Election Polling Errors across Time and Space

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Statement on data availability: the data and syntax used to produce these analyses are available at the Harvard Dataverse (http://dx.doi.org/10.7910/DVN/8421DX).

Abstract

Are election polling misses becoming more prevalent? Are they more likely in some contexts than others? In this paper we undertake an over-time and cross-national assessment of prediction errors in pre-election polls. Our analysis draws on more than 26,000 polls from 338 elections in 45 countries over the period between 1942 and 2013, as well as data on more recent elections from 2014 to 2016. We proceed in the following way. First, building on previous studies, we demonstrate how poll errors evolve in a structured way over the election timeline. Second, we then focus on errors in polls in the final week of the campaign to examine poll performance across election years. Third, we use the historical performance of polls to benchmark recent polling "misses" in the UK, US and elsewhere. Fourth, we undertake a pooled analysis of polling errors – controlling for a number of institutional and party features – which enables us to test whether poll errors have increased or decreased over time. We find that, contrary to conventional wisdom, recent performance of polls has not been outside the ordinary. The performance of polls does vary across political contexts, however, in understandable ways.

In the wake of the 2015 UK general election, the 2016 referendum on Britain's membership of the EU, and the 2016 US presidential election, the performance of the polling industry has been under much scrutiny. Indeed, the performance of the polls in the UK and US general elections prompted unusually comprehensive – and lengthy – reports into what went wrong (Sturgis, et al. 2016; AAPOR 2017). Those reports suggest that the performance of pre-election polls in these events – at least the national surveys in the US and UK – was largely consistent with the historical norm in terms of the magnitude of polling error. This is not to say that the pre-election polls were without problems, particularly at the state level in the US, where errors reached historical highs (AAPOR 2017). Further, the claim that polling is in crisis and that poll errors are increasing remains popular, especially with politicians and commentators (Silver 2015; Zukin 2015; Cassino 2016; Santos 2016; Skibba 2016), and even some scholars (e.g., Barfar and Padmanabhan 2016). But, are these claims true? Are polling misses becoming more common?

In this paper we undertake an over-time and cross-national comparison of pre-election poll estimates and election outcomes. Our analysis draws on more than 26,000 polls from 338 elections in 45 countries over the period between 1942 and 2013, as well as data on more recent elections from 2014 to 2016. We demonstrate a number of things. First, building on previous studies, we assess how poll errors evolve in a structured way over the election cycle, and also how this varies across election types. Second, we then focus on errors in polls in the final week of the campaign, to examine poll performance across election years. Third, we use the historical performance of polls to benchmark recent polling "misses" in the UK, US and elsewhere. Fourth, we undertake pooled analysis of polling errors – controlling for a number of institutional and party features – which enables us to explicitly test whether poll errors have increased or decreased over time. We find that, contrary to much conventional

wisdom, recent performance of polls has not been outside the ordinary, and that if anything polling errors are getting smaller not bigger.

Data

Pollsters have sought to measure citizen's preferences for candidates or parties for almost three quarters of a century. While the wording of survey questions differ due to differences in context, most pre-election polls ask how citizens would vote "if the election were held today."[1] We draw on what we believe is the most extensive cross-national dataset of polls of vote intentions for presidential and legislative elections (Jennings and Wlezien 2016). This dataset consists of 26,917 polls spanning the period from 1942 to 2013. The data cover a total of 338 elections (including 22 run-off elections) in 45 countries – presidential elections in 23 countries and legislative elections in 31 countries, summarized in Table 1 (for further details, see Jennings and Wlezien 2016). On average, we have 598 separate polls per country for approximately seven elections per country, or about 86 polls per election cycle. Since most polls are conducted over multiple days, we "date" each poll by the middle day of the period that the survey is in the field. For days when more than one poll result is recorded, we pool the results together into a single poll-of-polls. In the final week before the election, we have 1,002 polls over our 335 elections.

-- Table 1 about here --

Recall that we are interested in the amount of error in these pre-election polls and how it varies across time and space. We thus need data on the vote shares that parties and

[1] While Lau (1994) shows that in the US such differences matter little for poll results, McDermott and Frankovic (2003) demonstrate that some are consequential. To the extent wording does matter, it introduces error into our measure of electoral preferences.

candidates received on Election Day to compare with poll results. For this, we rely on a wide range of official sources and election data resources (as described in Jennings and Wlezien 2016). Our dependent variable is the simple absolute vote-poll error: the absolute value of the difference between party or candidate share of the polls and the Election Day vote share. Note that in most countries the common practice is to report "headline" vote intention figures excluding don't knows and refusals, which is what we use here (the one exception is Japan, where don't knows are not included in the published figures).

An Analysis of Poll Errors

Our analysis considers three patterns. First, building on previous research, we examine how poll errors vary over the course of election the campaign. Second, we examine whether and how poll errors at the end of election cycles have varied over time, across election years, and particularly in recent years. Third, we examine whether and how electoral context matters for poll accuracy.

