Forecasting the 2020 Electoral College Winner: The State Presidential Approval/State Economy Model

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To forecast the 2020 Electoral College winner, we developed a model of two-party Democratic vote share in each state (plus Washington, DC) based primarily on each state's presidential approval ratings and economic conditions.[1] Our model, 104 days before the election, forecasted about a 4-in-10 chance that Donald Trump is reelected and about a 6-in-10 chance that Joe Biden is the next president.

THE STATE PRESIDENTIAL APPROVAL/STATE ECONOMY MODEL

Like many forecasts, we included *presidential approval.* Historically, even state-level forecasts have used national-level approval ratings (Hummel and Rothschild 2014; Jerôme and Jerôme-Speziari 2016; Klarner 2012). A key contribution of our approach is to estimate the percentage approving of the president in *each state.*[2] Building on our earlier work (Enns and Koch 2013; Enns, Lagodny, and Schuldt 2017), we used multilevel regression with poststratification (MRP), a statistical technique for estimating state-level public opinion from national surveys (Gelman and Little 1997; Lax and Phillips 2009; Pacheco 2014). Our estimates used 70 surveys with almost 90,000 respondents from June and July of election years.[3] After estimating the percentage in each state who approve of the president, we followed Hummel and Rothschild's (2014) strategy (for national-level approval) and subtracted a constant (so that when our approval variable equals zero, it is roughly equivalent to having no incumbent advantage) and multiplied the approval rating by –1 when the incumbent was a Republican (because our outcome of interest is the Democratic vote share). The online appendix provides additional discussion of all variables.

Presidential election outcomes also reflect *economic conditions.* We used the Federal Reserve Bank of Philadelphia's monthly index of coincident economic indicators to measure economic conditions in each state. These data begin in January 1979; therefore, 1980 is the first election included in the analysis. This index uses four separate economic components (i.e., nonfarm payroll employment, average hours worked in manufacturing, unemployment rate, and wage/salary disbursements) to measure current economic conditions in each state.[4] Although *leading* economic indicators might be preferable to coincident indicators for election forecasts (Erikson and Wlezien 2016), state leading indicators were not available after February 2020 because the Philadelphia Fed suspended release of these data due to measurement complications from the COVID-19 pandemic. Similar to Erikson and Wlezien (2016), we calculated the cumulative percentage change in coincident indicators through June of the election year, weighting months closer to the election more heavily.

The model also includes each state's *deviation from the national vote* in the past election (Campbell, Ali, and Jalalzai 2006; Hummel and Rothschild 2014)[5]; *home state* of the presidential and vice presidential candidates; percentage of the vote in each state that went to influential *third-party candidates* in the *previous* election; and a binary indicator for *southern* states, capturing their Republican lean during the analysis period (Enns and Lagodny 2020).

Table 1 presents the estimated relationships between these variables and the percentage of Democratic two-party vote share in each state (and Washington, DC) from 1980 to 2016. The relationships are in the expected direction, they are estimated with substantial precision, and the model fit is impressive.

ACCURACY OF OUR BEFORE-THE-FACT FORECASTS

We report "before-the-fact" forecasts, relying only on model estimates from previous elections and data through July of the election being forecasted. These forecasts correctly predict the winner in 88% of all states from 1984 to 2016. We had the most difficulty with 1992, possibly due to Ross Perot's third-party success and forecasting based on only three previous elections. Since 2000, we correctly predicted 94% of all states. Figure 1 presents our predicted vote for each state (y-axis) and the actual vote (x-axis). Most values align closely with the 45-degree line, which highlights the accuracy of our before-the-fact forecasts.

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To see how our forecasts compare with others, we first considered the state presidential vote forecasts in the 2012 *PS* forecasting symposium (Berry and Bickers 2012; Jerôme and Jerôme-Speziari 2012; Klarner 2012) and Hummel and Rothschild's 2012 state forecast (Hummel and Rothschild 2014). By combining model estimates from 1980 to 2008 with data available through July 2012, we could evaluate what our model would have forecasted around the time these researchers made their forecasts. The top section of table 2 shows that our forecast performs quite well, with the lowest absolute mean error and second-lowest absolute median error. Our 2016 forecast also compares favorably to the 2016 *PS* state-level vote forecast (see the middle section of table 2).[6] We also forecasted the *national* two-party vote by weighting the forecasted vote share for each state by that state's population. The bottom section of table 2 shows that our national forecasts (based on our state forecasts) performed about as well or better than other national forecasts that also were conducted approximately 100 days before the elections (Abramowitz 2016; Erikson and Wlezien 2016; Lewis-Beck and Tien 2016). Our before-the-fact forecast correctly predicted 8/9 of the last popular-vote winners (missing 1992) and 6/9 of the Electoral College winners (missing 1992, 2000, and 2016). Our mean/median annual Electoral College error (46/42) is less than the Electoral College votes of the swing states of Florida (29) and Pennsylvania (20) together.

