

**POLITICS SYMPOSIUM**

*Forecasting the 2025 Federal German Election*

**The Zweitstimme Forecast for the German Federal Election 2025: Coalition Majorities and Vacant Districts**

**Cornelius Erfort**, *University Witten/Herdecke, Germany*

**Lukas F. Stoetzer**, *University Witten/Herdecke, Germany*

**Thomas Gschwend**, *University of Mannheim, Germany*

**Elias Koch**, *Hertie School, Berlin, Germany*

**Simon Munzert**, *Hertie School, Berlin, Germany*

**Hannah Rajski**, *University of Mannheim, Germany*

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**Abstract**

In this article, we provide a forecast for the German Federal Election of 2025. We use our previous forecasting models to provide national-level forecasts for party vote shares and district-level outcomes for candidate votes. We show that the combination of both permits us to calculate both forecasts for coalition majorities in parliament, and “vacant districts” under the recent electoral reforms.

When Chancellor Olaf Scholz (SPD) dismissed his finance minister on the evening of November 6, 2024—a day when Germans woke up to global headlines about the election of Donald J. Trump as President of the United States—it became clear that the “traffic light” coalition of Scholz’s center-left Social Democrats, the left-leaning Greens, and the pro-business Free Democrats (FDP) had reached its end. Although Germany has long been known for its stable coalition governments, this alliance, which had governed since Angela Merkel (CDU) left in 2021, was notable for being the first three-party coalition at the federal level since the late 1950s (Faas and Klingelhöfer 2022). The coalition’s progressive vision for Germany, aimed at bridging diverse political ideologies, ultimately fell apart due to irreconcilable differences over budgetary policies.

Germany is preparing for early elections on February 23, 2025, nearly seven months ahead of schedule. This will be only the second early election since reunification, highlighting its rarity within the German political calendar. Early elections amplify uncertainty in German politics and reflect broader challenges, including an increasingly fragmented political landscape and rising support for fringe parties, like the far-right Alternative for Germany (AfD). They also complicate forecasting, as models cannot easily account for an accelerated campaign and the early dissolution of parliament. These factors could produce dynamics that depart sharply from patterns seen in regular election cycles.

In the context of early elections, the performance of forecasting models for German Federal Elections remains uncertain. The last two elections have seen a rise in diverse models (Stegmaier 2022), most aiming to predict party-vote shares (*Zweitstimmen*). These include models integrating structural predictors (Jérôme, Jérôme-Speziari, and Lewis-Beck 2017; Kayser and Leininger 2017; Kayser, Leininger, and Vlasenko 2022; Norpoth and Gschwend 2017), poll-based models (Bauer et al. 2022; Selb et al. 2023), hybrid approaches combining structural data and polls (Munzert 2017; Stoetzer et al. 2019; Gschwend et al. 2022; Selb and Munzert 2016), citizen-forecasting methods (Murr and Lewis-Beck 2022), and approaches averaging results of different forecasting methods in order to predict party-vote shares (Graefe 2017; 2019; 2022). Uniquely, our model not only predicts party-vote shares but also candidate-vote shares (*Erststimmen*) and winners of electoral districts (Neunhoeffler et al. 2020; Gschwend et al. 2022).

Predicting candidate-vote shares is especially relevant for the upcoming elections for two reasons. First, translating votes into parliamentary seats is essential for determining which coalition can form a majority government. The German electoral system departs from “pure” proportional representation, requiring parties to either secure at least 5% of party votes or win a plurality of candidate votes in at least three districts to gain seats proportional to their national party-vote share.

Second, the traffic light coalition’s electoral reform has changed the rules. Previously, parties could retain any “overhang” seats—district-level wins that exceeded a party’s proportional entitlement (*Überhangmandate*)—resulting in compensatory seats (*Ausgleichsmandate*) for other parties and inflating the *Bundestag*. As a consequence, the *Bundestag* has grown to be the world’s largest democratically elected parliament.

