

## The verdict in the polls: how government stability is affected by popular support \*

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*The idea that the stability of governments is affected by how they are performing in the polls is both intuitive and popular in the literature. When support is low the government might be inclined to replace parties or the prime minister in order to regain support, thus forming a replacement government. Alternatively, a government doing well in the polls might opportunistically try to schedule an early election to capitalise on its favourable prospects. But despite the popularity of the idea, it has thus far not been tested empirically whether government stability is in fact influenced by popular support. This article aims to address this lacuna. Using a relatively new dataset with more than 12,000 unique polls, and recently developed Bayesian models for pooling the polls, it is here shown that government stability is in fact impacted by popular support. Governments display clear signs of electoral opportunism when they are polling well and, conversely, dissolve the government, without calling an election, when polling is bad. The results are strongest when there are few parties in the government, since agreement on the timing for a discretionary termination is easier when fewer players need to agree.*

The second term of office was easier for Prime Minister Thatcher than the first. With lower unemployment, lower inflation, and the best GDP growth for more than a decade, most indicators suggested that her Conservative Party would be rewarded in the next election. This was confirmed by the party's increasing popularity in the polls (Jennings and Wlezien 2016). Prime Minister Thatcher decided to seize the moment and called an early election on 11 June 1987, almost a year before her constitutionally mandated term was up. The question is though, whether governments in general tend to take their

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level of popular support into account when making crucial decision about staying in or dissolving a government. One hypothesis is that Thatcher's early election calling was part of a larger class of opportunistic early elections (Kayser 2005; Schleiter and Tavits 2016). Here governments use good polling (coupled with the fear that this might change in the future) as a reason to strategically time the election before the next regular election is set to take place. However, we could also imagine a contrasting causal path, namely that a low level of support for the ruling cabinet leads to an increased likelihood of early termination through a replacement. An unpopular government might be inclined to leave prematurely, or replace individual parties or the prime minister, in order to rebuild support before the next election (Lupia and Strøm 2008; Pilet and Cross 2014). The overarching question here of how popularity levels affect cabinet stability is in fact a subset of a more general debate about how external shocks and critical events can shake the initial equilibrium of the government (Laver and Shepsle 1998; Lupia and Strøm 1995). Public opinion shocks, and the ensuing changes in electoral prospects, are frequently invoked explanations for why a once stable government suddenly becomes prone to termination. Even when the original cause is something else, such as changes in unemployment/GDP or a corruption scandal, the 'critical event' is often believed to be a change in the parties' future electoral prospects which has an impact on their current incentives (Saalfeld 2008). Parties want to hold office and influence policy and if measures of popular support show that their electoral prospects have changed then they might need to reconsider their current choices (Müller and Strøm 1999). In that sense, popular support can be seen as the missing link between many other causal factors and the likelihood of early termination. Measuring popular support directly is thus a crucial next step in understanding how government termination happens. Central though the question of popular support may seem to understanding strategic government behaviour, this is to our knowledge the first comparative study thus far that investigates the link between popular support and government stability empirically.<sup>1</sup> This study uses a large dataset (based on Jennings and Wlezien 2016) of more than 12 000 polls that track the fate of 166 governments and their 264 constituent party members. Rather than just relying on the raw polling data, here state-of-the-art Bayesian time-series analysis and a dynamic linear model (Jackman 2005; Linzer 2013) are used to turn the individual polls into a coherent time trend that measures the popular support of the government at any point in time. This allows us to put the different hypotheses about how popularity and cabinet stability are linked to the test empirically. The main finding of this paper is that popular support influences government stability in two central ways. High support leads to a greater likelihood of opportunistic early election calling while low support leads to an increased risk of a non-electoral replacement. Changes in popular support

<sup>1</sup> For a partial exception, see the unpublished manuscript by Lanny Martin from 1999 available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.477.5021&rep=rep1&type=pdf>

therefore can, and do, lead to premature dissolution. Notably, it is not just the raw change in support, say polling at five percentage points below the election result, which leads to a termination. Instead, the risk of termination increases when support levels differ from the general fluctuations that affect all governments. Most governments see their support rise and fall as the term of office progresses. When popular support deviates from this natural pattern, by being higher or lower, the likelihood of an opportunistic election or a non-electoral replacement termination increases. The effect is at its strongest in single party governments, since these are better able to strategically time their dissolutions without having to compromise with other parties. The paper starts with a discussion of how popular support and electoral prospects fit into the general field of cabinet stability and coalition studies. This is followed by a short empirical overview of general trends in how cabinet popularity tends to develop in the countries in our sample. A longer theoretical discussion about what causal mechanisms we can expect to see in the data will then be provided before we discuss the methodology and the details of the dynamic linear model and discrete time regressions that are employed here. In the final part of the paper the results are presented and an analysis of the main findings is undertaken.

#### HOW POPULAR SUPPORT FITS INTO THE STUDY OF CABINET DURATION

The study of the causes of early cabinet termination has a fairly long history in comparative political science. Important studies emerged in the 1970s (Dodd 1976; Sanders and Herman 1977; Taylor and Herman 1971) as well as in the 1980s (Browne et al. 1984; Strøm 1985; Strøm et al. 1988). A common theme in these studies was the desire to explain why so many governments come to an end before the next regularly scheduled election. Given that the stated goal of many parties is to hold office so that they can influence policy (and reap the material benefits of being in power), it is surprising that 59% of the 640 governments that came to power in democratic elections in Europe between the Second World War and 2014 ended prematurely (Andersson et al. 2014). What would propel power-hungry parties to give up their influence on state affairs before the next scheduled election? In the early 1990s, a highly influential paper synthesized much of the early research and suggested that there are both structural and stochastic reasons for premature dissolution (King et al. 1990). On the structural side we have factors such as the type of government (e.g. whether it controls a minority or majority of seats in parliament, whether it is a single party or a coalition), how many competing parties there are as well as institutional rules and regulations (such as whether there is a second chamber and whether an investiture vote is needed). Many of these structural factors are attributes of a particular government and can thus be used to predict how a government will fare in comparison to others. In contrast, as shown by Browne et al. (1984), there is also a baseline component of general risk that affects all governments regardless of their other attributes. Factors that go into this general risk include e.g. personal conflicts between

