

The PollyVote's Long-Term Forecast for the 2017 German Federal Election

Andreas Graefe, *Macromedia Hochschule & Columbia University*

The PollyVote was launched in 2004 as a long-term project to demonstrate that generalized principles derived from forecasting research in different fields could produce accurate election forecasts. The initial focus was – and still is – on combining forecasts (Graefe et al. 2014b). By now, the method of combining forecasts across different methods has been applied to the four US presidential elections in 2004 (Cuzán, Armstrong, and Jones 2005), 2008 (Graefe et al. 2009), 2012 (Graefe et al. 2014a), and 2016 (Graefe et al. 2017), as well as to the 2013 German federal election (Graefe 2015).

One of the project's major goals is to learn about the relative accuracy of different forecasting methods over time, and in different settings. Our research to date shows that the relative accuracy of different methods varies substantially from one election to the next, which is after all a major reason why combining forecasts reduces error (Graefe et al. 2017). Another important goal is to track advances in forecasting research in other domains and apply them to election forecasting. This has led to adding index models (Graefe et al. 2014a) and citizen forecasts (Graefe et al. 2017) to the PollyVote for forecasting the US presidential elections in 2012 and 2016, respectively.

The present paper presents the PollyVote's early forecast for the 2017 German federal election, calculated in March, about half a year before Election Day. We will provide daily updated forecasts until the election at www.pollyvote.de.

POLLYVOTE FORECAST

The procedure for calculating the combined PollyVote forecast has not changed since the 2013 German federal election (Graefe 2015). The combined PollyVote forecast is the simple average of the (already combined) forecasts from four component methods: polls, prediction markets, expert judgment, and models. Table 1 shows the vote share forecasts from the PollyVote and its four component methods for the six largest parties (i.e., CDU/CSU, SPD, Grüne, Linke, FDP, AfD), plus the vote of all remaining parties combined (Others).

PollyVote forecasts that the CDU/CDU will remain the strongest party. However, with a predicted vote share of 33.3%, the party of Angela Merkel would lose 8.3 percentage points, by far the largest loss of all parties. The main beneficiaries are the SPD and the AfD, each of which can expect substantial gains at 4.5 and 5.2 points, respectively. For the AfD, these numbers would mean that they would enter parliament for the first time in their young history. For the remaining parties, the expected changes are modest but, for one of them, critical.

If the FDP manages to gain a mere 0.2 points, the party will pass the 5% threshold and return to parliament; the current prediction is that the party will gain 1.8 points.

As shown in table 1, there is wide agreement among the component methods regarding the vote share of each party. Notably, all four methods expect the six parties to pass the 5% threshold. However, one should exercise caution when reading these numbers. For one, the election is still far away and a lot can change over the course of the campaign. The 10-point increase in the SPD's polling numbers within only four weeks after the party announced Martin Schulz as its front-runner in late January suggests that public opinion is volatile in this cycle. Furthermore, different methods can err in the same direction. In 2013, the four component methods consistently, unanimously, and wrongly predicted that the FDP would be represented in parliament. Another recent example is the 2016 US presidential election, when five of six methods overestimated Clinton's vote share (Graefe et al. 2017).

The remainder of this paper describes the composition of the PollyVote's four component methods. For details about how each of these methods work see previous project publications (e.g., Graefe et al. 2014a, b, 2017).

POLLS

German pollsters ask people for which party they intend to vote if the election was held this Sunday (which is why this question is known as the 'Sonntagsfrage'). Polls measure public opinion at a certain point in time; they do not provide predictions of what will happen on Election Day. Interpreting polling results as predictions is thus misleading and particularly problematic if the election is still far away, because polls tend to vary widely over the course of the campaign. In addition, sampling problems, nonresponses, faulty processing and other sources of bias can result in high variance in the results of polls that were conducted by different survey organizations around the same time. Therefore, it is generally a good strategy to simply ignore single polls. Rather, one should aggregate and combine polls from different survey organizations, since the errors associated with individual polls tend to cancel out in the aggregate (Graefe et al. 2014b). That said, the value of poll aggregators is limited if there is systematic bias across all surveys (e.g., due to systematic non-response from a certain demographic group).

