

The Effect of the Electoral College on Modern Elections in the United States

Abstract:

The validity of the Electoral College has been questioned, as many believe it to give the Republican Party an advantage in the Presidential Election. Using data from past elections and the census, models were created in order to better understand the relationship that exists between the electoral vote, the popular vote, and party. The Electoral College is shown to have helped Republicans more than Democrats when comparing the electoral vote with the popular vote. The logistic regressions that predict the electoral vote from the popular vote are extremely similar, though there is a hint of Republican favorability.

Background and Significance:

In the United States, the people do not directly vote for President. The electoral college does instead. Rather than each person's vote count towards the President, each state receives a certain number of electoral votes. The number of electoral votes for each state is equal to the number of members of congress for that state (the number of senators, plus the number of representatives). When the 23rd Amendment was ratified in 1961, Washington D.C. was also given electoral votes, but not to exceed the lowest number of votes that a state has -- this has usually limited D.C. to 3 votes.

In recent years, the Electoral College has come under fire. Fueled by the losses of Al Gore and Hillary Clinton, many liberals have claimed that the Electoral College is unfairly allowing Republicans to win the election. This paper aims to assess the validity of that claim.

Methods:

Data was collected primarily from two GitHub repositories: one which contained data from national elections¹, and one which contained census data². In a few rare cases, data was cleaned using information from (verified) wikipedia data³ about the electoral college.

Important variables used include: party, population, popular vote, population proportion, popular vote proportion, electoral college proportion, and effect of the electoral college. The population for election years was calculated using linear models in between known (census) years. The population proportion was calculated for each state as the number of people living in the state divided by the total number of people for each year. The popular vote proportion was calculated as the total number of votes a candidate received over the total number of votes. The electoral college proportion was calculated as the total number of electoral votes a candidate received over the total number of electoral college votes. The effect of the electoral college was calculated as the difference between the electoral college proportion and the popular vote proportion.

Box plots are used to illustrate the differences in the effect of the electoral college across the political parties, and grouped by election outcome. A logistic regression is used to predict the electoral college proportion from the popular vote proportion. Bar charts are used to illustrate the difference in election outcome across the election types.

Results:

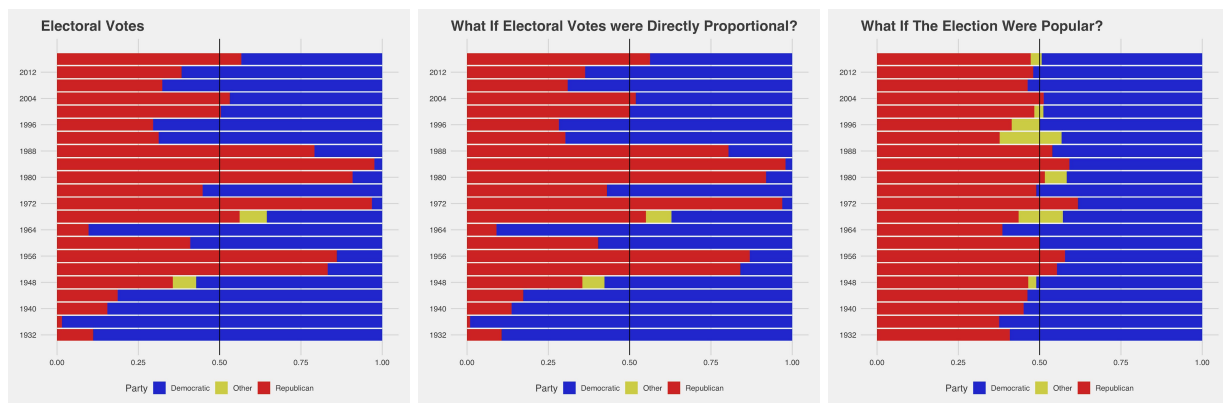


Fig. 1: Election Outcomes of Different Electoral Models: Electoral College, Directly Proportional Number of Electoral Votes, and Popular Vote

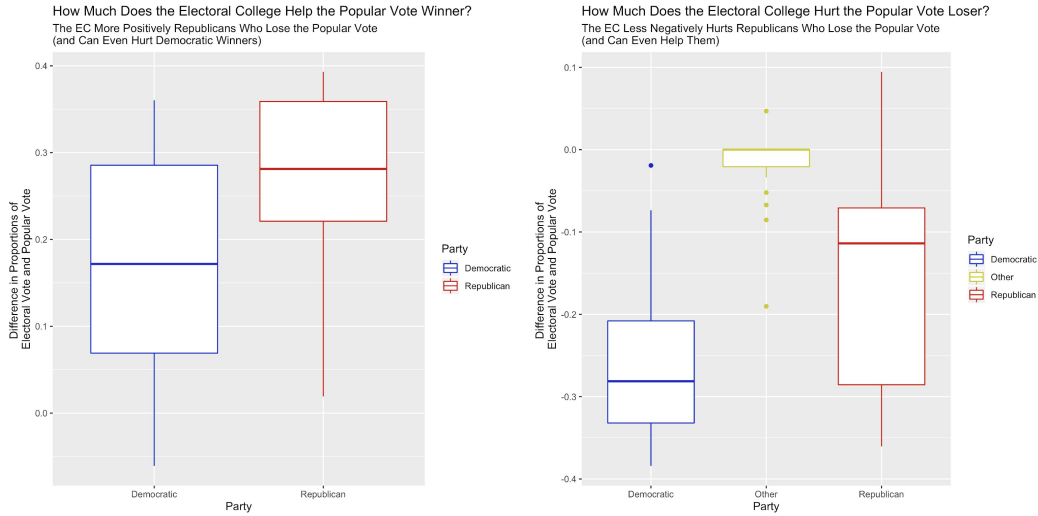


Fig 2: Distributions of the Effect of the Electoral College grouped by Party and Popular Outcome: Popular Vote Winner, Popular Vote Loser

