# The 2020 (Re)Election According to the Iowa Electronic Markets: Politics, Pandemic, Recession, and/or Protests?

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Multiple historic events characterize the 2020 presidential election: the Mueller report, an impeachment vote, a pandemic, a recession, protests, and more. Did these events impact the expected election outcome? We study this question using Iowa Electronic Markets (IEM) price changes around these events. We also examine the uncertainty around IEM vote-share forecasts for incumbent Donald Trump while comparing his chances to previous incumbents.

Open to traders worldwide, the IEM are real-money, Internet-based futures markets in which contract prices reveal information about future events.[1] Self-selected IEM traders are incentivized to accurately forecast aggregate voter behavior. Prices change when price-determining traders' beliefs change. Thus, the IEM aggregates information in a matter significantly different from polls, poll averages, and statistical models.

The IEM organized two markets for the 2020 US presidential election. The "vote-share" (VS) market had two contracts: (1) UDEM20_VS, which pays $1 times the Democratic share of the two-party popular vote; and (2) UREP20_VS, which pays $1 times the Republican vote share. Reflecting trader expectations, prices forecast vote shares. In the "winner-takes-all" (WTA) market, DEM20_WTA contracts pay $1 if the Democratic two-party, popular-vote share exceeds 50% and REP20_WTA contracts pay $1 if the Republican vote share exceeds 50%. Contract prices forecast probabilities of winning the popular vote.[2] Two markets provide (1) vote-share point estimates (VS market), (2) estimated probabilities of winning the popular vote (WTA market), and (3) estimates of the vote-share forecast distribution.[3]

IEM price changes reveal information. Berg and Rietz (2006) showed that IEM prices respond immediately to significant news. Berg, Penney, and Rietz (2015) used a $\chi^2$-based test of daily price changes to document that large IEM price movements can detect events deemed significant by media and changes in polls.

The accuracy of IEM prices compared to other methods is debated elsewhere.[4] This article discusses what IEM forecasts indicate about the 2020 presidential election and the amount of uncertainty embedded in its vote-share forecast.

## TIME SERIES OF ELECTION FORECASTS AND EVENTS

Figure 1 shows a time series of 2020 IEM forecasts with total contract volumes.[5] The upper panel shows Trump's forecasted two-party vote share and probability of winning the popular vote. Trump's VS/vote-share forecast generally has fallen between 45% and 50%, only rising above 50% for 14 days in April. Trump's WTA/probability forecast peaked on February 26, 2020, at 47.4%; fell dramatically between then and March 25; hovered between 35% and 40% until May 31; dropped rapidly until July 5; and then became quite volatile. Figure 2 compares this forecast probability to incumbent candidates in previous IEM markets. Through press date, Trump's winning probability fell significantly lower than other previous incumbent candidates, regardless of the number of days remaining before Election Day.

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Figure 1 tags significant, sustained WTA price changes using Berg, Penney, and Rietz's (2015) procedure. Politically significant events include the Mueller Report release (April 18, 2019), the impeachment vote (December 18, 2019) and trial (January 16–February 5, 2020), and the CARES Act (March 27, 2020). None of these events led to significant, sustained price movements. Five major Federal Reserve actions between March 15 and March 26, 2020, led to no significant daily changes and a total (insignificant) drop of 1.8 percentage points. These outcomes may have already been priced into the market. Having little effect, the worst quarterly GDP contraction ever recorded (–32.9% annualized) also was likely priced in when released on July 30, 2020. Significant events related to racial justice include Ahmaud Arbery killed (February 23, 2020), Breonna Taylor killed (March 12, 2020), George Floyd killed (May 25, 2020), Capitol Hill Autonomous Zone established (June 11, 2020), Rayshard Brooks killed (June 12, 2020), and Jacob Blake shot (August 23, 2020). Given their random nature, it is unlikely that these events were priced into the market. There were no significant, sustained WTA price movements according to the Berg-Penney-Rietz (2015) procedure on any of these days.

Figure 3 shows the forecast of Trump's winning probability versus (scaled) levels of the S&P500 stock market index, new seasonally adjusted jobless claims, and US COVID-19 cases.[6] In

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early March, Trump's chances fell as the S&P500 crashed and COVID-19 led to economic shutdown in mid-March. However, although jobless claims rose dramatically in March through May, Trump's chances varied little. His chances also changed little as the stock market recovered during the second quarter.