At the time of writing, two poll aggregators were available, which differ in which polls they use and how they weight them. *Wahlumfrage.de* calculates simple unweighted averages of the most recent polls conducted by seven established

pollsters (i.e., Allensbach, Emnid, Forsa, Forschungsgruppe Wahlen, GMS, Infratest dimap, and INSA). *Pollytix.de* also includes polls from other survey institutes and assigns higher weights to (a) polls conducted more recently and (b) polls with larger sample sizes. The PollyVote's combined polls component forecast shown in table 1 is the simple average of the forecasts from both poll aggregators.

money, the best performing participants can win prizes. As described by Graefe (2017a), one limitation of play-money markets is that concerns of potential market manipulation are higher. That said, market manipulation does not seem to be a concern at the time of writing. As shown in table 1, the current market forecast does not show abnormalities but is in line with forecast from other methods.

PollyVote forecasts that the CDU/CSU will remain the strongest party. However, with a predicted vote share of 33.3%, the party of Angela Merkel would lose 8.3 percentage points, by far the largest loss of all parties. The main beneficiaries are the SPD and the AfD, each of which can expect substantial gains at 4.5 and 5.2 points, respectively.

PREDICTION MARKETS

Prediction markets use the price mechanism of the market to aggregate people's expectations of how the election will turn out. For German elections, prediction markets typically offer contracts for each party, where the contract price reflects that party's predicted vote (e.g., a price of 32.8 Euros for CDU/CSU means that the party is predicted to win 32.8% of the vote). Participants who think that the actual vote share will be higher (lower), should buy (sell) shares of that contract, and win or lose money depending on the accuracy of their predictions.

A review of prediction market accuracy of vote-share forecasts in different countries found that prediction markets tend to outperform forecasts made by polls, models, and experts; compared to simply asking citizens who will win, evidence was mixed (Graefe 2017a). However, that review did not include the 2016 US presidential election, a case when prediction markets provided relatively poor forecasts (Graefe 2017b).

At the time of writing, forecasts were available from the *FAZ Orakel*, a prediction market run by the online version of the *Frankfurter Allgemeine Zeitung*. On this market, participants can trade vote shares of the six largest parties plus the combined vote of all remaining parties. The *FAZ Orakel* is a so-called play-money market. That is, instead of using real

EXPERT JUDGMENT

Experts can be expected to provide useful forecasts. Experts should, for example, be able to account for potential impacts of recent and future campaign events on public opinion polls (e.g., they may be able to assess the sustainability of the SPD's rise in the polls). Some evidence suggests that this is the case. Jones and Cuzán (2013) found that experts outperformed polls for long-term forecasts.

Seventy members of the German Society for Electoral Studies were asked to participate in an online survey. That survey included only one question, which asked respondents to predict the vote shares for the parties listed in Table 1. In the first survey, which was conducted March 14–19 of 2017, 30 experts responded. Their combined forecast, which is the simple average of the individual expert forecasts for each party, is shown in table 1.

MODELS

Developing statistical models is an alternative to relying on people's vote intention (i.e., polls) and expectations (i.e., prediction markets, expert judgment) when generating election forecasts. Such models typically rely on structural factors, the so-called fundamentals, that are predictive of election outcomes. For example, the incumbent government typically benefits from good economic conditions but loses support

Table 1

Vote-share Forecasts of the PollyVote and Its Components

	No. of component forecasts	CDU/CSU	SPD	Grüne	Linke	FDP	AfD	Others
PollyVote	4	33.3	30.2	7.6	7.8	6.6	9.9	4.6
Change to 2013 election		-8.2	4.5	-0.8	-0.8	1.8	5.2	-1.7
Combined component methods' forecasts								
Poll aggregators	3	33.0	31.7	7.4	7.5	5.9	9.8	4.7
Prediction markets	1	32.8	29.4	6.9	6.9	7.7	11.4	4.9
Models	3	33.6	29.5	8.1	8.7	6.6	9.4	4.0
Experts	30	33.9	30.1	7.9	8.2	6.1	9.2	4.6

the longer it has been in power due to people's desire for change. At the time of writing, forecasts from three models were available. The PollyVote's combined models forecast shown in table 1 is the simple average of the three model forecasts.