Since the reform (Behnke 2022), the number of seats is capped at 630, increasing the importance of candidate-vote distribution. The abolition of overhang and compensatory seats means winning a

plurality of candidate votes in a district no longer guarantees a parliamentary seat. Instead, seat allocation depends solely on a party's party-vote share. Within each state, a party's district-level winners are prioritized, but if a party's district wins exceed its allocated seats, only the candidates with the highest candidate-vote shares retain their seats. All other districts with plurality winners from that party become vacant.<sup>1</sup> Conversely, if a party wins fewer districts than available seats, the remaining seats are filled from the state party list. This reform could deny some district winners a seat in parliament, increasing public scrutiny and complicating our work as election forecasters. Nevertheless, we are prepared to take on this challenge.

Our analysis proceeds in three steps. First, we present national-level forecasts for party vote shares. To achieve this, we rerun our previously successful dynamic Bayesian forecasting model (Stoetzer et al. 2019) for multiparty elections, which integrates predictions from a fundamentals-based model as priors on Election Day while incorporating polling data throughout the campaign. Rather than merely a point prediction our model produces a distribution of predicted values for each party's vote share through simulation. Although we are the first to simultaneously model more than two parties, this approach builds on earlier models of U.S. presidential elections (see, e.g., Erikson and Wlezien 2013; Linzer 2013), which integrate fundamentals-based models with polling data into so-called 'synthetic models.' Such models have also been applied to forecasting party vote shares in national elections in the UK, France, Germany, and Ireland (Lewis-Beck and Dassonneville 2015b; 2015a).

Second, we use the simulations from the first step to generate distributions of district-level forecasts for the 2025 *Bundestag* election, focusing on candidate vote shares and identifying likely plurality winners across the 299 districts. To achieve this, we adopt the same strategy that has proven successful in previous *Bundestag* elections (see Neunhoeffer et al. 2020; Gschwend et al. 2022). Our two-stage modeling approach is similar to strategies used for forecasting U.S. Congressional elections as early as 2006 (e.g., Bafumi, Erikson, and Wlezien 2006; 2018) and later applied to predicting seat distributions in the 2010 British general election (Fisher et al. 2011). Unlike those previous approaches, we employ a proportional swing assumption to estimate district-level party vote shares and incorporate a richer parameterization in our model for predicting candidate vote shares.

Finally, by forecasting both national party vote shares and candidate-vote shares to determine district-level winners, we analyze two key outcomes: (1) the likelihood that various coalition options can secure a parliamentary majority and (2) the implications of recent electoral reforms, including the prediction of vacant districts—i.e., electoral districts where the plurality winner does not qualify for a parliamentary seat. Together, these predictions offer a comprehensive perspective on the election results and their broader implications for Germany's political future.

# Forecast of Party-Vote Shares

## The *Zweitstimme* Model for Forecasting Party Vote Shares

To forecast national party vote shares in the upcoming election, we use the *Zweitstimme* model, a dynamic Bayesian forecasting model designed for multiparty elections. For a detailed description of the model, we refer to its applications in the 2017 and 2021 German federal elections (Stoetzer et al. 2019; Munzert et al. 2017; Gschwend et al. 2022).

For this symposium, we summarize the key attributes of the model. As a synthetic forecasting model, it integrates two main components: a fundamentals-based model and a dynamic poll-based model. The fundamentals-based component employs Dirichlet regressions to simultaneously predict the vote shares of seven parties and a residual category ('Other') using three covariates: long-term party attachment (previous election results), short-term campaign dynamics (average vote intention in polls 230–200 days before Election Day), and an institutional factor capturing support for the incumbent government (a dummy variable for the chancellor's party).<sup>2</sup> The fundamentals-based model is estimated using data from all post-war German federal elections.<sup>3</sup>

The poll-based component models public opinion polls as a multinomial process, adjusting for latent party support and polling house effects while accounting for the dynamic evolution of party support among voters over time.<sup>4</sup> The two components are integrated using a backward random walk approach, where forecasts from the fundamentals-based model serve as priors for the dynamic poll-based model on Election Day. Both components are jointly estimated using Markov Chain Monte Carlo (MCMC) methods. To characterize the forecasted party vote share distributions, we draw 10,000 samples from the posterior distribution, simulating possible election outcomes.