Poll Errors over the Election Timeline

Although our primary interest is in the performance of vote intention polls just before Election Day, it useful to consider how they line up with the election result over the course of the election cycle (Erikson and Wlezien 2012). This is important because it reveals how aggregate electoral preferences evolve over the election "timeline" – whether the so-called fundamentals are in place early or come into focus late in the campaign. Fundamentals are those factors that matter on Election Day, and include variables that are "internal" to voters, like party identification, and those that are "external" and influence all voters, such as the performance of the sitting government or state of the economy.

For this analysis, we focus on elections for which we have poll readings beginning 200 days before Election Day, that is, to avoid change in estimates due to the addition of cases over the timeline. This leaves us with 278 discrete election cycles and 209 parties, where we exclude those whose vote share is less than 5 per cent. In the dataset, polls are missing on 92% of days on average across parties, which implies that we typically have readings for around 110 parties on each day (with polls dated according to the mid-point of the fieldwork period). Using these data, we can assess the degree to which the election results match poll estimates on different days over the timeline.

-- Figure 1 about here --

Figure 1 provides a very general take. It plots the mean absolute error (| Poll – VOTE |) for all parties using polls from each of the last 200 days of the cycle, pooling all 278 elections for which we have poll data. In the figure, we can see that poll errors decline over the election timeline. Using polls from 150-200 days before Election Day, the mean absolute error is close to four percentage points; 50 days in in advance, it is approximately three points; on the eve of elections, it is under two points. This is not surprising but is satisfying, as it shows that polls become more reflective of the actual result, though *they remain imperfect even at the very end of the campaign*. The declining error owes partly to the increasing number of polls (and respondents) as the campaign unfolds (Wlezien et al. 2017), which helps explain the dampening oscillations we observe in Figure 1. Much of the early jaggedness is due to the relatively sparse N of polls and the changing mix of elections (and parties) from day to day, which stabilizes as the timeline unfolds and polling increases, thus reducing variation (also see Footnote 5 below).

-- Figure 2 about here --

While the results in Figure 1 are informative about the global pattern in the poll-vote match over time, there is reason to think that they conceal differences across political institutions. Scholars have found that preferences evolve differently in different institutional contexts, after all, which implies that the convergence of the polls on the vote comes into focus differently. Of special importance is the difference between legislative and presidential elections (Jennings and Wlezien 2016). (There is no real difference between legislative elections in presidential and parliamentary systems.) Voters' preferences crystallize earlier in the electoral cycle in the former than the latter. The patterns in Figure 2 are consistent with these expectations. At the beginning of the timeline, 200 days out, polls are more informative about the vote in legislative elections, with an MAE of approximately 3.3 percentage points by comparison with 5.4 points for presidential elections. The gap narrows over time, especially during the last 50 days, and errors for the two types of elections are virtually indistinguishable on Election Day (at just over 1.5 points). By that point in time, preferences in both types of elections seemingly are fully formed. There thus are important differences in the structure and evolution of preferences in presidential and legislative elections.

Poll Errors across Electoral History

We have seen that poll errors tend to decline over time within particular election cycles, and particularly in presidential elections. The timing of polls thus is an important factor in their predictive power and that context matters as well. This comes as little surprise but is reassuring. What we really want to know is whether and to what extent the predictive power of the polls has changed over time, across elections. Are polling errors more common today than in the past?

There are reasons to believe polling errors might have increased over time. First, new less expensive and easier polling methods – most notably online polling and interactive voice response (IVR) polls – have emerged. As such, pollsters now are using many different methods, the consequences of which are not fully understood. This can introduce error for each of the organizations employing such methods but also for the industry collectively, insofar as the errors of particular methods (including adjustment procedures) do not cancel out. Secondly, for more established methods such as face-to-face and telephone polling, response rates have declined. Twenty years ago, more than one-third of respondents contacted would take surveys; today, the number is less than 10% (see Keeter et al. 2017). This potentially jeopardizes the representativeness of surveys, which has fairly obvious consequences for polling error, and has been implicated in recent polling misses (Sturgis et al. 2016; AAPOR 2017).

Now, while the proliferation of approaches and declining response rates pose real challenges, we nevertheless have a lot more survey respondents, i.e. there are more polls often with larger sample sizes) and survey organizations have themselves incorporated weighting and other techniques designed to assure representativeness. It thus may be that we now actually have a better overall portrait of electoral preferences.

Of course, polling accuracy is not just about pollsters; the behaviour of voters matters as well. Of special importance for poll errors is the structure of the vote. We know that traditional cleavages have weakened over time in most countries (Kriesi 1998; Mair 2013), with the decline of class voting observed across many countries for several decades (e.g. Franklin 1985; Knutsen 2006; Evans and Tilley 2017). As cleavages weaken, voter behavior becomes less predictable and more susceptible to the influence of short-term factors (Kayser and

Wlezien 2011).