Trump's chances fell again when civil rights protests began in earnest (May 26, 2020) and weekly average COVID-19 cases began rising again in mid-May through late July. Volatility increased dramatically after July 6, with six significant price movements in 29 days as states reopened; protests continued; federal law enforcement "surged" in US cities; new COVID-19 cases began decreasing; and companies reported Phases I and II clinical-trial results, moving into Phase III. Trump's largest WTA gains occurred when biotech firm Moderna, Inc., published successful Phase I results on July 15 (+9.1¢, +45%) and when Russia announced October vaccination plans on August 2 (+6.4¢, +30%). Overall, Trump's reelection chances appear to be more affected by protests and the pandemic than economic outcomes or individual political events.

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## CONFIDENCE INTERVALS AROUND FORECASTS

Events during this reelection cycle may lead to unusual uncertainty about the forecast. Sampling theory cannot assess the uncertainty in IEM forecasts because the IEM is not a random poll. We estimated forecast vote-share uncertainty using several methods (see details in the online appendix). We emphasize that considerable uncertainty remains.

First, at each horizon (i.e., days to the election), we use the standard deviation in forecast errors from previous presidential VS markets. Figure 4, panel A, shows the forecasted Republican vote share with one standard deviation confidence interval (CI) estimated from previous markets. This benchmarks the uncertainty inherent in the forecast distribution if this election has forecast errors similar to previous elections.

Second, we assess uncertainty using the evolution of VS prices in the current market. If the market is efficient, VS forecasts should follow a random walk. Assuming this is true, we forecast the distribution of the random walk t-days in the

*Figure 1*

**IEM Forecasts, Contract Volume, and Significant Price Movements Identified Using the Berg-Penny-Rietz Method**

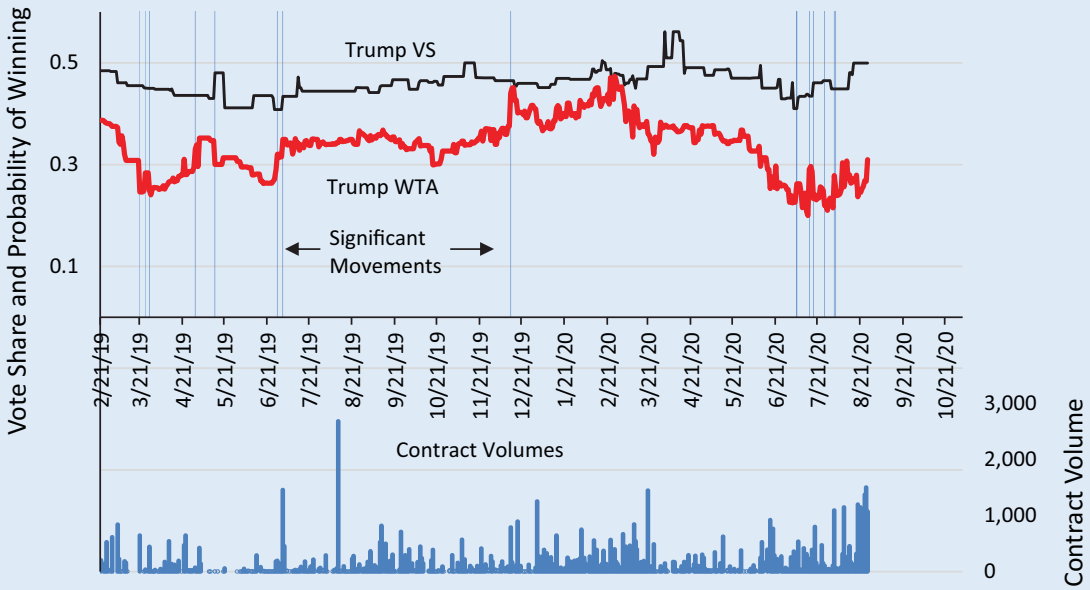
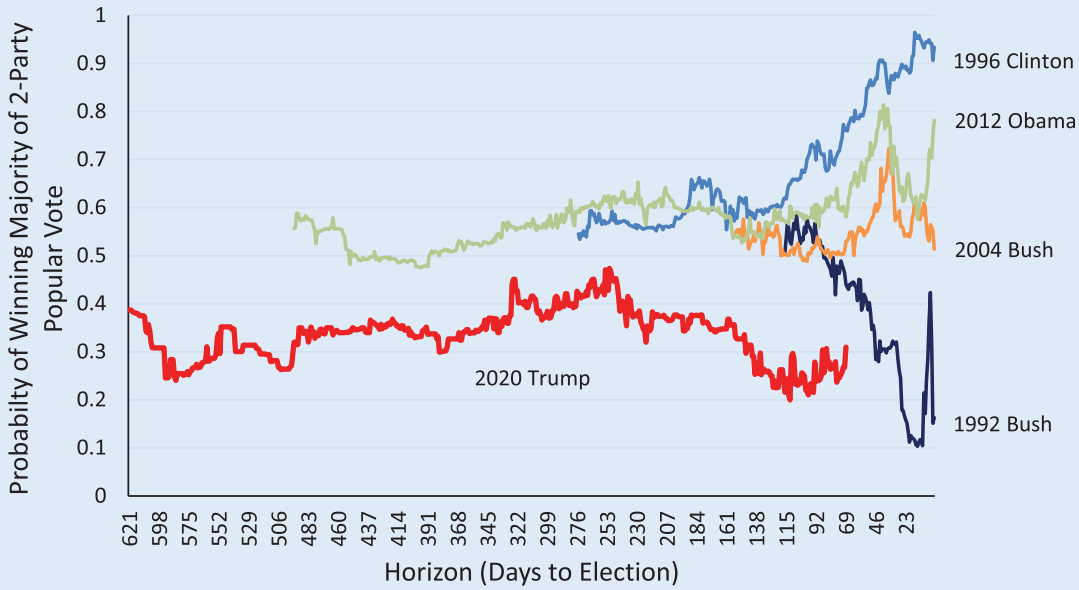