## Current Forecast

We present national party vote share distributions in Figure 1. The current forecast from 30 January 2025 indicates a clear winning margin for the CDU/CSU, with a projected vote share of 29.2%, and a 5/6 probability that this value will fall within the credibility interval of 24.0% to 34.7%. The SPD, the current chancellor's party, is expected to lose significant support, with an expected vote share of 16.2% and an interval ranging from 12.7% to 19.8%. The far-right populist AfD is predicted to come in second, achieving strong support with 20.4% of the vote, within a 5/6 credibility interval of 16.1% to 24.8%. This result would mark the AfD's strongest national performance to date. The Green Party is projected to see a slight decline, with a projected vote share of 13.3% (5/6 credible interval: 10.3% to 16.4%).

Three parties are close to the electoral threshold. The newly formed Sahra Wagenknecht Alliance (BSW), after strong showings in three state elections, is expected to clear the 5% hurdle with a projected vote share of 6.1%. However, this forecast comes with considerable uncertainty, reflected in a 5/6 credible interval ranging from 3.1% to 9.7%. The pro-business FDP is forecasted to be

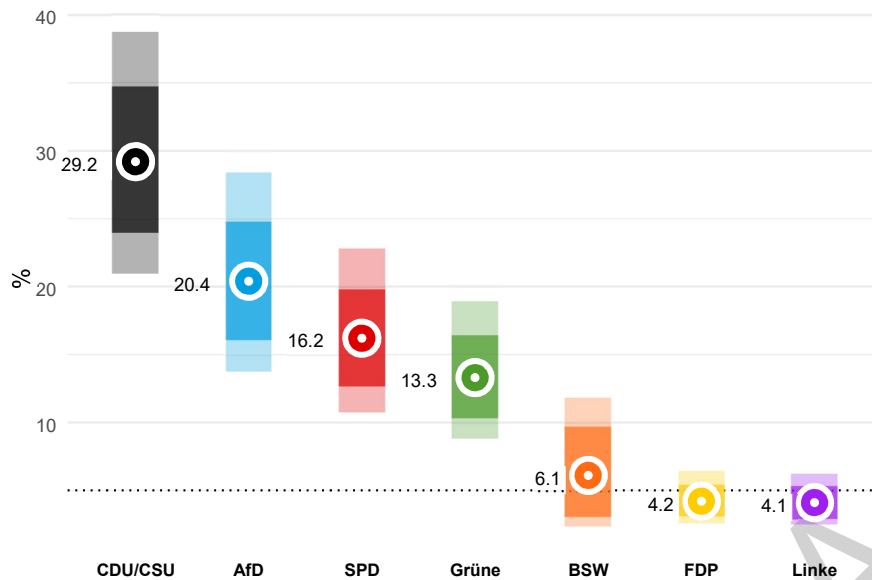


Figure 1: Forecast for the party vote shares (as of 30 January 2025). Bars indicate 83% and 95% credible intervals.

closest to the margin, with 4.2% (interval: 3.1% to 5.4%), and there is a high probability that the FDP will fail to secure parliamentary representation after its role in the previous coalition. Meanwhile, the left-wing party *Linke* is expected to struggle, with a projected vote share of 4.1% and the upper limit of the confidence interval at 5.3%, putting it on the edge of the 5% hurdle. However, the *Linke* could still enter parliament by winning three districts. Assessing this chance requires a forecasting model for candidate-vote shares at the district level, which we discuss in the next section.

As a dynamic model, these forecasts are subject to change. The forecast presented here represents a snapshot taken 23 days before the election. From previous applications and evaluations in past elections (Stoetzer et al. 2019), we know that the root mean squared error (RMSE) for the model's expected support approximately 32 days before the election is around 2.9. Over the final month, it improves to 1.8, underscoring the importance of dynamic shifts in voter preferences during the final weeks for producing accurate forecasts.