party leaders, changes in the world economy, corruption scandals and armed conflicts. An interesting formalization of these general risk components, that is directly relevant also for our purposes, was done by Laver and Shepsle (1998) in their critical events approach. They outline a sophisticated game-theoretic model that looks at how governments respond to external shocks. Their general theoretical argument is that all governments are faced with a wide range of different shocks, each one with a certain probability of destabilizing the government. So even though all governments start out in equilibrium, they soon have to respond to different kinds of potentially critical events. Durable governments are those that have a greater ability to withstand and respond to such shocks. Public opinion shocks are an example of one such external development that can destabilize the government. The general model proposed by Laver and Shepsle (1998) (and previously in similar terms by Browne et al. 1984; Grofman and Van Roozendaal 1997) is a useful depiction of how cabinet stability and government popularity can be linked. All governments are stable at the outset, but some governments have characteristics that make them less skilled at handling external shocks. Governments that are in a minority, that consist of a coalition of parties and have larger internal ideological divisions find it more difficult to respond effectively to critical events. They are therefore more likely to come to a premature dissolution. An important point in this regard was raised by Lupia and Strøm (1995), who argued that exogenous shocks – changes in popularity included – do not automatically lead to any particular outcome. Instead the government's response is a result of strategic considerations of the party or parties in power. The same type of external shock could lead to an early election, a non-electoral replacement, a redistribution of power among coalition members or to a reaffirmation of the status quo (Lupia and Strøm, 1995, 649). The actual response then depends on a range of factors such as whether it is a coalition or single party government, how large the shock is as well as when in the electoral cycle it occurs (Diermeier and Stevenson 2000). The theoretical process behind both early elections and non-electoral replacements will be explored in more depth in section 4. For now, it is enough to note that previous theoretical work suggests that there are reasons to expect that both increases and decreases in government popularity can shift the incentives and power structures of a government in ways that can influence the likelihood of both early elections and replacements. But before turning to a more detailed theoretical discussion, in the next section we will instead give a more detailed empirical description of general trends in popular support.

#### THE THEORETICAL LINK BETWEEN STATE CAPACITY AND CABINET STABILITY

In this paper, a new and extensive dataset on polling created by Jennings and Wlezien (2016) is used. This dataset offers a large-scale, continental-wide overview of how governments and their constituent parties tend to fare in the polls (more on this in section 5). In Figure 1, this dataset is used to present an overview of average developments in

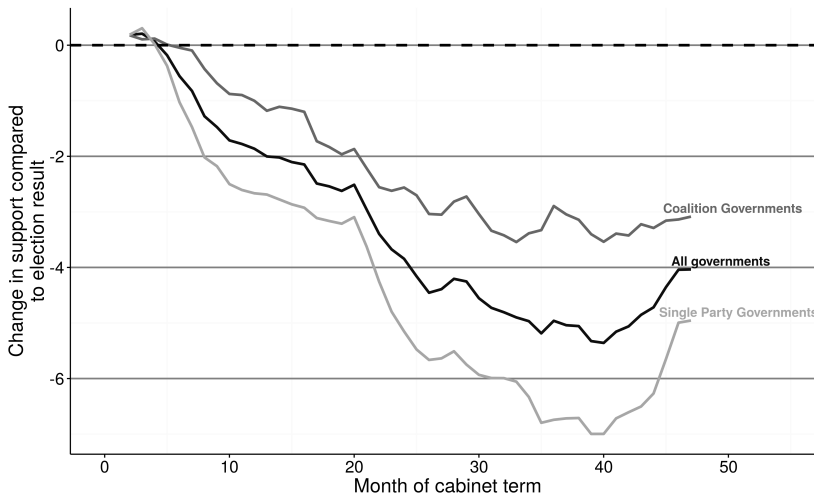


Figure 1. Development in support over the cabinet life cycle

public support during the term of office. Here we are looking at changes in support (measured in percentage points) compared to the election result. So, if the government as a whole got 53% in the election and now is polling at 49%, this would signify a change of -4. Looking at the change is generally more informative than looking at the absolute level of support for the government (e.g. 49%) since governments have different starting values and looking at the trend therefore makes it easier to see both the direction of the change in popular support as well as to compare different governments. In Figure 1 we have split up the results for 3 different types: coalition governments, single party governments, and all governments taken together. For two types, all governments combined and single party government, there is an unmistakable U-curve. For the first 35-40 months of the term of office, they lose support on average compared to their election result. Then, as the next regular election is approaching, they gradually start to fare better in the polls. It should be noted, though, that only the governments that have survived for more than 35 months are still in the sample at this stage. These are likely to be the more popular ones on average which might skew the results.

For coalition governments, in contrast, there is also a decline up until month 35, but after that there is a less of a recovery. One reason for that is that coalitions experience less of a decline before the trend line flattens out. After 30 months coalitions have lost 3 percentage points on average compared to their election result, whereas single party governments have a mean loss of more than 6. If we look at the trend for all governments taken together, we can see that a completely average government in the sample can expect to fare quite poorly in the polls. A loss of 5 percentage points halfway through is the rule