*Figure 2*

**WTA Forecasts for Trump and Previous Incumbent Candidates**




future (i.e., Election Day). Figure 4, panel B, shows the forecasted Republican vote share with ± 1 standard deviation CIs assuming a random walk. Forecast volatility increases after large swings in VS prices and slowly erodes as the horizon falls. Overall, it shows much larger uncertainty than the first method. Current VS price changes reveal more uncertainty at this point in the election cycle than historical errors would suggest.

The third method integrates the information in the two IEMs, assuming consistent pricing across them. At each horizon, the VS market reveals the mean of a forecast vote-share distribution and the WTA market reveals a point on the distribution ($p>0.5$). This allows us to parameterize a log-odds normal forecast vote-share distribution and estimate its standard deviation. Figure 4, panel C, shows the forecasted Republican vote share with the resulting ±1 standard deviation CIs. We see significantly more uncertainty than in the first method, again suggesting greater uncertainty than observed in the past. Furthermore, it is more variable than the second method, which suggests that there is more to the uncertainty than the evolution of vote-share prices alone indicates.

The fourth method applies Berg, Geweke, and Rietz's (2010) nonparametric approach to estimate the entire forecast distribution. Figure 4, panel D, shows forecast vote shares with 16th through 84th percentiles of the numerically estimated distributions (approximately ±1 standard deviation for a normal distribution). Closer to the first method, this shows significantly less uncertainty than the second and third methods, with more stable uncertainty estimates. On 77% of the days through August 26, 2020, the Berg-Geweke-Rietz forecasted distributions show two peaks: one (less likely) with Trump winning the popular vote by a small margin and one (more likely) with Trump losing by a large margin. Figure 5 illustrates a typical example. Shifting weight between these two distinct possibilities may drive the current elevated uncertainty about the vote share.

On August 26, 2020, the forecasted Republican vote share was 49.95% from the VS market alone, with a median of 48.36% according to the Berg-Geweke-Rietz forecasted distribution. At this 69-day horizon, ±2 standard deviation CIs were 42.84% to 57.06% using historical errors, 32.87% to 67.04% using the time-series method, 49.75% to 50.15% using implied volatility, and approximately 43.47% to 53.33% using the Berg-Geweke-Rietz method. Overall, considerable uncertainty remains in that all ±2 standard deviation CIs overlap 50% vote share.

## DISCUSSION

According to the IEM, neither individual political events nor individual events leading to protests have significantly affected the 2020 election. Although Trump's chances fell during the stock market collapse and recession associated with the initial wave of COVID-19, they did not increase with the stock market recovery and decreasing new jobless claims. Instead, his chances continued to fall as COVID-19 cases rebounded and protests continued. As of August 26, 2020, there remains considerable uncertainty, giving Trump a 30.99% chance of winning the popular vote according to the WTA market alone and 33.10% according to the Berg-Geweke-Rietz forecast distribution.

