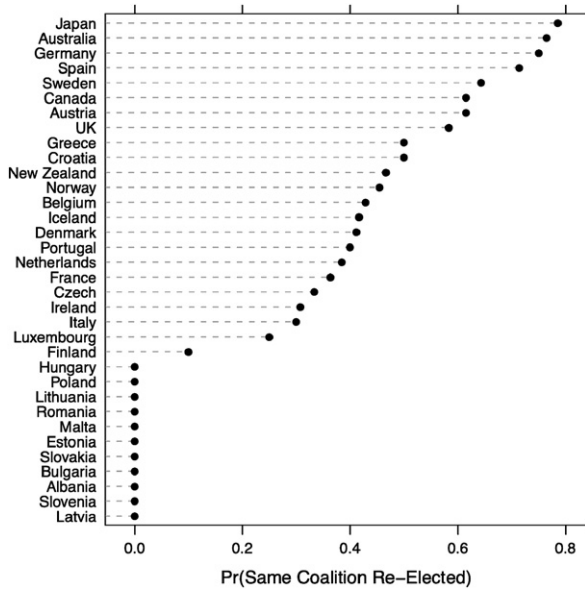
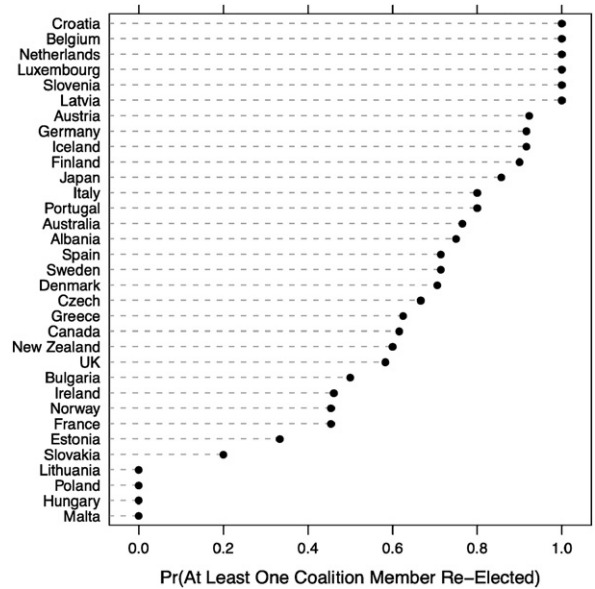**Fig. 5.** Frequency with which exact same coalition is re-elected.

Fig. 7. Frequency with which at least one coalition partner is re-elected.

important coalition metrics. All of these metrics suggest that the composition of governing coalitions is pretty similar over time: The effective number of Prime Ministerial parties in each of the countries is about 2. The effective number of coalition parties is 3.65. And the effective number of distinct coalitions is between 3 and 4 – this measure gives a sense of the variance in coalition make-up over time. We also find that around 40% of the time, the coalitions that form after an election look exactly like the incumbent coalition governments; again suggesting considerable stability in the composition of coalition governments over time.
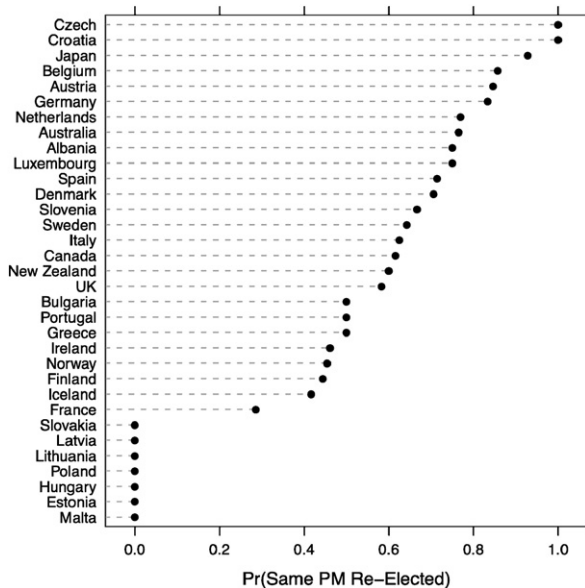

Fig. 6. Frequency with which Prime Minister's party is re-elected.

4. Conclusion

One of the important conclusions to draw from these results is that for many countries there are quite high levels of stability in the types of coalitions that form. This is important because the notion that voters are able to anticipate the types of coalitions that likely form after an election is a key assumption in a number of theories. One body of work that builds on this notion are theories of vote choice that suggest that spatial voting is with reference to the coalition outcome after an election. Examples here are (Kedar, 2005; Duch et al., 2010) who argue that voter's utility for a particular party will be determined by the likely coalition government the party will enter. This is the case because what matters to the voter is the policy outcome that will be implemented by the government that is formed after the election. The ability of the voter to make these assessments rests, to a certain degree, on the predictability of coalition outcomes, in general. If coalitions outcomes are highly volatile and with little continuity from one election to the next it would be unlikely that voters could make the calculations suggested by those who argue for coalition-directed voting.

There are other theories of rational voting behaviour that also rely on these information requirements. In their contextual theory of the economic vote, Duch and Stevenson (2008) argue that the magnitude of the economic vote is conditioned on voters' strategic assessment of how their vote shapes coalition formation outcomes after an election. Again, their theory assumes that voters have informed expectations of what coalition formation activity will happen after an election.

Our findings suggest in fact that governing coalition outcomes do exhibit high levels of continuity. First, focusing on parties designated as the Prime Ministerial party, we find that the median effective number of Prime Ministerial parties is two. This suggests that typically there are about two parties effectively alternating in and out of the Prime Ministership. And when we expand this measure to capture the effective number of coalition parties we find that the

median value is 3.65 suggesting that typically a voter can anticipate that some permutation of these 3 to 4 parties will form a coalition government after an election.