For our analysis of polling accuracy across election years, we focus on polls conducted during the last week of election campaigns in the 338 elections between 1942 and 2013. Specifically, for each party we calculate the absolute error of the average vote estimate of all polls conducted during the final week of the election campaign. Figure 3 plots these errors by year, with the error for each party indicated with a hollow grey circle, and the mean absolute error across all parties and elections in a given year is indicated with a black circle.

-- Figure 3 about here --

From the figure, it is immediately evident that the number of elections for which we have poll data has increased over time. This partly reflects the growth in the number of democracies over the period, but it also reflects the growth in pre-election polling. While the number of polls has increased over time, polling errors have not. Consider the annual averages of poll errors indicated by the bold circles in Figure 3. These have bounced around somewhat over the years but have not increased, and may actually have decreased. The mean error was 1.6% during the 1940s and 1950s (in the early days of polling), approached 2.2% during the 1960's and 1970s, and has been 2.1% since 2001. The bivariate correlation between the polling year and the absolute error is -0.07 (p<0.05). Poll performance has not changed much in a general way over the last 60 years and if anything seems to have declined.[2]

[2] We observe a very similar pattern if we restrict our analysis to those countries where we have regular polling over the *same* extended time period (Australia, Canada, Denmark, France, Germany, Ireland, the Netherlands, New Zealand, Norway, the U.K. and U.S.), to ensure our findings are not due to the changing mix of countries covered by the data. Taking poll readings for these 11 countries from 1977 on, the negative correlation between polling year and error is even stronger, -0.23 (p<0.001).

Of course, it may be that the problems with polling emerged only recently, perhaps after the end of our data series in Figure 3, i.e. 2013. To consider this possibility, Figure 4 highlights poll performance in elections over the last two years, specifically the U.K. in May 2015, Denmark in June 2015, Greece in September 2015, Canada in October 2015, Ireland in February 2016, Spain in June 2016, Australia in July 2016, Iceland in October 2016, the U.S. in November 2016, France in March and April 2017, and the U.K. in June 2017. Here we can see that the poll errors again vary from election to election, but the average is around 2.6 percentage points for the main parties. (We exclude smaller parties from this analysis, since the error on these will tend to be much smaller due to sampling theory.)[3] This is just 0.2 points higher than the average for large parties (those receiving over 20% of the vote share) for the full 1942 to 2013 period depicted in Figure 3; the difference is exactly the same if we restrict the comparison to those countries with regular polling between 1977 and 2013. Poll performance in recent elections is representative of what we have seen in the past.

-- Figure 4 about here --

Poll Errors across Contexts (and Electoral History)

Now, it is possible that the patterns we observe in polls over the post-war period reflect the kinds of political and electoral systems that have most frequently held elections. It may be, for instance, that the increasing number of countries using proportional representation (PR)

[3] This analysis considers the absolute error of the polls for the two main parties or candidates, e.g., Labour and the Conservatives in the U.K., Le Pen and Macron in the 2017 French presidential election. In some multi-party systems, the pair of parties receiving the highest vote share differs from the pair receiving the highest poll share (typically due to closeness of the election). In those cases (Denmark, Spain, Iceland), we consider the absolute error for the three largest parties – since our analysis might otherwise miss an important part of observed polling misses.

has reduced one source of survey error – since party attachments matter more in those systems and are more durable than candidate evaluations, which are more central in non-PR settings (Jennings and Wlezien 2016).

Table 2 summarizes the absolute vote-poll error (using the average poll estimate during the last week before the election) by election and party type. The results indicate that polls errors are higher in presidential elections (an average of 2.5 percentage points) compared to legislative elections (an average of 1.9 percentage points), higher in single-member district (SMD) systems (2.4 percentage points) compared to PR systems (1.7 percentage points) -- with a similar difference between candidate- and party-centric systems respectively. Errors tend to be largely unrelated to the effective number of parties (with an average error of 2.3 where there are fewer than 3 effective electoral parties, compared to an error of 2.0 percentage points for equal or more than 3 effective electoral parties).[4] Much the same is true for participation in government, as the error of poll estimates for parties in government (2.2 percentage points) is only trivially higher than for parties in opposition (2.0 points). While informative, basic descriptive analyses of poll errors may mislead. That is, some of the differences we observe may be to do the other factors. For example, opposition parties are more likely to be small parties so their errors may be less to do with their opposition status and more to do with the size of their vote share.