*Figure 3*

## WTA Forecasts for Trump Versus Scaled Levels of the S&P500, New Seasonally Adjusted Jobless Claims, and New COVID-19 Cases

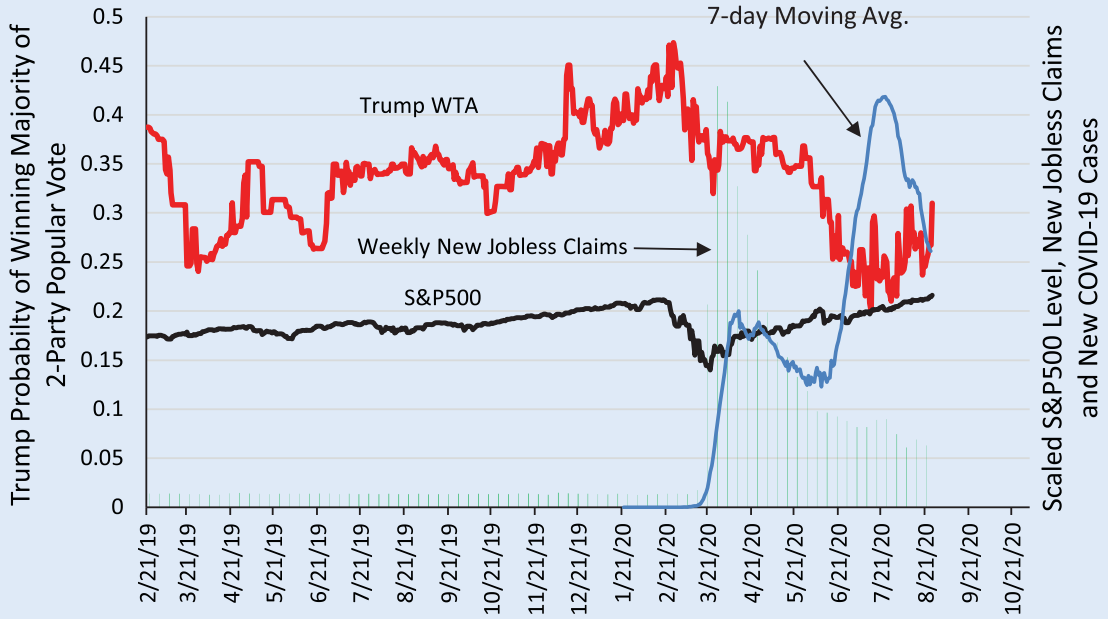
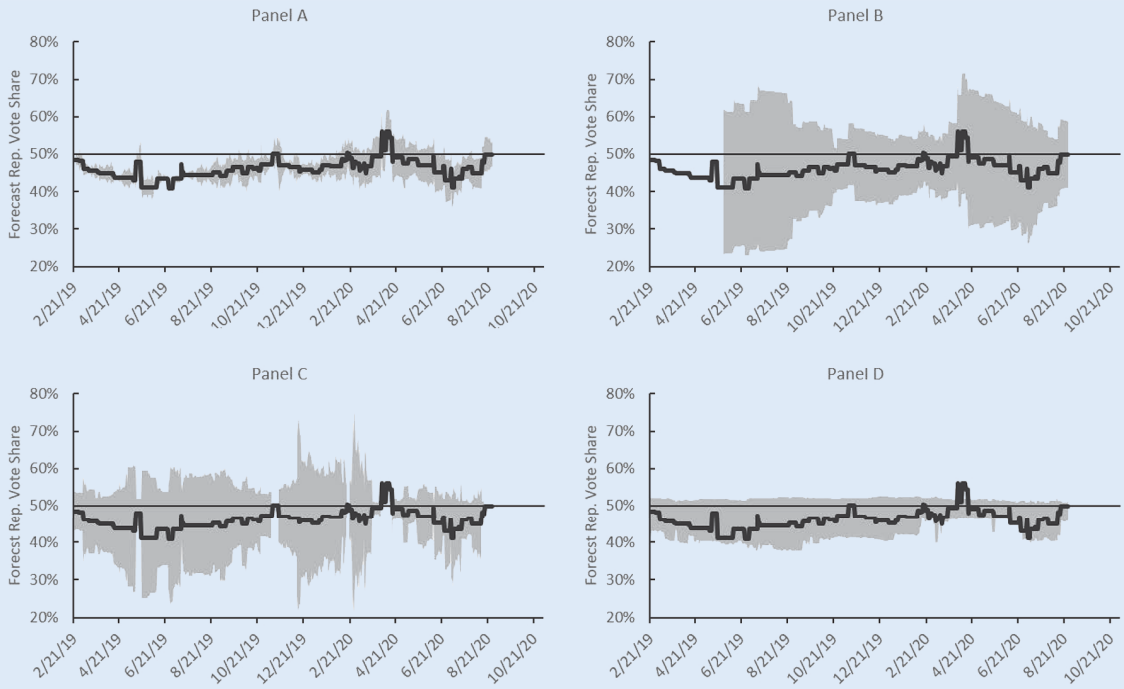