## Forecast of Candidate-Vote Shares

### The *Zweitstimme* model to forecast candidate-vote shares

Under the German electoral system, parties with less than 5% of the party vote can still gain seats in parliament if they have at least three plurality winners among their candidates. The distribution of candidate votes in each electoral district determines the likelihood of winning a seat, regardless of the candidate's position on the state party list. Predicting candidate votes is also crucial for assessing the likelihood that a plurality winner might not get into parliament if their party fails to achieve

sufficient party-vote support. Addressing this scenario represents another forecasting aim of our contribution to this symposium.

Our approach extends the *Zweitstimme* model to forecast candidate-vote shares first described for the 2017 election (Neunhoeffer et al. 2020) and applied again in 2021 (Gschwend et al. 2022). For a detailed description of the model and methodology, we refer the reader to the relevant articles and their supplementary material.

In this symposium, we provide a brief summary of our approach. We begin by building on the eight national-level party vote distributions we previously generated based on 10,000 simulations from our *Zweitstimme* forecasts. Using a proportional swing assumption, we then derive the corresponding eight distributions of party vote shares for each electoral district.

For example, if the CDU/CSU is projected to increase its national vote share from 24.2% to 29.7% compared to the previous election, this proportional swing is applied to all simulated values of the predicted CDU/CSU vote share distribution at the national level. This adjustment allows us to derive values for the predicted CDU/CSU vote share distributions in each district for 2025. In the *Potsdam I* electoral district, for instance, where the CDU received 20.2% of the vote in 2021, we project given the proportional swing adjustment an increase to 24.8% in 2025.

Following this procedure for each value of the predicted party vote distribution at the electoral district level generate the respective values for the first covariate in our model to candidate vote shares at the district level in 2025.

Each covariate varies across 299 districts and 8 local party candidates (including a residual *Other* candidate representing all other candidates). The original model incorporated additional predictors beyond district-level party vote shares, including covariates representing *candidate characteristics* (e.g., previous candidate vote shares, gender) and *district characteristics* (e.g., number of candidates, incumbent status). We originally implemented two regression approaches—a linear model and a neural network—were trained on data from past elections.

For forecasting, we generate model predictions based on the respective predictor values. Given that the values of first covariate is a distribution of values rather than a single values, we can propagate the inherent uncertainty in national party vote shares to candidate vote forecasts.

Implementing the same model early in the election cycle presents challenges due to incomplete candidate information for 2025. As of this writing, candidate lists are not yet published. To address this, we developed a streamlined linear regression framework using only four covariates: the predicted party vote share for each candidate (assuming proportional swing), the party's previous candidate vote share, whether the party won the district in the last election, and whether the party previously fielded a candidate there. Regression estimates are detailed in Appendix Table B.2. Using this simplified approach, we simulate candidate vote shares for 2025 by drawing from the *Zweitstimme* model's party vote-share distribution, enabling district-level forecasts across all 299 electoral districts.

To build intuition about the performance of our forecasts, we examine the historical accuracy of similar models. Thirty-six days before the election, this approach correctly predicted approximately

90% of districts in the 2009–2017 elections (Neunhoeffer et al. 2020). In 2021, 18 days prior to the election, accuracy declined to about 80%, primarily due to unexpected AfD district wins.<sup>5</sup>

## Current Forecast

We present the candidate-vote forecasts for all 299 electoral districts in Figure 2. A list of all predicted district wins is provided in Appendix Table B.3. The current projections indicate a strong performance by the CDU/CSU, which is forecasted to secure a significant share of direct wins across most regions. Specifically, the CDU/CSU is forecasted to win 201 districts outright. The AfD is also expected to perform well, particularly in East Germany, where it is projected to win 51 districts. If realized, this would mark the AfD's strongest performance in district wins to date.