-- Table 2 about here --

A more general modelling strategy to address this would treat the absolute error as a

[4] Following Laakso and Taagepera (1979), the effective number of electoral parties (ENP) is calculated as the sum of the squared fraction of votes (*V*) for each party *i*, divided by one. That is, $ENP_e = \frac{1}{\sum_{i=1}^{n} V_i^2}$.

dependent variable, enabling us to conduct simultaneous tests of party and system characteristics and over-time trend. We could model the error as a function of various features of electoral systems and parties, along with the election year. The equation might take the form:

$$|\boldsymbol{VOTE - POLL}| = \boldsymbol{a + b_1 Presidential + b_2 PR + b_3 Candidate + b_4 ENP + b_5 Government + b_6 Size + b_7 Year,}$$

where the absolute error is a function of some intercept (*a*) plus whether the election is a presidential race or not (*Presidential*), whether it is under a proportional representation system (*PR*), whether the system is candidate- or party-centric (*Candidate*), whether the effective number of parties is more or less than 3 parties (*ENP*), whether the party is in government (Government), whether it received more than 20% in the relevant election (*Size*), and the election year (*Year*). The latter enables us to determine whether polling errors have increased or decreased in magnitude, after accounting for the underlying features of elections.

Results of estimating this equation are reported in Table 3. Here we see that poll errors are just less than 1.0 (exactly 0.9) percentage point higher ($p < 0.001$) for large parties. As noted earlier, this is exactly what we expect based on sampling theory.[5] The results also reveal a small (0.35 point) but significant ($p < 0.05$) effect for systems with more than 3 effective parties. There are not significant differences in polling accuracy between presidential and legislative elections, party-centric and candidate-centric systems, government and opposition

[5] Sampling theory suggests that the poll "margin of error" differs according to the size of the sample and distribution of responses, specifically the proportion (or percentage) giving a particular survey response. The standard error of a proportion, *p*, can be calculated using the equation $\sqrt{\frac{p(1-p)}{n-1}}$, where *n* is the size of the sample. This means that the observed error variance should increase as $p \sim 0.5$.

parties, proportional and single-member district systems, though the latter comes close. Most notably for our analysis, the effect of the election year is a trivial 0.01 and does not even approach statistical significance ($p = 0.15$). There simply has been no discernible decline in the accuracy of polls over time.

-- Table 3 about here --

We observe a similar pattern if we limit the analysis to elections in the eleven countries where we have regular poll data over a concurrent time period, i.e. since 1977. This enables us to be sure that over-time trends in poll accuracy are not due to the changing mix of elections and democracies where polls are being conducted (or where we have data). The results of estimating the same equation as above for the restricted set of cases are reported in Table 4. As observed above, errors tend to be around 0.9 points higher for large parties ($p < 0.01$). The results also reveal that the effect of the number of parties no longer is significant but that poll accuracy now is significantly ($p < 0.01$) greater in PR systems, with errors on average a substantial 1.0 percentage point lower. Further, poll errors are significantly lower in presidential elections than legislative elections – noting that the cases are here limited to the U.S. and France – by around 0.7 percentage points. Most importantly, the effect of the election year is negative, though still not significant. In cases where we have regular polling for elections over a period of almost forty years, there is no evidence that polls have become more inaccurate. In combination, these results highlight that features of electoral systems and political parties are important factors in assessing polling accuracy, and that claims that polls have become increasingly unreliable are not supported by the evidence.

-- Table 4 about here --

Discussion and Conclusion

Although claims about the demise of pre-election polling have become popular in recent times, we find little basis in fact to support them. Relying on vote intention polls from more than 300 elections in 45 countries over a period of more than 70 years, there is no evidence that poll errors have increased over time. And the performance of polls in very recent elections is no exception.

What we do find is that a basic feature of political parties influences the accuracy of polls, namely, their size. This is exactly what we would expect based on sampling theory, and also makes more understandable the seeming surprises in recent elections. That is, while all polls contain error, it tends to be greatest for the largest parties (or candidates), which are the ones competing for power. Moreover, these errors are most consequential when elections are close, as they can be decisive for government control, as was the case in the 2015 and 2017 UK general elections and the 2016 US presidential election. The magnitude of the poll error in each of these elections was not especially unusual given electoral history. It did matter greatly for binary predictions of election winners and losers, however.

Characteristics of political systems also may influence the accuracy of polling. In the subset of countries for which we have consistent poll data over a long time period, there is evidence that errors tend to be lower in PR systems, consistent with vote choices being based on partisan loyalties, which tend to be more structured. Errors also are lower for presidential elections, at least in the US and France, the only presidential systems for which we have data over long stretches of time.

Ultimately, while the polling industry faces a range of substantial challenges, we find no evidence to support the claims of a crisis of polling. Periodically pollsters get it wrong, and are subject to a great deal of attention, particularly when this impacts on expectations of who will form the government. Indeed, this can lead to methodological reflection and innovation, and in turn improvements in polling.