*Figure 4*

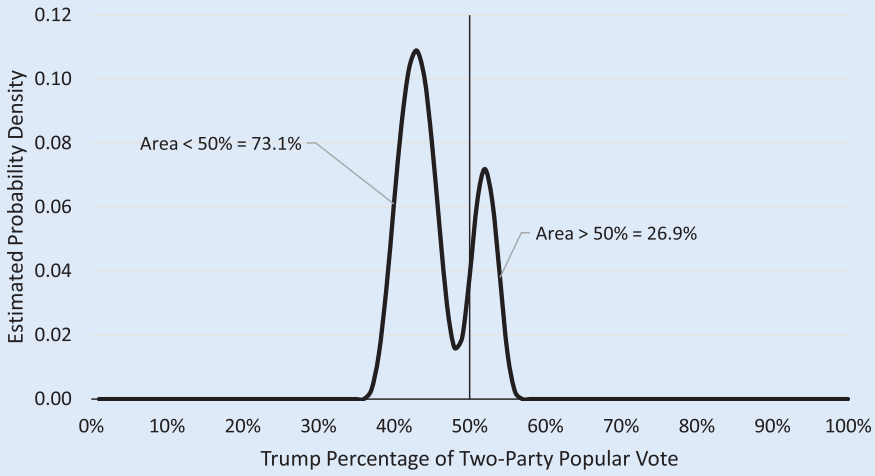
## Republican Vote-Share Forecasts and Estimated Uncertainty




Notes: Panel A shows ±1 standard deviation CIs from previous vote-share markets. Panel B shows ±1 time-series standard deviation CIs. Panel C shows ±1 implied volatility standard deviation CIs. Panel D shows 16th to 84th percentile ranges using the Berg-Geweke-Rietz (2010) method.

*Figure 5*

## Sample Two-Party Vote-Share Distribution on August 2, 2020, Using the Berg-Geweke-Rietz (2010) Method




### DATA AVAILABILITY STATEMENT

Replication materials are available on Dataverse at DOI:10.7910/DVN/MHUC8C.

### SUPPLEMENTARY MATERIALS

To view supplementary material for this article, please visit http://dx.doi.org/10.1017/S1049096520001419. ■

### NOTES

1. See http://tippie.uiowa.edu/iem (accessed August 27, 2020) and numerous studies (e.g., Berg, Nelson, and Rietz 2008) for additional information.
2. Berg and Rietz (2019) study WTA market accuracy, comparing price-based predictions with outcome frequencies in similar repeated markets. For price ranges and probabilities typical in elections, they find that WTA markets accurately forecast probabilities.
3. The IEM does not forecast the Electoral College outcome and, hence, who will be president.
4. Berg, Nelson, and Rietz (2008) found that IEM forecasts are closer to eventual election outcomes than unadjusted polls 74% of the time. Erikson and Wlezien (2008) pointed out that adjusted polls fare better. Their poll-adjustment method makes them closer than the IEM 55% of the time.
5. Gruca and Rietz (2020) provided replication data for this article.
6. COVID-19 source: www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html. Jobless-claims source: https://oui.doleta.gov/unemploy/claims.asp. S&P500 source: https://finance.yahoo.com/quote/%5EGSPC/history?p=%5EGSPC. All accessed August 27, 2020.

### REFERENCES


Berg, Joyce E., John Geweke, and Thomas A. Rietz. 2010. "Memoirs of an Indifferent Trader: Estimating Forecast Distributions from Prediction Markets." *Quantitative Economics* 1:163–86.

Berg, Joyce E., Forrest D. Nelson, and Thomas A. Rietz. 2008. "Prediction Market Accuracy in the Long Run." *International Journal of Forecasting* 24 (2): 283–98.

Berg, Joyce E., Christopher E. Penney, and Thomas A. Rietz. 2015. "Partisan Politics and Political Prospects: Evidence from the Iowa Electronic Markets." *PS: Political Science & Politics* 48 (4): 573–78.

Berg, Joyce E., and Thomas A. Rietz. 2006. "The Iowa Electronic Markets: Stylized Facts and Open Issues." In *Information Markets: A New Way of Making Decisions in the Public and Private Sectors*, ed. Robert W. Hahn and Paul C. Tetlock, 142–69. Washington, DC: American Enterprise Institute–Brookings Joint Center for Regulatory Studies.

Berg, Joyce E., and Thomas A. Rietz. 2019. "Longshots, Overconfidence, and Efficiency on the Iowa Electronic Markets." *International Journal of Forecasting* 35 (1): 271–87.

Erikson, Robert S., and Christopher Wlezien. 2008. "Are Political Markets Really Superior to Polls as Election Predictors?" *Public Opinion Quarterly* 27 (2): 190–215.

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