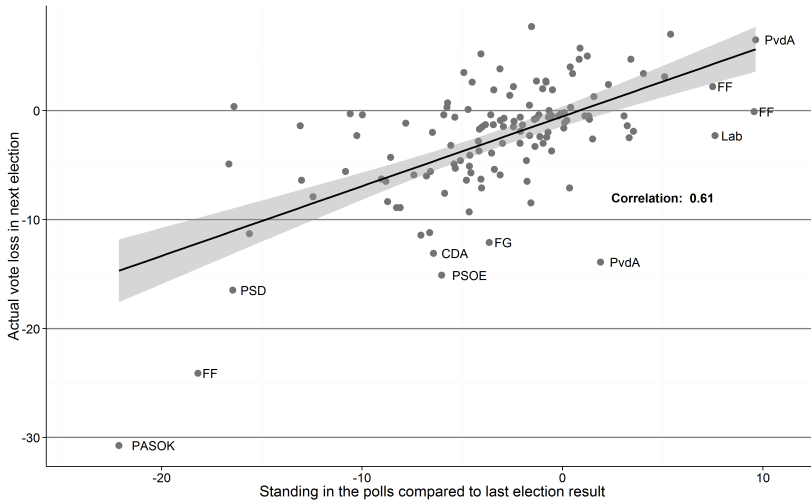


Figure 2. *Relation between support after 2 years and election result*

rather than the exception. This means that rational actors with reasonable knowledge of polling trends should not see such developments as a ‘shock’ and their ability to destabilize an otherwise healthy government should therefore be small. Still, if you are polling worse than average there could be reason to be concerned, since there is a strong correlation between popular support and the eventual election result even halfway through the term of office. Even though governments know that they are likely to regain some of the lost support before the election, their standing in the polls is still a good indication of their eventual electoral fate. We can see evidence for this proposition in Figure 2.

Even though the average cabinet is at the bottom of a trough 2 years in, there is still a correlation of more than 0.6 between how much it has lost at this point and how much it will eventually lose in the next election. A government polling at -10 is likely to lose more than one polling at -5, and for actors concerned with long-term electoral viability, this could be cause for concern. Similarly, a government that half-way through the term of office is polling at its previous election result knows that it is doing unusually well. Thus, polling even in the middle of the term of office could constitute a public support ‘shock’ if results are significantly better or worse than what an average government would expect.

A THEORETICAL ACCOUNT OF WHEN A PUBLIC OPINION SHOCK SHOULD INDUCE CABINET INSTABILITY

Given that popular support is predictive of electoral performance, we would expect that parties that want to be in power and influence policy care about their fate in the polls. This should also influence their incentives for government participation. But before turning to our expectations of the effect of changes in popularity on government stability, we first need to address the question of who the agents are in this case. Generally in coalition studies, governments are seen as the main (unitary) actors (Laver and Schofield 1990), but since popularity can vary significantly between coalition members, there are reasons to think carefully about whether the independent agency of individual parties should be given greater credence here. Previous studies suggest though (Martin and Vanberg 2014), that crucial government decisions, such as deciding on the budget or ending the government, are rarely taken by one party alone. Since party interactions are repeated games, the political parties need to think carefully about how their current actions affect their ability to work together again and be a partner in future coalitions. And previous studies have shown that individual parties that unilaterally decide to defect from the government are often punished by not being invited to take part in future coalitions (Tavits 2008; Warwick 2012). Thus, given that the coalition members might see their polling trends go in different directions, it would often be controversial for a party to make a highly salient decision about government termination based exclusively on its own polling when this could have adverse effects on the other coalition members. For that reason, the government as a whole is treated as the main actor in this paper. However, even though the government is treated as one unitary actor here, it should still be the case that the fewer parties there are in government, the more room there should be for strategic agency. Although, the main difference is between single party and multi-party governments, the number of incumbent parties should have an impact on the likelihood of termination through both early elections and replacement. The ability to call a discretionary early election is far greater if the government consists of a single party that can try to schedule the election for when it enjoys the greatest popularity. If there are multiple parties in government it is unlikely that they would all want an early election at the same time, since some of them could be faring poorly in the polls while others are doing well.<sup>2</sup> Similarly, sensitive decisions about replacing the prime minister or

<sup>2</sup> In this regard, it is whether parties have divergent interests (i.e. different ideal response to current changes in popularity) that should matter. Nonetheless, here we use the number of cabinet parties as a simplified proxy used to capture this. The reason for this is because when interests are aligned, a change in support should theoretically have an effect also in multiparty governments. However, this is very difficult to capture directly. For instance, if two parties in a three party government are polling better than average but the third one is not the common response is not self-evident.

taking in new coalition members are easier to make in a government with fewer members. This means that for both early elections and replacements, the effect of popular support should be directly dependent on, and moderated by, the number of parties sharing power. This line of reasoning leads to hypothesis 1:

*Hypothesis 1: The effects of shifts in popular support on cabinet stability are stronger when there are fewer parties in government*

With the general caveat noted that the main effects of popular support on the propensity to terminate prematurely are likely to be moderated by the number of parties in cabinet, let us now turn to our theoretical expectations for the two distinct termination types. One government response to shifts in support that has received significant attention in previous literature can be termed ‘opportunistic early elections’ (Becher and Christiansen 2015; Kayser 2005; Schleiter and Tavits 2016; Smith 2003). Here the main argument is that a rational government should strategically schedule an early election to coincide with favourable electoral prospects. The election can be timed to coincide either with particularly strong electoral prospects or to a time when the government expects to lose support in the near future. If the government knows that difficult decisions must be made or that there is an economic downturn approaching for which it expects to be held accountable, the government can use its rational foresight to strategically time the election before the drop in support occurs (Palmer and Whitten 2000; Roy and Alcantara 2012). To be more specific, deciding on whether to call an early election is a utility maximization problem. Political parties have certain pre-defined interests (notably long-term electoral success in order to gain office and influence policy (Müller and Strøm, 1999)). And we have theoretical reasons to expect that strategically timing the election directly influences these interests. More formally, the government must at time  $T_t$  determine whether the expected utility of calling an election outweighs the likely benefits of remaining in office. The potential gains of an early election are a renewed mandate (possibly with an increased seat share) whereas the costs stem from uncertainty, disagreements between coalition partners as well as having to give up the rest of the term of office. Indeed, sacrificing the rest of the guaranteed time in office and mobilizing supporters and electoral machinery could render it costly to act on the favourable electoral prospects (Warwick, 2012). The uncertainty here stems not only from difficulty in predicting the actual election result, but also from analysing how other parties will fare and whether the same government will be able to form after the next election. Kayser (2005) stated this trade-off succinctly as:

$$U(t)=\max \begin{cases} Continue \\ Call \end{cases} \quad (1)$$

So when the total utility (benefits minus costs) at time  $T$  of an election is greater for calling than for continuing, early election is opted for. In general we would therefore expect



early elections to be preferred in particular towards the end of the term of office (when less remaining time in office needs to be sacrificed), when the constitutional rules in the country make it easy for the government to call the election at its own discretion (Schleiter and Morgan-Jones 2009; Schleiter and Tavits 2016), and when the likely electoral benefits are high (Diermeier and Stevenson 1999; Lupia and Strøm 2008). This means that changes in popular support likely only increase the probability of early election when other external conditions are present. These conditions will be captured through control variables in our empirical models. Still, the government's standing in the polls should be one important part of its calculation of how much it expects to gain from an early election. In sum, the second hypothesis can be stated as:

*Hypothesis 2: The likelihood of opportunistic early election calling should go up when the government is polling better than the average government*

Thus, as far as early elections are concerned, the incentives for opportunism go up when support is high. In contrast, after a negative opinion shock (i.e. when popular support is lower than expected), a different set of strategic considerations come into play. The question now becomes how to minimize the loss at the polls in the next election. Under such circumstances, early elections are unlikely to be an appealing option since the parties in power have little reason to seek the voters' verdict when support is unusually low. The incentives for leaving the government or forming a new one without an intermediary election (i.e. forming a replacement) could increase though. Most governments are constitutionally able to form a replacement government with means that there is a greater discretionary choice of timing.<sup>3</sup> Moreover, replacement government can be formed in a few different ways. This includes some parties or the whole government leaving and the prime minister being replaced. But regardless of the precise type of replacement, the risk of it should increase when support goes down. First, if support is lower than average, the government might consider resigning early in order to regroup before the election and thus potentially receive a better electoral verdict than would otherwise have been the case (Robertson 1983; Saalfeld 2013). For example, if the government struggles to pass bills and implement its preferred policies, this could lead to that its voters become disaffected and thus to a slump in the polls. A potential remedy for this is for the government to resign early so that it can refocus its policy program and rebuild voter support before the next election. Second, another strategy for rebranding an unpopular government in the eyes of the public, and thus to reinvigorate it, is to replace the prime minister (Harmel 2002; Pilet and Cross 2014). If support is low, the government can try to regain momentum by signalling a break with the past and a new direction forward by putting on a new face outward. A similar behaviour has been confirmed in a range of studies looking at party

<sup>3</sup> There are some countries in our sample where these rights are constrained. For a full list, see Schleiter and Morgan-Jones (2009: 498)

leader selection and deselection (Andrews and Jackman 2008; Bynander and 't Hart 2008; Enns-Jedenastik and Müller 2015) where poor electoral performance has been found to be strongly detrimental for party leadership survival. Since popular support is strongly indicative of electoral performance, there are good reasons to believe that government leaders are sometimes replaced as a strategic move to boost the government's public image and rebuild support. Our main hypothesis concerning replacements can therefore be generally stated as:

*Hypothesis 3: The likelihood of termination through a replacement should increase as popular support goes down*

It is thus expected that unusually high popular support will be associated with an increased likelihood of early election calling, while low support should increase the risk of a replacement. However, both of these effects should be moderated by the number of parties in government, since the number of parties sharing power influences how easy it is to act strategically on polling. Finally, it should be noted that there is an endogeneity problem here, since it is plausible that governments that are weak and plagued by infighting are also less popular. In that sense, both the likelihood of termination and popularity can be dependent on a joint third factor, namely the general state of the government. However, there is no established measure of the "stability of the government while in office". To fully disentangle the direction of causality, one would need a measure of stability that can be continuously updated during the term of office and track whether stability measured thusly would primarily influence – or be influenced by – popular support. Only then can the temporal order of events be observed. Since no such measure presently exists, this paper will treat popular support as an exogenous factor even though the possibility of endogeneity is acknowledged. It is left open for future studies to help disentangle the causal mechanism.

## DATA AND METHODS

In order to test the hypotheses, data from three main sources will be used. As far as polling numbers are concerned, the data for the different countries comes mainly from the 2014 dataset compiled by Jennings and Wlezien (2016). This dataset contains more than 26 000 polls from 45 different countries since 1942 and it has here been extended in-house with additional data for Sweden. However, we can only keep polling data for countries and governments where we also have information on the other variables relevant for cabinet stability. And since the theoretical expectations here primarily concern the government and its constituent parties, we do not need to keep polling data on the opposition parties. Thus, after those observations have been removed, we have just over 12 000 polls, distributed among the countries in the manner that can be seen in Table 1.

As we can see in the table, there are noticeable differences between the countries in

TABLE 1 *Number of polls and cabinets per country*

Country	Number of polls	Cabinets covered
Austria	277	3
Belgium	29	4
Denmark	369	20
Germany	3169	24
Greece	80	3
Iceland	60	2
Ireland	412	15
Netherlands	1517	15
Norway	1134	22
Portugal	420	9
Spain	694	9
Sweden	1306	17
United Kingdom	2648	23
Total	12115	166

polling availability. Some countries, such as Germany, the UK and Sweden are very well covered, others, such as Belgium and Iceland are less so. For Germany, for example, we often have several polls a week. In fact, since 1960, we have an average of 11 polls a month in Germany. However, in the countries with fewer polls, we also cover fewer governments, which means that the governments that are in the sample are usually covered almost equally well with at least 4-5 polls a month. The focus here is on governments, not on countries per se, which means that what matters is polling availability per cabinet and here we have a reasonable supply for all included governments and an unprecedented supply of polling data to use in our models. Regarding general data on governments and cabinet stability, we use the 2014 version of the European Representative Democracy Data Archive (Andersson et al., 2014; henceforth ERD). This dataset contains data on more than 200 variables covering 640 European governments from the Second World War onwards. When merging the two datasets we get a total of 166 cabinets that are well covered in both the sets. One more data source is used for the measure of the government's dissolution power. Goplerud and Schleiter (2015) develop a number of measures for what the institutional provisions in different countries say about the opportunities that different actors in the system (i.e. the Prime Minister, the government, the assembly and the president) have to dissolve the government. Here their joint measure of the dissolution powers of the Prime Minister and government is used as a way to control for the total opportunities open to the government to strategically time the dissolution. Two main types of statistical techniques are then used to measure the empirical relations. First, to aggregate the polling data into coherent time series trends for each party and government, we use a Dynamic Linear Model. The estimated time series are then merged with the ERD

data and entered as an independent variable in discrete-time duration models. We will now discuss both of these techniques briefly.