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Figure 1. Mean Absolute Vote-Poll Error over the Election Timeline for All Elections, Raw Polls

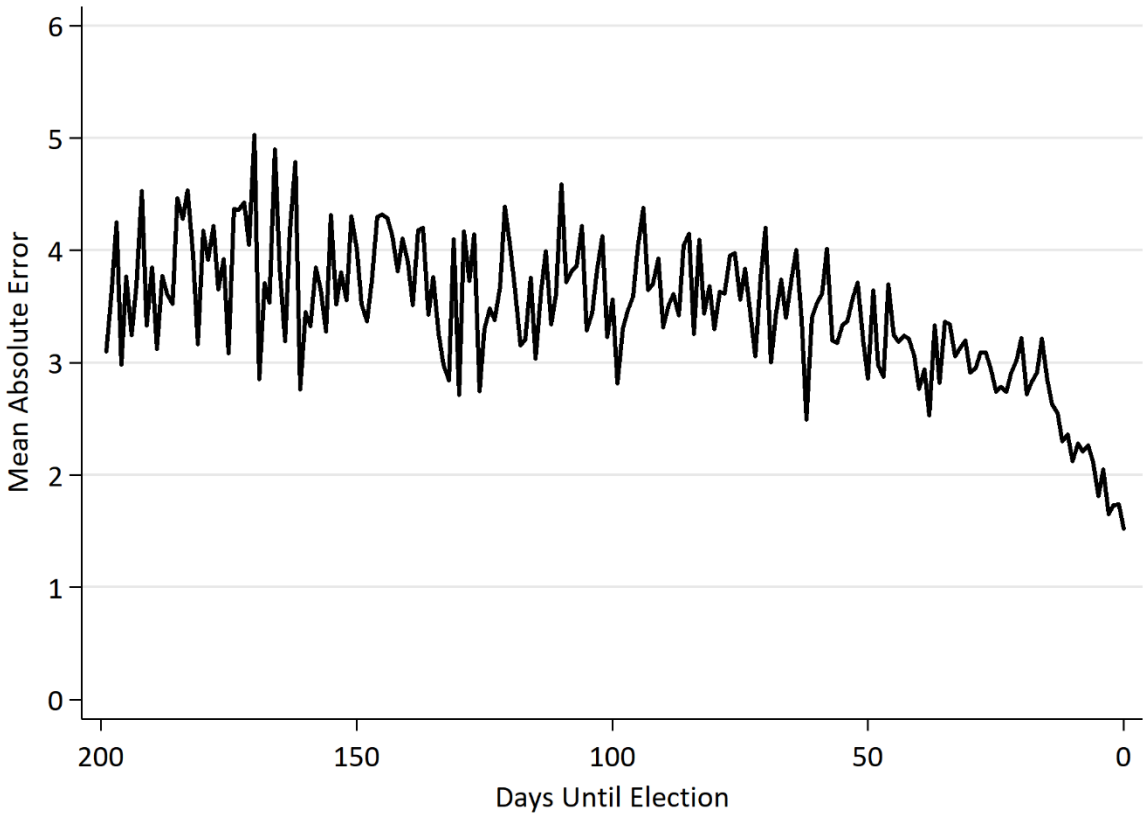

Figure 2. Mean Absolute Vote-Poll Error over the Election Timeline for All Elections, Raw Polls, Presidential and Parliamentary Elections

