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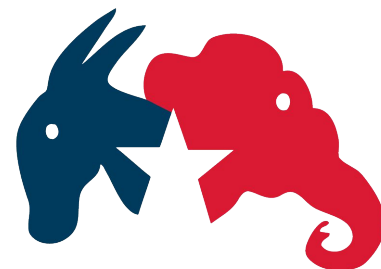
PEORIA Project

2020 Election Predictions Model Results

Iowa Caucuses - Democratic Party

Biden, Sanders, Warren, Buttigieg Likeliest to Win, In That Order

Innovative Model Incorporates Social Media Variable
of Twitter Mentions to Yield Ranges of Likely Results





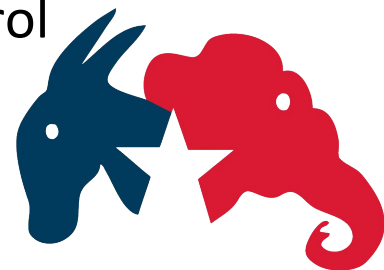
Our Key Three Variables

Our model predicts a candidate's performance based entirely on three factors: Twitter mentions, cash on hand, and endorsements.

While we are aware that in important ways the Twitter universe does not necessarily reflect the electorate, the quantity of **Twitter Mentions** is a good proxy for the “buzz” a candidate is getting within the wider electorate, and reflects the activity of important opinion leaders.

Cash on Hand reflects the strength of the candidate in the “money primary.”

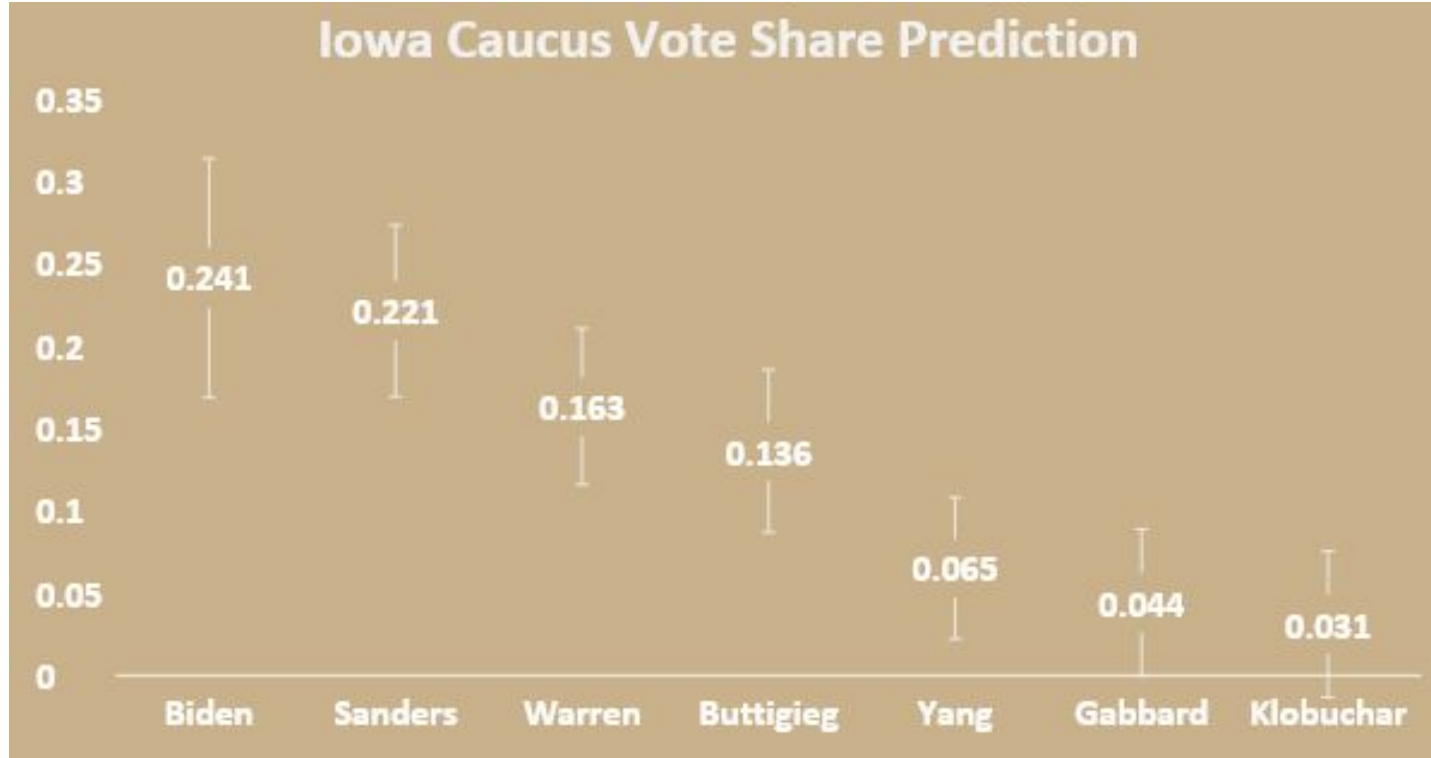
Endorsements indicate each candidate's strength within the party, which speaks to the debate over whether the party decides the outcome of the nomination. Although the variable for endorsements is not statistically significant, it is an important control variable in our model.