#### THE DYNAMIC LINEAR MODEL

In order to aggregate all of the polling data for a particular party into one coherent time series a dynamic linear model (DLM) is used (Fisher et al. 2011; Harrison and West 1997; Jackman 2005; Linzer 2013). Two key questions that need to be asked when using polls to assess party support are how reliable a particular poll is and how much we should update our previous estimate of the level of support for a particular party in light of the new data. For example, if we believed that the social democrats in a certain country had the support of 35% of the electorate plus or minus 3 percentage points, and we now get a new poll with 1500 respondents that says that only 31% support the social democrats, how much should we revise our previous belief? The DLM accomplishes this by adding each new piece of polling data to our estimated time series, and the different polls are weighted by how recent they are and how confident we previously were in our estimation.<sup>4</sup> If we have lots of polling data and are confident about our estimates, then the model will not be substantially updated when one new poll comes in. However, when we are less certain and the variance in the time series is large, the model is more prone to follow the new data (Jackman, 2005). More formally, the DLM relies on Markov chains with a random walk and it uses the Kalman filter to smooth the time series. The DLM can be mathematically defined by (Petris et al. 2009):

$$P_i = \mu_i + \sigma_i^2, \sigma_i^2 \sim N(0, \mu^2) \quad (2)$$

$$\mu_i = \mu_{i-1} + \delta_i^2, \delta_i^2 \sim N(0, \delta^2) \quad (3)$$

$$\mu_0 \sim N(M_0, V_0) \quad (4)$$

Here equation 2 defines the observed time trend (i.e. the actual polling data), equation 3 the assumed ‘real’ underlying trend and equation 4 is the starting value that sets the Markov chains in motion and this is specified through a mean value and a variance term. The mean of the observed trend ( $\mu_i$ ) is consequently the estimation from the latent trend, which in turn is a result of the previous estimations plus a variance term ( $\delta_i$ ). The actual polls ( $P_i$ ) are then simply the estimated latent trend with the addition of some variance. Everything is assumed to follow a Gaussian (normal) distribution (Scott and Varian 2014). A highly useful aspect of political polling data is that unlike many other surveys, here we

<sup>4</sup> One can also add weights for other things, such as poll size and polling house reliability, but since this kind of information is missing for the first 2-3 decades in our data, this will not be done here.

actually get a perfectly unbiased measure, namely the general election. This means that we can test the estimates of the DLM on Election Day and see how close we are to the actual outcome. If the DLM proves to be accurate, we have reason to believe that it is also close to the true public support in between elections. In a recent study by Walther (2015), this was put to the test in two of the countries in our sample, namely Germany and Sweden. Here the average error in the election forecast was found to be 0.69 percentage points per party in Germany and 0.78 in Sweden, which must be seen as strong support for the reliability of the DLM.

#### COMBINING THE DLM WITH SURVIVAL MODELLING

Once the DLM models have been run, we have a continuous estimate for how the support for each government in our sample develops. The time series can then be split up into months, so that each observation is the estimated support for a particular government in a given month. These estimates are then merged with the ERD and with the Goplerud and Schleiter (2015) data. A *discrete time survival model* can then be used to estimate how the popular support in a given month affects the probability of premature dissolution once other variables have been controlled for. Discrete time modelling is a logit-based technique that is in fact asymptotically equivalent to the more common Cox proportional hazards model (Box-Steffensmeier and Jones 2004; Kleinbaum and Klein 2005). The two estimation techniques thus give the same results, but since we have time split data here to start out with, using the discrete time model seemed like a fitting choice. And since the discrete time model is logit based, we also get the other advantages associated with this technique such as better post-estimation options and fewer assumptions (such as the proportional hazards assumption that underpins the Cox technique). Since we have three exit options (survival, early election, replacement), the multinomial version of the discrete time model is used. One final statistical detail to note is that some version of time needs to be included as an independent variable in the discrete-time model to allow the effects of the other independent variables to vary over time. If time is not included, the odds/hazard ratios of the other independent variables are, just like in the Cox model, assumed to be proportional over time. Here time until the next regular election was entered as a lowess transformed independent variable that tracks the temporal progression of the term of office and allows the other independent variables to vary (Box-Steffensmeier and Jones 2004: 76). In terms of operationalizing “popular support”, as argued above, we expect a relevant change in support to be one that sets the government apart from the average government in the sample. Almost all governments lose support compared to the vote share they got in the last election, so if the government in the middle of the term of office is polling a 5 percentage points below its election result, this should be neither unexpected nor a sufficient shock to bring about a termination. Similarly, ‘good polling’ is not necessarily when the government is polling at a higher level than its previous election result but could

be when it is only 1 percentage points below the last result when other governments are polling at minus 4. For that reason, “popular support” will be operationalized here as the difference between the support of a particular government and that of an average government in the sample <sup>5</sup> at that time in the term of office.<sup>6</sup> In addition to popular support, the regression analysis also takes into account a number of control variables that previous studies have identified as relevant for cabinet stability. A full list of these is available in the Appendix.