If this November unfolds like a typical election, we expect that Biden will win the popular vote and the Electoral College. Unfortunately, our model cannot account for the fact that almost everything related to Trump's presidency has been far from typical.

Table 1

Predicting State Presidential Vote (% Democratic of Two-Party Vote), 1980–2016

State Deviation from National Vote $_{t-1}$	0.82*
	(0.02)
Presidential Approval	0.32*
	(0.02)
Cumulative Coincident Economic Indicators	2.31*
	(0.60)
Presidential Candidate Home State	2.74*
	(0.88)
Presidential Candidate Home State $_{t-1}$	-3.57*
	(0.84)
Vice Presidential Candidate Home State	2.60*
	(0.80)
South	-1.55*
	(0.39)
Anderson	-0.37*
	(0.08)
Perot	-0.56*
	(0.06)
Constant	49.67*
	(0.21)
N	510
Adjusted R^2	0.90
Standard Error of the Estimate	3.54

Notes: *=p<0.05. All variables measured at the state level. Standard error in parentheses.

2020: 6-IN-10 CHANCE BIDEN WINS, 4-IN-10 CHANCE TRUMP IS REELECTED

Based on data from 104 days before the election, our 2020 model predicted that Biden will be the next president. We estimated that Biden will win 54.5% of the two-party vote share and 290 Electoral College votes; however, there is substantial uncertainty around these forecasts. Figure 2 reports this uncertainty by plotting the expected 2020 outcome based on 70,000 simulations. These simulations incorporate uncertainty in our model's parameter estimates, uncertainty based on model error in previous elections, and uncertainty based on measuring current economic conditions (see online appendix

Figure 1

Before-the-Fact Forecasts and Actual Democratic Vote Share, 1984–2016

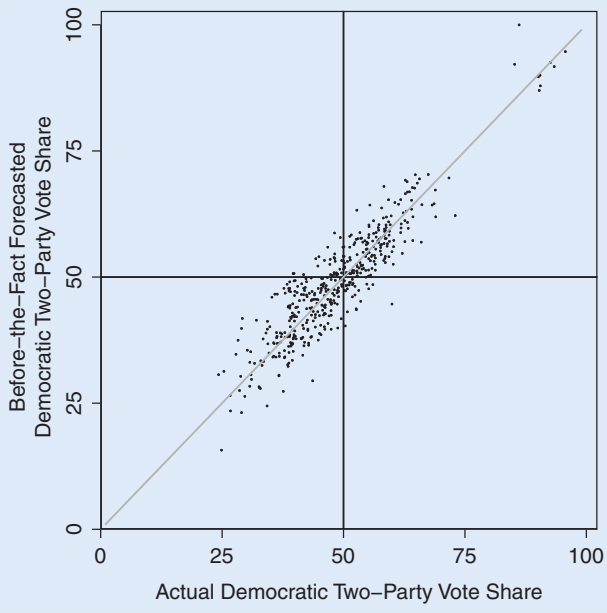

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Table 2

Comparison of Forecasts

State Forecast 2012	Absolute Mean Error	Absolute Median Error
Enns and Lagodny	2.16	2.03
Klarner	2.47	1.73
Hummel and Rothschild	2.78	2.14
Berry and Bickers	4.69	4.56
Jerôme and Jerôme-Speziari	4.80	4.01
State Forecast 2016		
Enns and Lagodny	2.89	2.40
Jerôme and Jerôme-Speziari	6.78	6.04
National Forecasts		
Enns and Lagodny (1996–2016)	1.76	1.61
Erikson and Wlezien (1996–2016)	1.60	NA
Enns and Lagodny (1988–2016)	2.13	1.89
Abramowitz (1988–2016)	2.22	2.26
Enns and Lagodny (1980–2016)†	1.79	1.52
Lewis-Beck and Tien (1980–2016)†	2.24	1.45

Notes: †Lewis-Beck and Tien (2016, table 1) reported out-of-sample (i.e., Jackknife) predictions (based on all data except the year being predicted). Therefore, we did the same to allow direct comparison with their model from 1980 to 2016. All other forecasts are "before-the-fact."