The SPD is forecasted to suffer substantial losses compared to the previous

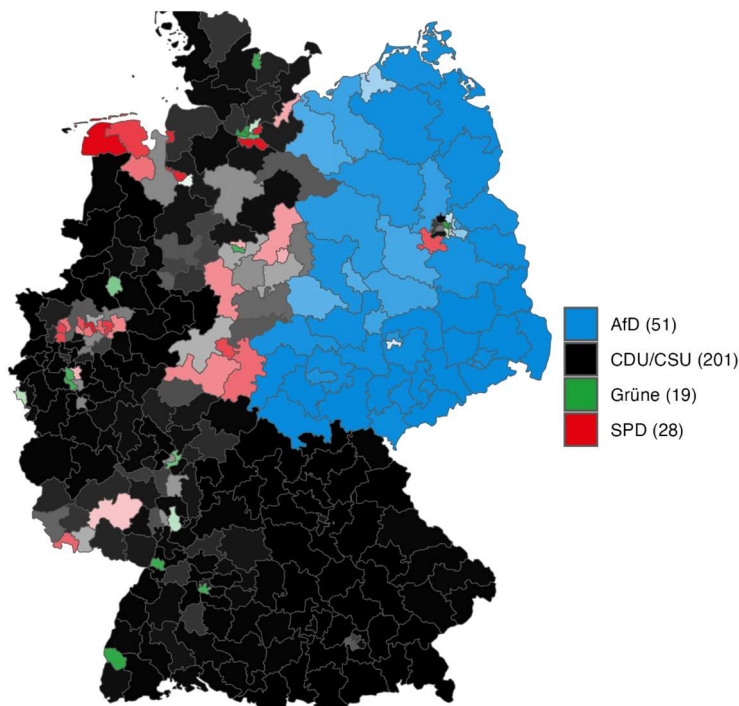


Figure 2: Forecast for the plurality winners at the district level (as of 30 January 2025). Number of predicted wins per party in parentheses.

election, with an expected total of 28 districts won. The Greens are projected to secure fewer wins, primarily in urban areas, with an expected total of 19 districts. The *Linke* is forecasted to struggle significantly in securing any district wins, which could jeopardize its parliamentary representation in the next *Bundestag*.

It is important to acknowledge the role of dynamics in shaping these district level forecasts. As the model relies on party-vote forecasts at the national-level, it is prone to similar uncertainties. Additionally, our candidate-vote forecasts rely on the assumption of a proportional swing. The

current forecast, taken 23 days prior to the election, represents a preliminary snapshot and is expected to evolve as the election date approaches.

## Implications of our current Forecasts

### Coalition Majorities

Using a novel approach, we calculate probabilities for coalition majorities while accounting for the rule that exempts parties winning at least three districts from the 5% threshold. Both conditions are particularly relevant for the *Linke*—a scenario that would substantially affect the distribution of parliamentary seats. To model the election law as accurately as possible, we combine candidate and party-vote forecasts. We predict only a 13% chance that the *Linke* enters parliament.<sup>6</sup>

Using 10,000 draws from the forecast distribution, we first identify parties that would win at least three districts in the district forecast. Next, we calculate parliamentary majorities based on these parties and those surpassing the threshold, using the party-vote forecast. By aggregating the draws and analyzing coalition majorities across cases, we derive probabilities of getting a majority for various coalition outcomes. Table 1 summarizes the probabilities for the most likely majority coalition scenarios.

Table 1: Coalition Majority Probabilities

Coalition	Probability
CDU/CSU + Greens	49%
CDU/CSU + SPD	73%
CDU/CSU + AfD	94%
CDU/CSU + Greens + SPD	100%

Although a coalition between the CDU/CSU and the AfD is highly likely to secure a majority of seats in the next *Bundestag*—with a probability of approximately 94%—credible alternatives remain that exclude the AfD from the new government. The so-called “Kenya coalition” (CDU/CSU, SPD, and Greens) is virtually guaranteed to achieve a majority of seats. However, German parties typically prefer minimum-winning coalitions. If a two-party coalition excluding the AfD secures a majority of seats—as is currently the case with a CDU/CSU and SPD coalition, which has a 73% likelihood—these parties are expected to initiate coalition negotiations following the election.

### Vacant Districts

For the first time in German election law, winning a district by plurality of candidate votes does not guarantee a seat in parliament, potentially causing vacant districts. To estimate probabilities for such vacancies, we combine results from our models predicting party-vote and candidate-vote shares. Using 10,000 draws from the *Zweitstimme* model to forecast party-vote shares, we calculate seat distributions under the new election law.