## RESULTS AND ANALYSIS

In the first model of Table 2 show the effect of popular support without a multipliable interaction relationship. The reported results are relative risk ratios (with standard errors in brackets), which means that the effect of a particular variable can be interpreted as ‘change in the baseline risk’, where 1.00 means no effect. A value less than 1.00 means that the variable on average lowers the likelihood of the outcome whereas a value above 1.00 increases it. In this model, we can see some indication that support, even without controlling for number of cabinet parties, seems to have an effect on the likelihood of calling early election. Moreover, the effect is in the hypothesized direction, so the better the government is polling compared to the average government in the sample, the more likely it is that it opportunistically calls an early election. In this case, the relative risk ratio is 1.09, which suggest that for each percentage point that government support increases compared to the average government, the likelihood that it calls an early election increases by 9%, other variables held constant (at their mean values).

For example, with 10 months left of the term of office, when the average government is polling at around five percentage points below its election result, if a more successful government is polling at two percentage points better than this average change, this leads to a 1.092, i.e. 19%, increase in the likelihood of an early election. Turning to replacements, no statistically significant effects can be found. The sign is again in the right direction (stronger support is associated with a lower likelihood of replacements), but the effect is not statistically certain. As far as the other variables are concerned, the results are in line

<sup>5</sup> It could also be argued that what should matter is the average national trend, not the average European trend. However, as shown in Figure 1, there are differences also between different types of governments within the same country. Moreover, for many countries here we only have data on a few governments, which makes it difficult to calculate a reliable national average. For that reason, a comparison with the European average trend seems like the best proxy available to gauge how well a particular government is doing.

<sup>6</sup> It was also confirmed empirically, though not reported here, that this way of operationalizing support provided the best fit to the data.

TABLE 2 Results from a multinomial discrete time model

Variables	Model 1		Model 2	
	Relative risk ratio	P-value	Relative risk ratio	P-value
<b>Early elections</b>				
Support	1.09* (0.050)	0.066	1.19** (0.083)	0.014
Support × Nr. Cab parties			0.95* (0.028)	0.084
Nr. Cab. Parties	0.95 (0.24)	0.84	1.09 (0.29)	0.76
Majority cabinet	1.65 (0.99)	0.41	1.71 (1.01)	0.37
Unemployment	1.12** (0.063)	0.041	1.13** (0.064)	0.036
GDP growth	0.93 (0.11)	0.52	0.93 (0.11)	0.52
Nr. parl. parties	0.92 (0.088)	0.36	0.91 (0.087)	0.34
Gov. dissolution power	1.17** (0.073)	0.013	1.18*** (0.074)	0.009
Bicameralism	0.83 (0.61)	0.80	0.76 (0.55)	0.70
Conservative cabinet	0.73 (0.39)	0.55	0.77 (0.40)	0.62
				<i>Sup-</i>
<b>Replacements</b>				
Support	0.95 (0.046)	0.25	0.78** (0.095)	0.045
Support × Nr. Cab parties			1.09* (0.057)	0.083
Nr. Cab. Parties	2.20*** (0.52)	0.001	2.41*** (0.81)	0.009
Majority cabinet	0.24 (0.23)	0.13	0.20* (0.19)	0.095
Unemployment	0.97 (0.066)	0.65	0.97 (0.063)	0.62
GDP growth	0.89 (0.11)	0.34	0.86 (0.11)	0.26
Nr. parl. parties	0.86* (0.075)	0.074	0.83* (0.084)	0.068
Gov. dissolution power	0.94 (0.061)	0.37	0.93 (0.068)	0.33
Bicameralism	4.37 (4.19)	0.12	5.92* (5.78)	0.068
Conservative cabinet	0.87 (0.49)	0.81	0.71 (0.45)	0.59
Wald $\chi^2$	162.78		159.52	
Pseudo R <sup>2</sup>	0.3366		0.3462	

port is a continuous measure of how a government is doing compared to the average government in the sample. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The reported relative risk ratios are from a multinomial discrete time model. A lowess transformed version of time was entered in the models to avoid the proportional hazards assumption. The models use standard errors clustered on the cabinet level to account for the homogeneity that can result from multiple observations per government.

with what we know from previous studies. Unemployment and the constitutional ability to call elections increase the likelihood of ending through an early election, whereas a greater number of cabinet parties increases the risk of a replacement. It is interesting to get a confirmation of these findings, especially the relevance of unemployment, given that previous studies have not controlled for popular support. Model 2, in turn, is a more complete test of our theoretical expectations, and here we test the effect of a change in popular support both on its own and in a multiplicative interaction with the number of cabinet parties. However, special care needs to be taken when interpreting results that are part of an multiplicative interactive relationship, since the effect will be inextricably tied to the value of the other variable (Brambor et al. 2006). Thus, with a multiplicative interaction term, the coefficients of the individual variables in that interaction only have the value reported in the regression table when the other variable is 0. For that reason, we will instead look at marginal effects and predicted probabilities to interpret the substantive effects. As Brambor et al. (2006) point out, for interaction effects it is often the case that significant effects can be found only for certain values of the moderating variable. In Table 3 we can see the conditional effect of popularity on the risk of termination for different number of cabinet parties. The calculations have also been done for two different time points – one with two years left of the term of office, one with six months left, since timing also proves to be an important piece of the puzzle (as theoretically foreshadowed by Lupia and Strøm 1995). Turning first to early elections, we can see that with two years left, the marginal effect of a change in popular support is never statistically significant. However, with six months, the marginal effect when there is one party in government is statistically significant (at the  $<0.05$  level) and has a plausible effect for two party governments (at the  $<0.1$  level). This shows that the effect of popularity is contingent on other circumstances. A change in support does have a significant effect, but only in governments with few parties and only when the term of office is nearing its end. Turning to replacements, the results show that also for this termination type the results are only statistically significant at conventional levels for single party governments. In this case though, timing in the term of office seems to have no impact. Regardless of whether we measure the effect when it is two years or when it is six months left, a marginal change in support has an effect on the likelihood of ending through a replacement for single party cabinets. For larger government, unlike for early elections, the effect is never close to statistically significant.