2 for full simulation details). Slightly less than 60% of the simulations predicted a Biden win, meaning that he has about a 6-in-10 chance of winning, leaving Trump's reelection chances at about four in 10. Although six in 10 simulations predicted a Biden win, almost one in five simulations (19%) predicted a razor-slim Trump victory, with Trump receiving exactly 270 Electoral College votes.

Figure 3 reports our predictions for each state. Dark-blue distributions are forecasted to go Democratic and light-red distributions are forecasted to go Republican. The height of the distribution indicates Electoral College importance. Although Arizona and Wisconsin lean toward Biden (hence, the dark blue) and Iowa and Florida lean toward Trump (light red), the roughly symmetrical distributions around the vertical 50% line indicate that these states could go either way. At 100 days out, Biden had a slight edge. He should focus on Arizona, Wisconsin, Iowa, and Florida to maintain that edge.

CONCLUSIONS AND CAVEATS

Our simulations account for uncertainty in our statistical estimates, past prediction error, and measurement uncertainty related to current economic conditions. However, several factors in 2020 could introduce *more* uncertainty than our simulations imply. First, there is much more uncertainty about the

Figure 2

2020 Electoral College Forecast Based on 70,000 Simulations

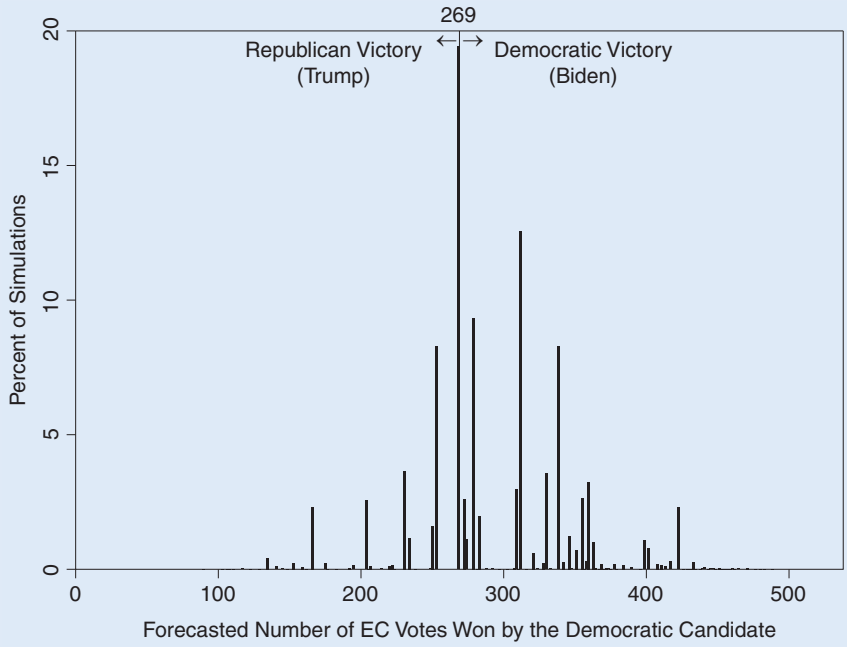

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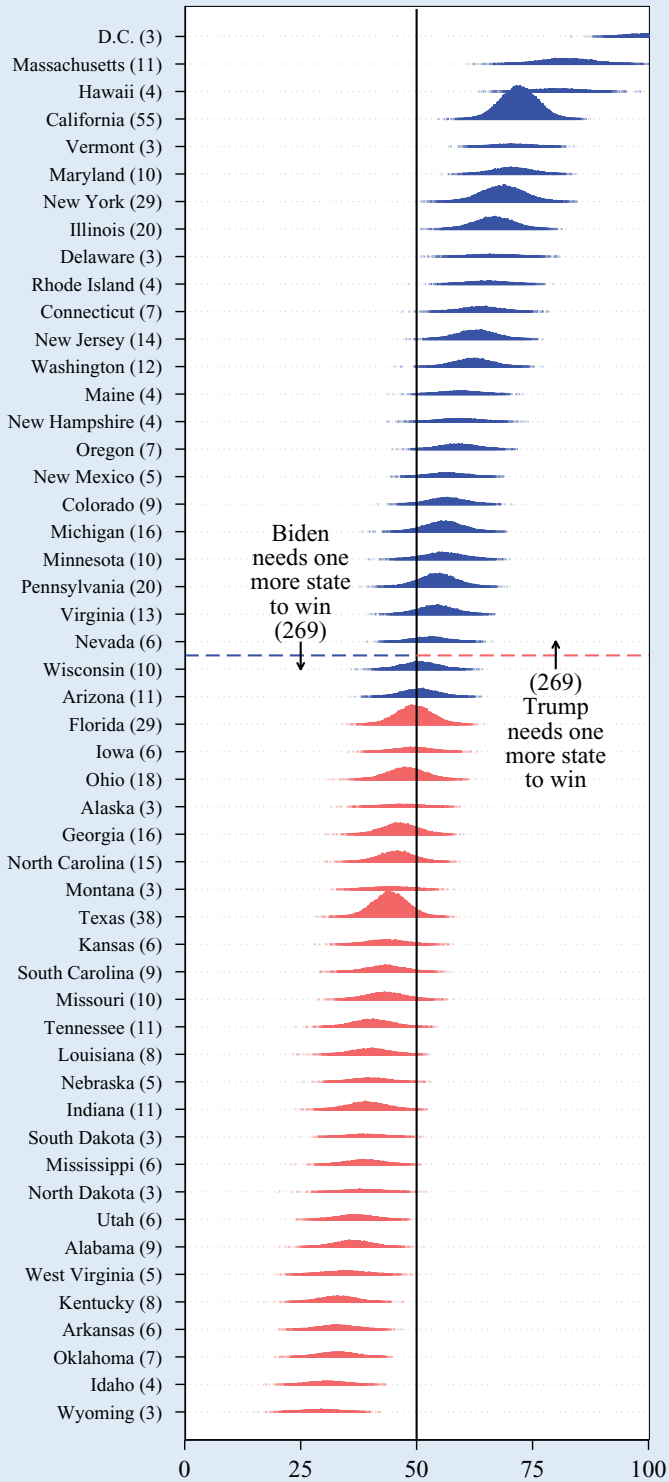
Figure 3

Simulated 2020 Forecast by State



Notes: Dark blue = expected Democratic win, light red = expected Republican win; distributions reflect simulated outcomes (i.e., distributions centered around 50% could go either way); distribution height indicates Electoral College importance; and the number next to the state = Electoral College votes.