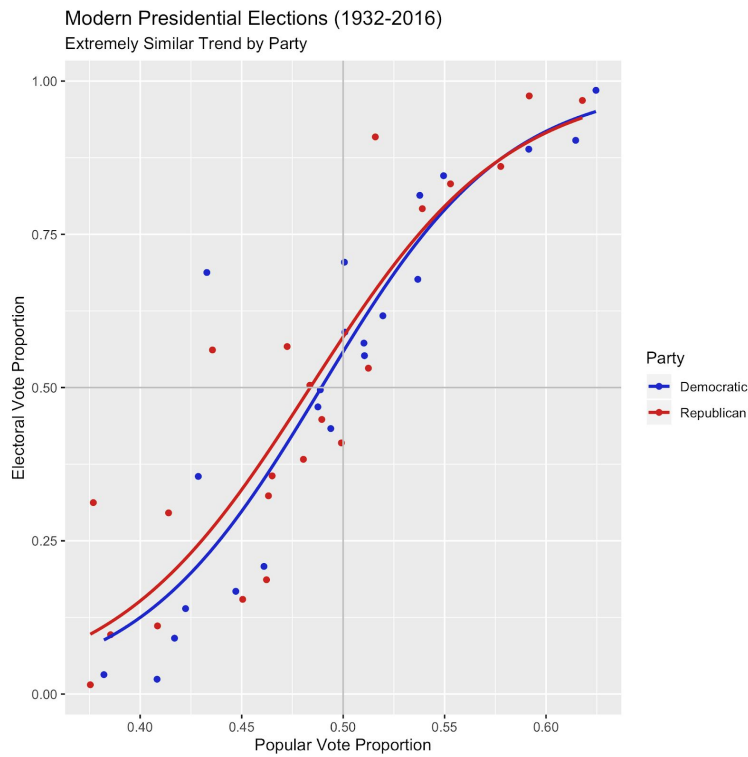


Fig. 3: Logistic Regressions Predicting Electoral Vote from Popular Vote, Grouped by Party

Discussion/Conclusions:

As evidenced by the very minimal difference between the Current Electoral College and a Directly Proportional System (Fig. 1), the argument that Electoral College protects smaller states by giving them more of a say in the voting process is flawed. Equally flawed is the

argument that the Electoral College is unfair because it gives the smaller states a larger say. In fact, the Electoral College does not seem to protect smaller states, nor does it give them a larger say in our national election. However, as evidenced by the drastic change between the Current Electoral College and a Popular Vote (Fig. 1), the argument that the Electoral College does not accurately reflect the views of the American people is valid. However, this is what the Founding Fathers intended. They believed mob rule to be a very real and valid threat, especially following Shays' Rebellion in Massachusetts during the young country's years under the Articles of Confederation. As such, the Electoral College was put in place to control for mob rule, by placing electors in charge of choosing a President. However, now that the states' electors vote as their state's people vote, one could ask whether or not such a system is still valid.

When grouped by the winner of the popular vote, we can see that Republicans are actually given a larger increase (a mean difference of ~10%) in their win percentage than are Democrats (Fig. 2). When grouped by the loser of the popular vote, we can see that Democrats are actually given a larger decrease (a mean difference of ~15%) in their win percentage than Republicans are (Fig. 2).

The two logistic regressions are extremely similar, indicating that the relationship between the popular vote proportion and the electoral vote proportion is not largely affected by the party of the candidate (Fig. 3). However, it is still important to notice that for the majority of the plot, the Republican regression lies slightly to the left of the Democratic regression, indicating that on a very small magnitude, the models predict that a Republican candidate needs a smaller popular vote proportion in order to receive the same electoral vote proportion as a Democratic candidate. This seems to corroborate the trend seen in Fig. 2 where Republicans tended to get more of a "boost" from the electoral college. However, because the magnitude of the difference is small, it may be within a reasonable standard deviation, given the small sample size.

While the graphics presented here do seem to support the hypothesis that the Electoral College helps Republicans, we do not know *why* or *how*. The Electoral College was created before the modern Democratic and Republican Parties were created, so we certainly cannot say that it was made in order to favor Republicans. Also, because there is a limited number of elections since the modern party system has come into being, the sample size is small. Because of this, it is hard to determine outliers and a true trend in the data. For future research, it would be beneficial to use former elections to help create a training model, and then use the modern elections as testing data. It would also be beneficial to run many sampling models to simulate elections in order to be able to draw more definitive conclusions. Overall, this study gives some validity to the claim that the Electoral College benefits the Republican Party; however, further research is needed.

References:

- 1) <https://github.com/zonination/election-history>
- 2) <https://github.com/ropensci/historydata>
- 3) https://en.wikipedia.org/wiki/United_States_Electoral_College