These findings thus simultaneously confirm and refine the main results from our regression model. Popular support does significantly affect the probability of both types of termination but only for cabinets with few members and, in the case of early elections, only when the next regular election is looming. However, the substantive difference this makes for real-world government is hard to make out from the marginal effects and let us therefore instead turn to predicted probability plots. Looking at predicted probabilities tells us how the monthly likelihood of each type of termination changes when there is a change in public support. The calculations have been made for single party governments



TABLE 3 Marginal effect of popular support for different number of cabinet parties

Number of cabinet parties	Marginal effect of support	Std. Err	P-value	Time left
<b>Early election</b>				
1	.00123	.00086	0.134	2 years
2	.00077	.00065	0.170	2 years
3	.00022	.00058	0.702	2 years
4	-.00043	.00109	0.690	2 years
1	.02116	.00977	0.030**	6 months
2	.01325	.00741	0.074*	6 months
3	.00377	.0098	0.700	6 months
4	-.00773	.01848	0.676	6 months
<b>Replacements</b>				
1	-.02781	.01123	0.013**	2 years
2	-.02787	.02276	0.221	2 years
3	.02611	.08248	0.752	2 years
4	.27994	.29009	0.335	2 years
1	-.04462	.01758	0.011**	6 months
2	-.04489	.04048	0.267	6 months
3	.04174	.12819	0.745	6 months
4	.43994	.428	0.304	6 months

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The effect size is measured at the monthly level. In the table, our main predictor “Support” is rescaled into proportions, that is, for example 0.02 is equivalent to 2 percent. Also, to aid with the substantive interpretation, an analysis of change in predicted probabilities is done below.

since these are the ones where the most consistent effects were found. Firstly, looking at early elections, the predicted probability of an early election in an average month <sup>7</sup> when support is 7 percentage points lower than it is for an average government, is quite low, namely around 0.5%. In total, 39 of the 166 governments in our sample, or 23%, end through early elections, but that is in total during the whole term of office – the risk in any given month is, of course, much smaller. Still, holding other variables constant and changing the level of support has a noticeable effect on the risk. When support for the government is high, around 5 percentage points higher than for the average government, the risk of an early election in that particular month is almost 1.5%. That is, holding everything else constant and changing only popularity increases the risk threefold to 1.5%. Assuming that the government polls at 5 percentage points over the average government for six months straight, this means that there is a  $1.015^6 = 1.09 = 9\%$  risk of an early election in that six-month period, other variables held constant. The opposite effect can be seen for replacements. Here the risk is at its highest, close to 1%, when support is low, but then decreases rapidly the more popular the government becomes. When support is 5 percentage points higher, the risk of an early election is only around 0.3% in a given month. These predicted probability plots show in stark contrast how different the effects on the risk of early elections and replacements are for the same change in popular support.

With these results in hand it seems as if the main points of our hypotheses were confirmed even if some of the details were not. The results indicate that the likelihood of opportunistic election calling increases in Model 1 (but here with a p-value of 0.066), in line with hypothesis 2 that state that governments should seize the moment of calling early elections when their electoral prospects are favourable. It should be noted though that here we controlled for both time remaining in office and for constitutional abilities to call elections (to name some important covariates), since such factors do have a bearing on the choices governments consider. Strong public support is not enough on its own but can propel a government to call an election when the timing is right and external conditions allow for it. The results for our third hypothesis, that increases in support should reduce the risk of replacements, were more mixed. In Model 1 we could see that the difference in support compared to average government in fact had no significant effect on replacements on its own, which conflict with our expectations. However, once we controlled for how a change in support depends on the number of parties in power, a statistically meaningful effect could be discerned. This finding thus tells us that hypothesis 3 is directly dependent on our first hypothesis, namely that popular support is more important for stability when there are fewer parties in government. Adding an interaction term to our empirical model shows that popularity does shield a government from ending through a replacement, but only when it is a single party government. When there are more coalition members, no

<sup>7</sup> Please note that the figure does not show the total risk of ending through an early election but only the average risk in a certain month.

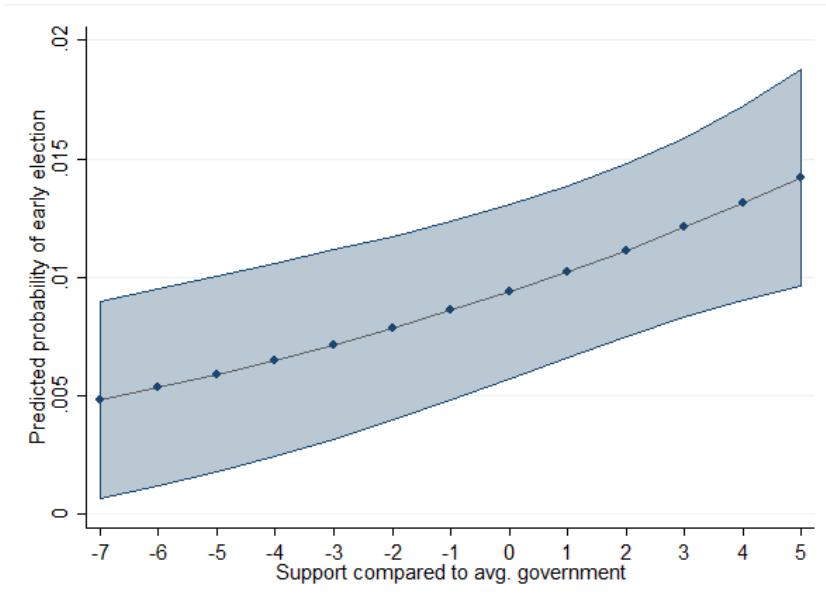


Figure 3. Predicted probability of early election when support changes  
Note: The unit of analysis is cabinet-month, so the predicted probability is of early termination in a particular month given a certain level of support. The figure show how the predicted risk changes (with 95 percent confidence intervals) when support goes from low too high for an average single party government.