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future economy and economic policy than in a typical election year.[7] Second, the influence of the COVID-19 pandemic on turnout is unknown. Although universal vote by mail does not benefit one party over the other (Thompson et al. 2020), different state rules for mail-in voting could have differential effects on partisan turnout.[8] Third, our model cannot account for potential foreign election interference.[9] If this November unfolds like a typical election, we expect that Biden will win the popular vote and the Electoral College. Unfortunately, our model cannot account for the fact that almost everything related to Trump's presidency has been far from typical.

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DATA AVAILABILITY STATEMENT

Replication materials are available on Dataverse at https://doi.org/10.7910/DVN/ADMBN9.

SUPPLEMENTARY MATERIALS

To view supplementary material for this article, please visit http://doi.org/10.1017/S1049096520001407. ■

NOTES

1. Two-party vote share (%Democratic Vote/%Democratic Vote + %Republican Vote) is standard in election forecasts (Campbell 2016). The Republican vote share is simply the inverse of all results shown.
2. We also estimated models including state-level partisanship and state-level vote intentions; however, neither improved forecast accuracy.
3. Survey data were obtained from the Roper Center for Public Opinion Research at Cornell University (https://ropercenter.cornell.edu) with one survey from Gallup Analytics.
4. Available at www.philadelphiafed.org/research-and-data/regional-economy/indexes/coincident.
5. Election data are from *Dave Leip's Atlas of US Presidential Elections.* Available at http://uselectionatlas.org.
6. Values for Jerôme and Jerôme-Speziari reflect comparisons with the popular vote, which they forecasted (not the two-party vote).
7. Available at www.policyuncertainty.com/us_monthly.html.
8. Available at www.washingtonpost.com/graphics/2020/politics/vote-by-mail-states.
9. Available at www.intelligence.senate.gov/sites/default/files/documents/Report_Volume1.pdf.

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