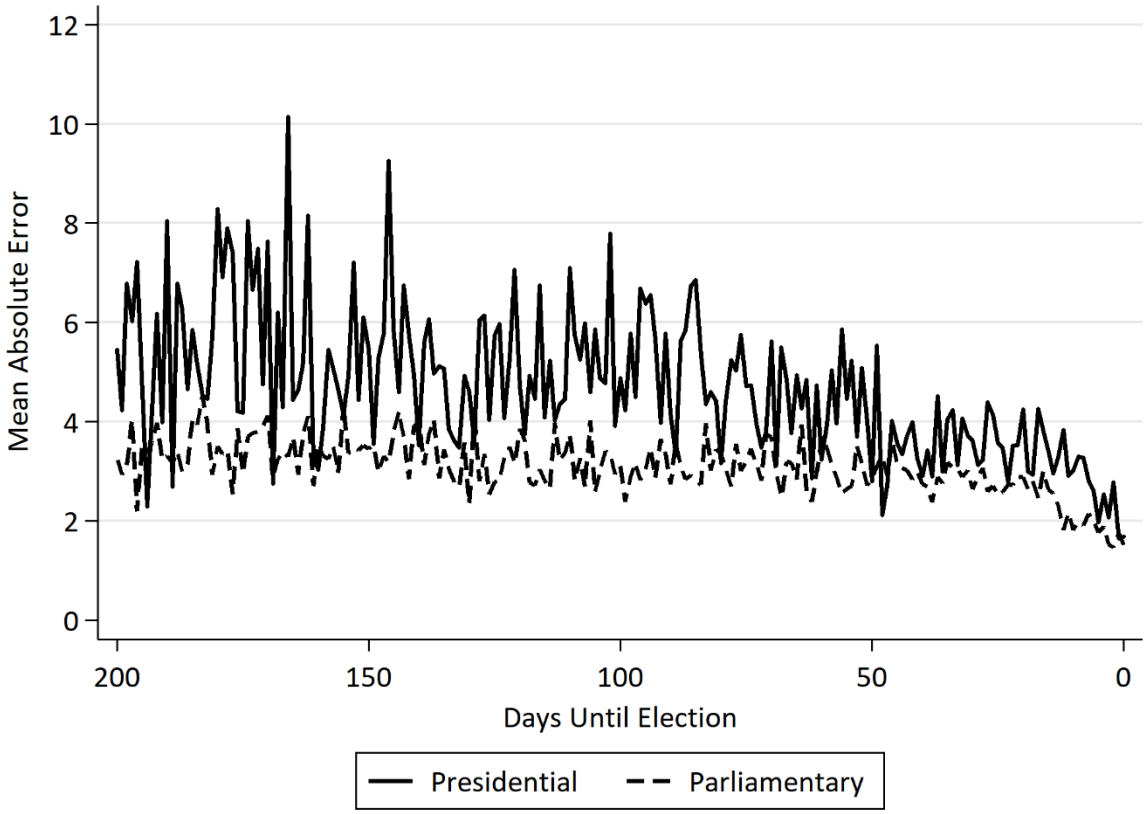

Figure 3. Absolute Error using Raw Polls during the Week before Election Day, All Elections 1942-2013 (31 Countries)

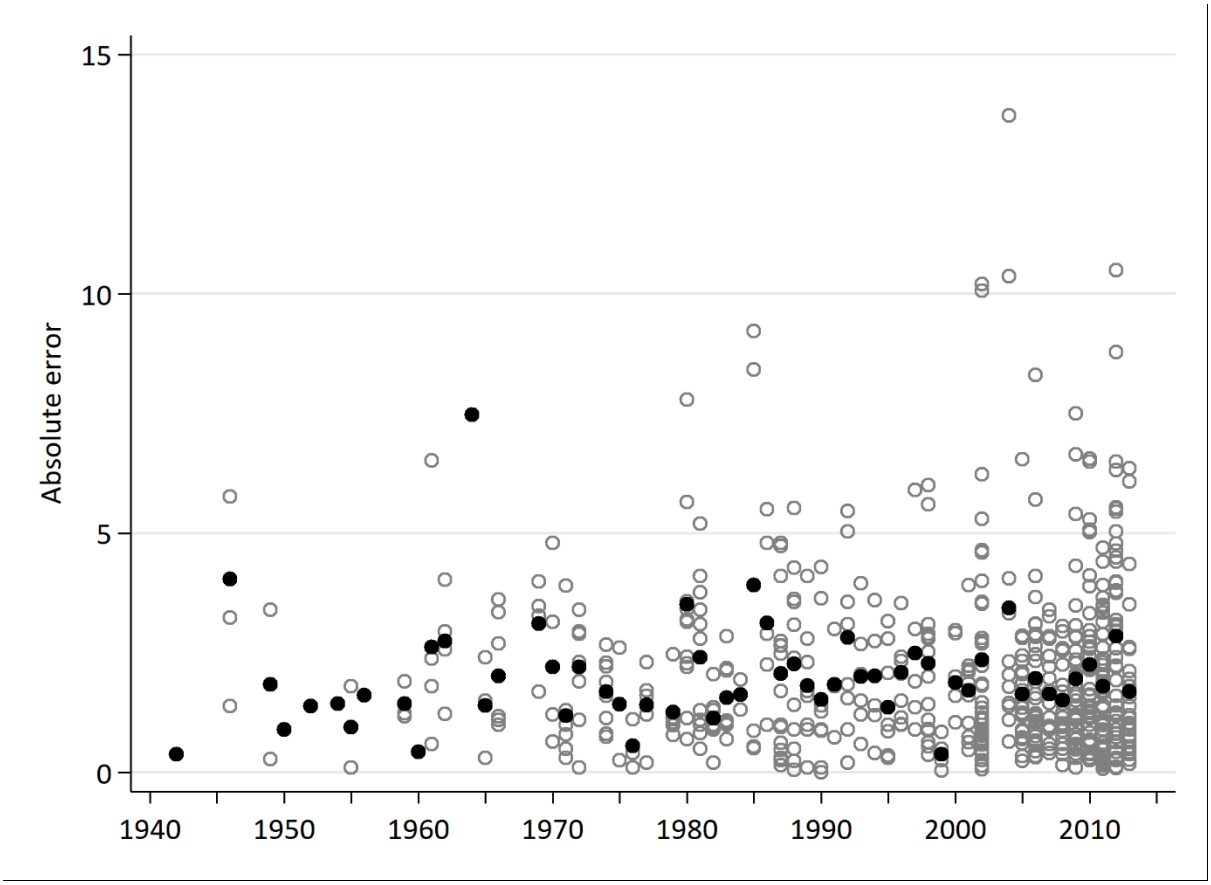

Figure 4. Absolute Vote-Poll Error for the Final Polls, Recent Elections, 2015-17