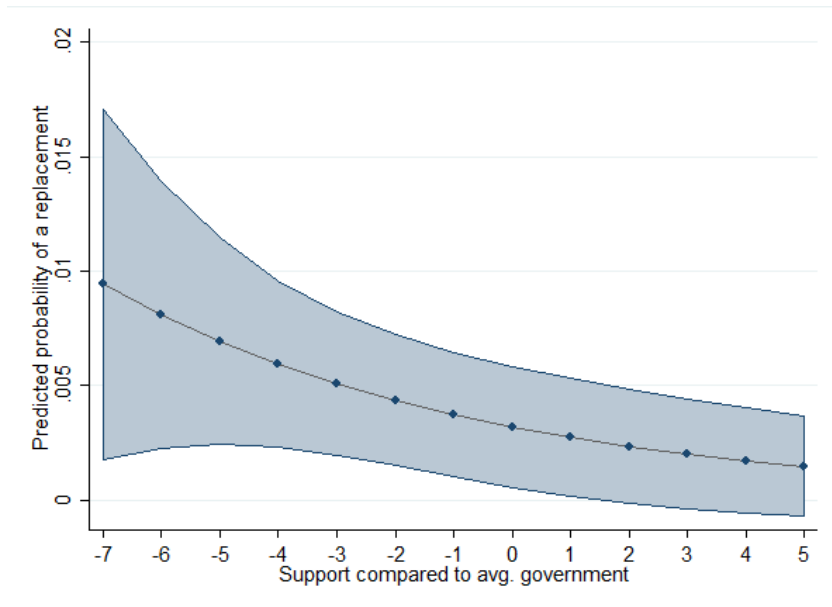


Figure 4. Predicted probability of a replacement when support changes

Note: The unit of analysis is cabinet-month, so the predicted probability is of replacements in a particular month given a certain level of support. The figure show how the predicted risk changes (with 95 percent confidence intervals) when support goes from low too high for an average single party government.

such effects can be found. And the finding that the effect is stronger for single party governments also holds true for early elections. The main finding of this study is thus that government stability is in fact affected by popular support, but primarily when the government consists of a single party. It should be noted though that the effects on two-party governments were close to being significant on the 95% level for early elections, and it is therefore possible that significant effects can be statistically verified also in larger governments in future studies when more polling data becomes available.

## CONCLUSION

The main conclusion of this study is that we do in fact have empirical reasons to trust the common theoretical expectation that the stability of governments is affected by developments in popular support. In particular, better than average polling increases the likelihood of opportunistic early election and reduces the risk of replacement governments but only when there are few parties in government. In the case of early elections, timing is also a crucial component since popularity only seems to make a difference when the next election is approaching. For replacements, time had no impact on the relevance of popularity. This was in line with our main hypotheses and is a first step in trying to empirically disentangle the various causal chains that have long been theoretically presupposed. Further work is needed though to analyse and flesh out some of the early findings here. First, as mentioned in the theory section, it is possible that causality moves in both directions, since an unstable government where the parties struggle to get along might also become less popular. Stability and popularity might therefore reinforce one another and the precise direction of the relationship should be further explored in future studies. Another interesting question is whether it is really true that an increase in unemployment negatively impacts on the stability of the government because it affects the governments popularity and re-election chances (Anderson 2000), or whether there are other dynamics at play such as a difficulty among coalition members in deciding how to handle it (Saalfeld 2008)? It is too early to draw any conclusions but we can note that unemployment had a significant effect in the models in this paper even though we had now controlled for cabinet popularity. This suggests that unemployment might be important because it leads to policy tensions and disagreements about how to respond and not just because of how it impacts on popularity. Another question to pursue in future studies is whether popularity plays an equally important role in Central and Eastern Europe. All the countries included here come from what can broadly be described as Western Europe, but duration studies now also frequently investigate Central and Eastern Europe. It has been shown that governments in Central and Eastern Europe are often punished more severely in future elections than their Western European counterparts (Roberts 2008), and the question whether they are equally sensitive to changes in public opinion while in power would therefore be interesting to investigate. Time, and better data, will tell.

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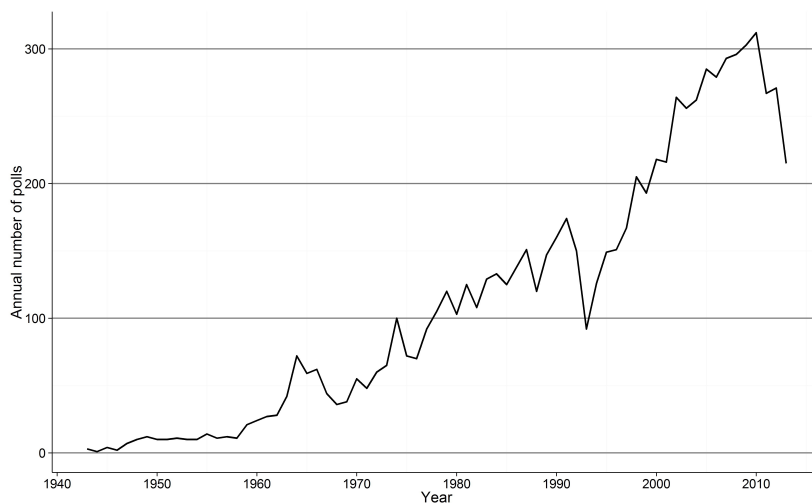


Figure 5. *Polling availability over time*

TABLE 4 *Summary of variables used in regression models*

Variable	Mean	Std. Dev.	Min	Max
Support	.0546987	4.970318	-20.77	24
Nr. cab parties	1.796545	1.000416	1	5
Majority gov	0.622978	.484707	0	1
Unemployment	5.866519	4.043162	.4925006	22.96667
GDP growth	1.610692	2.118536	-7.104741	9.76028
Nr parl parties	6.704689	2.522686	3	14
Gov. dissolution power	6.062509	4.146204	0	10
Bicameralism	0.55717	.4967889	0	1
Conservative cab	0.259391	.4383607	0	1