First, we exclude parties that receive less than 5% of the vote and fail to win at least three districts in a given draw. Next, we allocate the 630 *Bundestag* seats to parties, assuming state-level voter turnout matches that of the previous election in 2021.



These party-level seats are then distributed to state-level party-vote shares based on the proportional swing assumption inferred from our candidate-vote share model. The proportional swing accounts for variation in electoral support for each party in different electoral districts.

Finally, we identify vacant districts by ranking district winners according to their candidate-vote shares. Districts where the winner ranks below the total number of seats allocated to their party within the respective state are considered vacant. The probability of vacancy for each district is determined as the proportion of draws in which the district is predicted to be vacant.

We present a list of predicted vacancies in Table C.4 in the appendix. The vast majority of districts expected to be vacant, particularly those with high probabilities, are from the CDU and CSU. Additionally, we identify several potentially vacant districts for the AfD in East Germany. The SPD also appears multiple times toward the bottom of this table, indicating lower probabilities that their district winners will not gain a seat. It is important to note that these probabilities also depend on the likelihood of a party winning the district. Furthermore, some districts appear multiple times for different parties; in these cases, the probabilities should be summed to assess the overall likelihood of the district being left vacant, regardless of the party.

## Conclusion

If our predictions hold, the outcome would be a blend of the familiar and the unexpected. The return of the CDU to the chancellorship would mark a reversion to the norm—after all, 5 of the 9 chancellors of the Federal Republic of Germany have hailed from the CDU, which has historically dominated the role for longer periods than any other party. However, Olaf Scholz would be the first chancellor since Kurt Georg Kiesinger in 1969 to be unseated after just one term. The most profound disruption, though, would come from the meteoric rise of the far-right AfD—particularly in the East, where they could paint the electoral map blue. This surge would coincide with the marginalization of the once-strong *Linke* in the region and the potential exit of the FDP from parliament altogether.

That said, some caution is warranted. The *Zweitstimme* model leans heavily on polling data, among other sources, and does not account for late-stage campaign dynamics. This limitation was evident in our last forecast published in *PS*, where we significantly overestimated the CDU/CSU and failed to predict the late surge of the SPD. Future research could explore dynamic poll models that account for polling momentum. One possible strategy is to incorporate local trends of latent support into a poll-based latent space model.

The current predictions incorporate polling data available up to 30 January 2025. Updates—including those based on finalized district-level candidate lists—and our final forecasts will be continuously published on our website, *Zweitstimme.org*, as we approach the election.

## Notes

<sup>1</sup>This does not necessarily leave a district “orphaned” (*verwaister Wahlkreis*; (see e.g., Behnke 2020)), as losing district candidates from other parties may still enter parliament if ranked high enough on their state party list.

<sup>2</sup>The values of these variables used for 2025 are presented in SM A.

<sup>3</sup>Unlike previous applications of the fundamentals model, we omit random effects to simplify estimation without sacrificing predictive accuracy.

<sup>4</sup>This part of our model relies on polls published by various institutes. Given concerns about polling errors in recent elections in other countries, we evaluated the accuracy of election polls in Germany over time in the appendix (SM C). We find no evidence of a decline in polling performance.

<sup>5</sup>We evaluated our forecast and published the results on our *Zweitstimme* website.

<sup>6</sup>Using our candidate-vote shares model alone only predicts a 3% chance that the Linke wins three districts. This might be however an underestimate given the prominence of the candidates in three designated districts ("*Mission Silberlocke*"). The party strategically nominated those popular candidates and voters might cast a candidate vote for them strategically in those districts given that they still can cast a party vote for their most-preferred party.

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## Data Availability Statement

Research documentation and data that support the findings of this study have not yet been verified by PS's replication team. Data will be openly available at the Harvard Dataverse upon publication of the final article.

**Conflicts of Interest** The authors declare no ethical issues or conflicts of interest in this research.

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