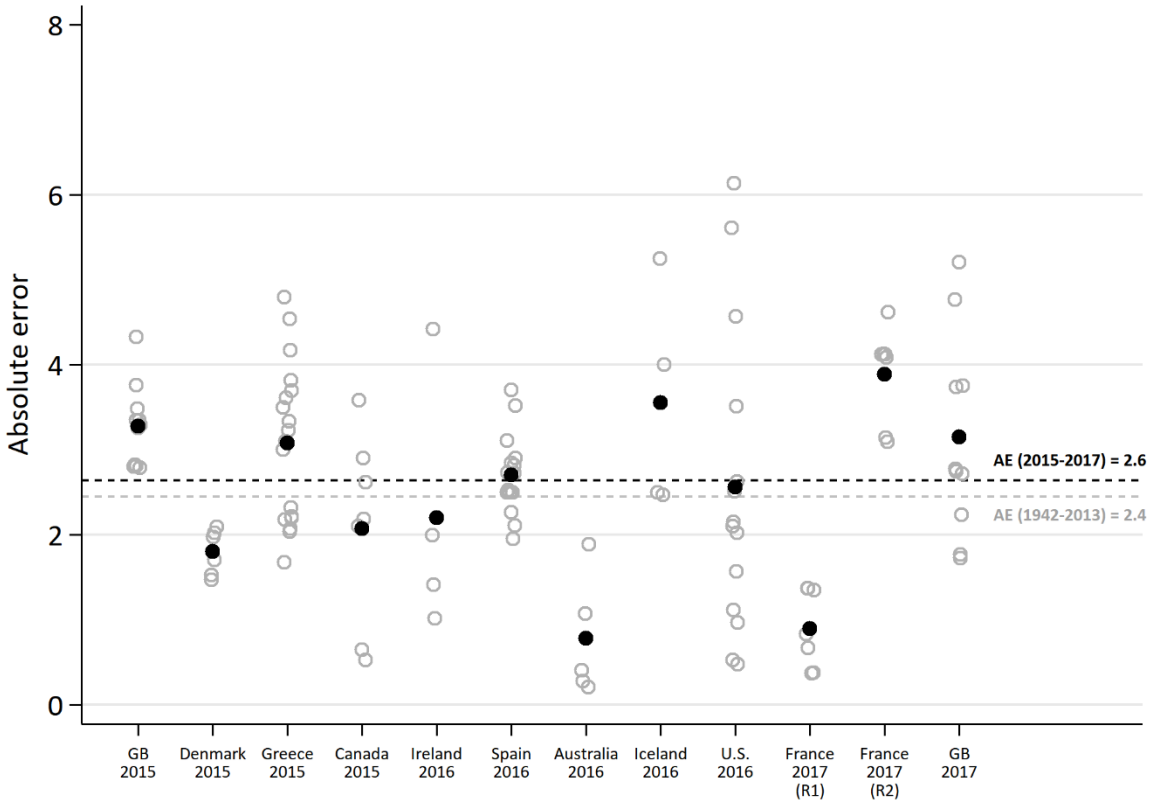

Table 1. Poll Data in 45 Countries, 1942-2013

Country	System	Election	Rule	First poll	Last election
Australia	Parliamentary	Legislative (1st Pref)	SMDP	1943	2013
Belgium	Parliamentary	Legislative	PR	2004	2010
Bulgaria	Parliamentary	Legislative	PR	2009	2013
Canada	Parliamentary	Legislative	SMDP	1942	2011
Croatia	Parliamentary	Legislative	PR	2008	2011
		Presidential	Majority	2009	2010
Czech Republic	Parliamentary	Presidential	Majority	2012	2013
Denmark	Parliamentary	Legislative	PR	1960	2011
Finland	Parliamentary	Legislative	PR	2010	2011
Finland	Parliamentary	Presidential	Majority	2006	2012
Germany	Parliamentary	Legislative	PR	1961	2013
Greece	Parliamentary	Legislative	PR	2007	2012
Hungary	Parliamentary	Legislative	PR	2009	2010
Iceland	Parliamentary	Legislative	PR	2009	2012
		Presidential	Plurality	2012	2012
Ireland	Parliamentary	Legislative	PR	1974	2011
Italy	Parliamentary	Legislative	PR	2012	2013
Japan	Parliamentary	Legislative	PR	1998	2012
Malta	Parliamentary	Legislative	SMDP	2012	2013
Netherlands	Parliamentary	Legislative	PR	1964	2012
New Zealand	Parliamentary	Legislative	SMDP/PR	1975	2013
Norway	Parliamentary	Legislative	PR	1964	2013
Poland	Parliamentary	Legislative	PR	2010	2011
		Presidential	Majority	2011	2011
Serbia	Parliamentary	Legislative	PR	2008	2012
Slovakia	Parliamentary	Legislative	PR	2010	2012
Slovenia	Parliamentary	Presidential	Majority	2012	2012
Spain	Parliamentary	Legislative	PR	1980	2011
Sweden	Parliamentary	Legislative	PR	2000	2010
Switzerland	Parliamentary	Legislative	PR	2010	2011
Turkey	Parliamentary	Legislative	PR	2010	2011