The model by Jérôme, Jérôme-Speziari, and Lewis-Beck (2017) has been used since 1998 in modified form. The model uses a set of regression equations to forecast the individual parties' vote shares based on various variables such as the unemployment rate and several poll-based measures.

The Chancellor model by Norpoth and Gschwend (2017), which has been around since the 2002 election, uses three variables to forecast the aggregate vote share of the outgoing coalition: (1) the outgoing coalition's average vote share across the three preceding elections, (2) the support for the Chancellor in public opinion polls, and (3) attrition, measured as the number of terms in office.

The model by Kayser and Leininger (2017), a newcomer in this election, predicts the parties' vote share in each state before aggregating the numbers to a forecast of the federal election outcome. The linear random effects model is based on the following information: the party's vote share in the preceding federal and state election, whether the Chancellor was from that party, national quarterly GDP growth, and the number of years the chancellor has been in office. The authors provide two sets of model forecasts, which differ in how the state elections are weighted. One model assigns equal weights to all states while the other assigns higher weights to state elections that are closer to the federal election. The PollyVote uses the simple average of both sets of forecasts. ■

REFERENCES

- Cuzán, Alfred G., J. Scott Armstrong, and Randall J. Jr. Jones. 2005. "How We Computed the PollyVote." *Foresight: The International Journal of Applied Forecasting* 1 (1): 51–2.
- Graefe, Andreas. 2015. "German Election Forecasting: Comparing and Combining Methods for 2013." *German Politics* 24 (2): 195–204. doi: 10.1080/09644008.2015.1024240.
- . 2017a. "Political Markets." In *SAGE Handbook of Electoral Behavior*, edited by Kai Arzheimer, Jocelyn Evans and Michael S. Lewis-Beck, in press. SAGE.
- . 2017b. "Prediction Market Performance in the 2016 U.S. Presidential Election." *Foresight: The International Journal of Applied Forecasting* (forthcoming).
- Graefe, Andreas, J. Scott Armstrong, Randall J. Jr. Jones, and Alfred G. Cuzán. 2009. "Combined Forecasts of the 2008 Election: The PollyVote." *Foresight: The International Journal of Applied Forecasting* 2009 (12): 41–42.
- . 2014a. "Accuracy of Combined Forecasts for the 2012 Presidential Election: The PollyVote." *PS: Political Science & Politics* 47 (2): 427–31. doi: 10.1017/S1049096514000341.
- . 2014b. "Combining forecasts: An application to elections." *International Journal of Forecasting* 30 (1): 43–54.
- . 2017. "Assessing the 2016 U.S. Presidential Election Popular Vote Forecasts." In *The 2016 Presidential Election: The Causes and Consequences of an Electoral Earthquake*, eds., Amnon Cavari, Richard Powell and Kenneth Mayer, in press. Lexington.
- Jérôme, Bruno, Véronique Jérôme-Speziari, and Michael S. Lewis-Beck. 2017. *PS: Political Science & Politics* 50 (3): this issue.
- Jones, Randall J. Jr. and Alfred G. Cuzán. 2013. "Expert Judgment in Forecasting American Presidential Elections: A Preliminary Evaluation." Annual Meeting of the American Political Science Association (APSA), Chicago.
- Kayser, Mark A. and Arndt Leininger. 2017. "A Länder-based forecast of the 2017 German Bundestag Election." *PS: Political Science & Politics* 50 (3): this issue.
- Norpoth, Helmut and Thomas Gschwend. 2017. "Chancellor Model Predicts a Changing of the Guards in Germany." *PS: Political Science & Politics* 50 (3): this issue.

Access the latest
scholarship in **political science**.

JOIN THE AMERICAN POLITICAL SCIENCE ASSOCIATION.

Advance your career with
APSA scholarly teaching
resources & opportunities.

Learn more about APSA
programs, grants, awards, etc.

Find jobs, post your CV and
access APSA career services.

Network with more than
6,000+ political scientists at
the Annual Meeting!



Visit APSA online at www.apsanet.org.
Stay connected at www.politicalsciencenow.com.

1527 NEW HAMPSHIRE AVE NW, WASHINGTON, DC 20036-1206