We also look at the volatility of coalition election outcomes and conclude that the volatility is not high. In the typical country in our sample approximately 40%t of the coalitions that form after an election are the same as the incumbent coalition. Moreover, in the median country in our sample about 60% of the time the incumbent Prime Ministerial party is returned to the newly elected governing coalition.

But there is variation here and it poses interesting questions and challenging research opportunities. It is true that in terms of simply informing voters of likely coalition outcomes, more stable coalition patterns likely means a more informed electorate. On the other hand, the vote utility function of rational voters should weigh the extent to which the vote is pivotal to a particular coalition forming or being defeated in post-election negotiations (Duch and Stevenson, 2008). If coalition stability provides too precise information, i.e., there is virtually no variation, stability will imply that the vote has no chance of being pivotal. This of course is an important feature of coalition contexts and Powell (2000) does a nice job of capturing this in his measure of the identifiability of prospective governments (prior to an election). He explicitly includes an assessment of the extent to which voters can anticipate how their vote will affect government formation outcomes. In contexts with very high levels of stability voters

can easily anticipate the limited impact of their vote decision on the coalition that forms. Belgium, for example, in our league tables emerges as having quite stable and predictable coalition governments (in particular, the Prime Ministerial Party has been very predictable). On the other hand Belgium ranks very low on Powell's identifiability measure, partially because this coalition stability implies that shifts in voting outcomes have a limited impact on who is in the governing coalition. A similar observation can be made about the Japanese context where extreme stability historically has meant policy does not respond to shifts in voting outcomes. In fact, we expect there is a concave relationship between coalition stability and the likelihood a voter is pivotal: extreme stability and extreme instability in coalition outcomes undermine the impact of vote shifts on government policy. While we do not address this relationship in this essay, it clearly deserves attention.

This implies that we should see the most amounts of strategic coalition voting in contexts with moderate amounts of coalition stability. The implications of these trade-offs between information and pivotalness need to be explored so that we can better model strategic voting behaviour. Will the strategic coalition vote be similar in these very low and very high coalition information contexts? In general these results highlight how the political context – in this case the regular, or irregular, patterns of coalition formation – provide voters with information that facilitate the kinds of strategic calculations that are prominent in rational voting theories.

Appendix 1
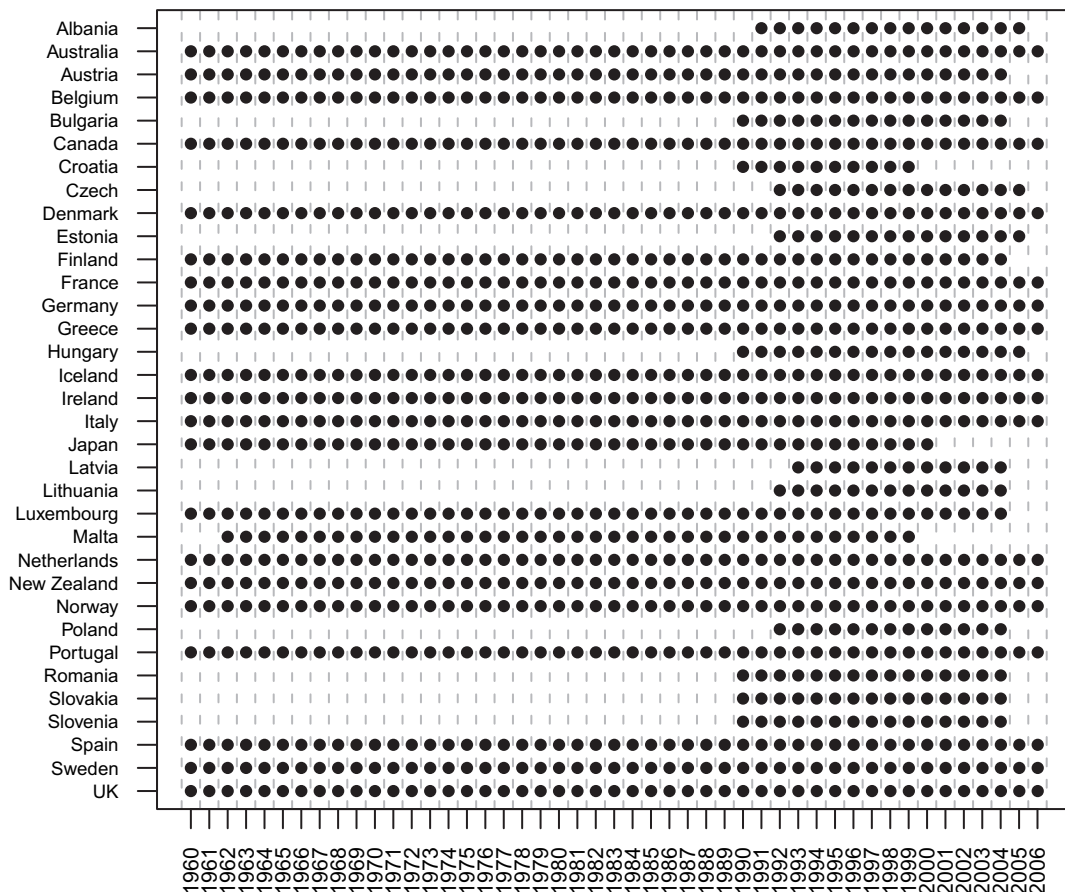
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