U.K.	Parliamentary	Legislative	SMDP	1943	2010
Argentina	Presidential	Presidential	Majority	2006	2011
Brazil	Presidential	Presidential	Majority	2002	2010
Chile	Presidential	Presidential	Majority	2008	2010
Colombia	Presidential	Presidential	Majority	2010	2010
Cyprus	Presidential	Presidential	Majority	2007	2013
Ecuador	Presidential	Presidential	Majority	2010	2013
Mexico	Presidential	Presidential	Plurality	2005	2012
Paraguay	Presidential	Presidential	Plurality	2013	2013
Peru	Presidential	Presidential	Majority	2006	2011
Philippines	Presidential	Presidential	Plurality	2010	2010
South Korea	Presidential	Legislative	PR	2011	2012
		Presidential	Plurality	2012	2012
U.S.	Presidential	Legislative	SMDP	1942	2012
		Presidential	Electoral College	1952	2012
Venezuela	Presidential	Presidential	Plurality	2006	2013
Austria	Semi-Presidential	Legislative	PR	2006	2013
		Presidential	Majority	2010	2010
France	Semi-Presidential	Presidential	Majority	1965	2012
Portugal	Semi-Presidential	Legislative	PR	1985	2011
		Presidential	Majority	2010	2011
Romania	Semi-Presidential	Legislative	PR	2008	2012
		Presidential	Majority	2009	2009

Table 2. Absolute Vote-Poll Error for the Last Week before Election Day, by Election and Party Types

Elections	***N***	**Mean absolute error**	**Standard deviation**
For all elections			
	658	2.07	1.77
By Election type			
Presidential	162	2.51	2.00
Legislative	496	1.93	1.67
For legislative elections			
Electoral system I			
PR	328	1.72	1.54
SMD	330	2.43	1.91
Electoral system II			
Party-centric	305	1.71	1.47
Candidate-centric	353	2.39	1.94
Effective Number of parties			
≤ 3	416	2.25	1.68
> 3	242	1.97	1.82
Party size			
Large (≥20%)	385	2.48	1.96
Small (<20%)	273	1.51	1.27
Incumbency			
Governing party	203	2.20	1.70
Opposition	449	2.02	1.81

Table 3. Regressions of Absolute Vote-Poll Error Using Polls from the Week before Election Day, All Elections with Polls

	General Model	With Linear Trend
Presidential	0.23	0.16
	(0.19)	(0.20)
Proportional representation	-0.42	-0.47
	(0.37)	(0.37)
Candidate-centric	0.13	0.12
	(0.34)	(0.34)
Effective number of parties > 3	0.42*	0.35*
	(0.17)	(0.18)
Large parties (>20% vote)	0.92***	0.94***
	(0.15)	(0.15)
Governing parties	0.09	0.10
	(0.13)	(0.13)
Year	---	0.01
		(0.00)
Constant	1.32***	-11.82
	(0.38)	(9.13)
N	658	658
R-squared	0.10	0.10
Adjusted R-squared	0.09	0.09
RMSE	1.69	1.69

* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed)

Table 4. Regressions of Mean Absolute Vote-Poll Error using Polls from the Week before Election Day, Countries Where Data Are Continuously Available since 1977

	General Model	With Linear Trend
Presidential elections	-0.72**	-0.72**
	(0.24)	(0.24)
Proportional representation	-1.00**	-0.96*
	(0.37)	(0.37)
Candidate-centric systems	-0.42	-0.36
	(0.35)	(0.35)
ENPP > 3	0.29	0.39
	(0.21)	(0.22)
Large party (>20% vote)	0.91***	0.91***
	(0.19)	(0.19)
Governing party	0.19	0.18
	(0.19)	(0.19)
Linear trend	---	-0.01
		(0.01)
Constant	1.99***	26.42
	(0.41)	(16.31)
N	338	338
R-squared	0.14	0.14
Adjusted R-squared	0.12	0.12
RMSE	1.50	1.50

* $p<0.05$; ** $p<0.01$; *** $p<0.001$ (two-tailed)

Note: Countries are Australia, Canada, Denmark, France, Germany, Ireland, Netherlands, New Zealand, Norway, the U.K. and the U.S.