Results

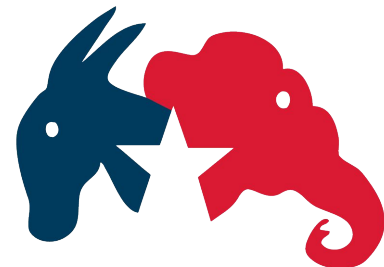


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Candidate	Average Predicted Vote Share	Lower Bound	Upper Bound
Biden	0.241	0.168	0.313
Sanders	0.221	0.169	0.273
Warren	0.163	0.116	0.211
Buttigieg	0.136	0.086	0.185
Yang	0.065	0.022	0.108
Gabbard	0.044	0.000	0.089
Klobuchar	0.031	-0.013	0.076

Based on our model, the chart and table report the predicted caucus vote share in Iowa for each candidate. For example, Joe Biden is predicted to receive 24.1% of the vote share. The bars indicate the upper and lower bounds for the prediction (95% confidence interval).



Explanation of Model



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What Our Model Does

Our model predicts the Iowa caucus vote share for each Democratic candidate using three predictor variables in an Ordinary Least-Squares (OLS) multiple regression.

How We Predict Vote Share

In order to predict each candidate's vote share, we input the latest variable data (see below) into the regression model to generate an estimate as well as an upper- and lower-bound.

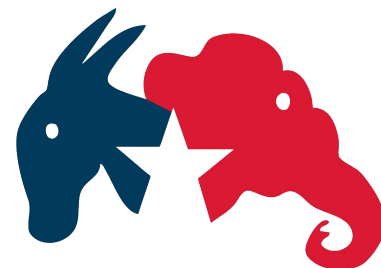
Cash on Hand: Measured as a percentage share of the total cash on hand for all candidates within the party. The most recent data were for Quarter 3 of 2019. Source for data: [FEC.gov](https://www.fec.gov)

Twitter Mentions: Measured as the number of mentions on Twitter for each candidate as a percentage share of the total number of mentions for all candidates within the party. The data for these models were from the month of December, 2019. Source for data: Crimson Hexagon.

Endorsements: Measured as the total number of endorsements for each candidate by U.S. Senators, members of the U.S. House of Representatives, former Presidents and Vice Presidents, former presidential candidates from the current election cycle who had dropped out of the race, elected statewide officials, state legislative leaders, and mayors of large cities. The data for these models were tallied through the month of December, 2019. Source for data: [FiveThirtyEight.com](https://www.fiftythreeeight.com)

How We Chose Our Model

To find the best fitting model, we used campaign data from 2012 and 2016 for the three predictor variables above with Iowa vote share for each year as the dependent variable. Several models were created, including OLS regression, longitudinal regression (using Q1 through Q3 cash on hand as well as monthly twitter mentions), ridge regression, partial least squares regression, and principal component regression. The model with the lowest RMSE while maintaining the highest possible R^2 was chosen for this report (in this case, OLS regression).



Descriptive Table of Variables and Regression Model for Iowa Vote Share



Means, Standard Deviations, and Correlations

Variable	M	SD	1	2
1. Twitter Mentions	0.174	0.256		
2. Cash on Hand	0.177	0.246	0.755	
3. Endorsements	168.820	277.210	0.197	0.333

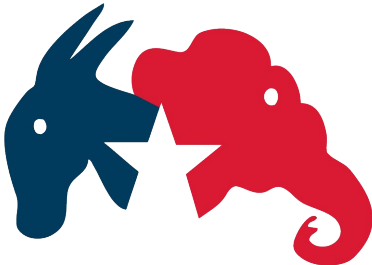
Summary of Regression of the Iowa Caucus Vote Share Prediction

Variable	B	SE B	β
Twitter Mentions	0.51080**	0.10181	0.55841
Cash on Hand	0.40836**	0.11042	0.42793
Endorsements	0.00007	0.00007	0.08351

adj R² = 0.889, F(3,18) = 57.1

**p < 0.05. **p < 0.01.*

This table demonstrates that Twitter Mentions and Cash on Hand are significant predictors of a candidate’s vote share in the Iowa Caucuses.





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Thanks for reading!
Come back each week for new predictions!

Questions may be directed to the authors:

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