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THE RELATIONSHIP BETWEEN UNEMPLOYMENT AND STATE-LEVEL VOTING IN PRESIDENTIAL ELECTIONS: WHY HARD TIMES DO NOT FAVOR DEMOCRATS

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Abstract

Conventional wisdom suggests that more difficult economic times will cause U.S. election outcomes to swing in favor of democratic candidates. In this paper, we uncover a phenomenon of retrenchment in which traditionally Blue States vote more for democratic candidates as unemployment increases but many traditionally Red States "double down" and actually vote more for republican candidates as unemployment increases. Higher unemployment increases voter turnout, but has a limited net effect in most states because new voters driven to the polls tend to vote in the same manner as they have traditionally. The Electoral College system further dulls the relationship between unemployment and election outcomes. Our investigation covers U.S. presidential elections from 2000-2016 using a Bayesian methodology to estimate elasticities between unemployment and (1) the popular vote and (2) the Electoral College vote at the state-level. We estimate the models using Hamiltonian Markov Chain Monte Carlo (MCMC) both with and without shrinkage.

JEL Classification*:* C3, C31, H8, Z0, K160, D72.

Keywords: U.S. Presidential elections; Bayesian models; Unemployment rate.

1. Introduction

The economic hardships surrounding the 2020 U.S. Presidential election and the fact that the republican incumbent fared comparatively well highlight the need to better understand the relationship between economic indicators like unemployment and election outcomes. Conventional wisdom suggests that difficult economic times will favor democrats since (1) economic hardships fall disproportionately on the poor, thereby increasing voter turnout among a group that traditionally favors democratic candidates, and (2) moderate voters will swing more toward democrats who favor social programs out of concern for themselves and empathy for others effected. Yet, as the recent election demonstrates, this pattern is not always or even commonly observed.

The purpose of this study is to examine the relationship between unemployment rates and U.S. Presidential election outcomes. It differs from most investigations in that it examines the Electoral College vote in addition to the popular vote and is conducted at the state-level. Both of these factors are important. The Electoral College system dulls the relationship between individual voter sentiment and election outcomes. Individual states also react very differently in their voting habits as economic conditions worsen.

We examine the elasticity between the state unemployment rate in the year of the Presidential election and four separate variables: The Electoral College vote per state (including the District of Columbia) for the democratic candidate, the Electoral College vote per state for the republican candidate, the popular vote per state for the democratic candidate, and the popular vote per state for the republican candidate. The popular vote captures both individual voter sentiment toward the two parties and voter turnout, since we often observe increases in votes for both candidates in a given election year. Unemployment data come from the Bureau of Labor Statistics while voting data are published by the Federal Election Commission.

The data cover the 2000 (Bush-Gore), 2004 (Bush-Kerry), 2008 (Obama-McCain), 2012 (Obama-Romney), and 2016 (Trump-Clinton) elections.

The unemployment rate is taken as an indicator of overall economic conditions and one that has been used repeatedly to reflect voter attitude toward current economic conditions (see, e.g., the discussion by Irwin (2018) of the mini-recession of 2015-2016). Empirical results concerning the effects of the economy on election outcomes have been highly mixed, although there is strong evidence that job loss affects voter turn-out (see, e.g., Incantalupo (2016) for an investigation over the 1978-2010 period). Many studies have introduced non-economic explanations of election outcomes using cultural and social-psychological factors that in many cases predict successfully even though economic conditions do not (see, e.g., Mutz (2018) and Sawhill (2016) for discussions of these factors).

The popular vote is well understood by voters and fundamental to the electoral voting method. The Electoral College vote for all states (except Maine and Nebraska) it is "winner take all," so if $EV_{Dem} > 0$ for a given state, then $EV_{Rep} = 0$ and if $EV_{Rep} > 0$ for a given state, then $EV_{Dem} = 0$. Maine and Nebraska can allocate their electoral votes (EV) based on the popular vote outcome for each of their congressional districts.

In what follows, the next section develops the statistical models. This is followed by the results. The last section provides a discussion and conclusion.

2. Models

The elasticity between the unemployment rate (u_i) and voting outcome (v_{ij}) for state *i* and party *j* is given by:

$$\epsilon_{ij} = \frac{\%\Delta v_{ij}}{\%\Delta u_i}. \quad (1)$$

We estimate these elasticities in a Bayesian framework in which the elasticities are allowed to vary by state. We use two sets of models. The first specifies a partially-pooled hierarchical structure in which the elasticity for each state is shrunk toward the mean of the distribution of elasticities across states according to the (im)precision with which the elasticity for that state can be estimated. A second set of models uses no pooling (no shrinkage), estimating the elasticity for each state based on the data for that state alone. This allows greater insight into how the states differ, at the cost of potentially greater bias due to the small sample of data for each state (this is reflected in the p-values below).

Specifically, we estimate the following model for each state and party:

$$\log(\boldsymbol{v}) \sim N(\alpha_i + \epsilon_i \log(\boldsymbol{u}), \sigma)\,, \quad (2)$$

where α_i is a state-specific fixed-effect capturing differences in population and voting preferences across states. The prior distribution on the elasticities is specified as:

$$\epsilon_i \sim N(\mu_\epsilon, \theta)\,, \quad (3)$$

and the hyper-prior on the mean of the distribution of the elasticities is diffuse to allow the data to dominate the prior:

$$\mu_\epsilon \sim N(0, 100)\,. \quad (4)$$

The model estimates the *i*-dimensional vectors of elasticities and fixed-effects as well as the mean of the distribution of the elasticities and the two error variances, σ and θ. The set of models without shrinkage eliminate equations (3) and (4). We use Hamiltonian Markov Chain Monte Carlo (MCMC) methods to estimate the models, which converge very quickly. The results presented below are based on 10 chains of 10,000 iterations for each model (each iteration in Hamiltonian MCMC consists of a varying number of actual draws).

3. Results

The elasticities between the unemployment rate and the popular vote for each state and party are given in Table 1. Beginning with the models with shrinkage in the first three columns of the table, the elasticities for both the democratic and republican candidates are positive, indicating that each party receives more votes as unemployment increases.

For the democratic candidate, elasticities range from a high of .41 in Nevada and North Carolina to a low of .29 in West Virginia (all elasticities are significantly different from zero at p<.05 except for West Virginia). For the republican candidate, elasticities range from a high of .29 in Arizona and Utah to a low of .18 in Hawaii (all significant except for Hawaii and Vermont). Hence, there is significant variation in how the different states and different parties are affected by changes in unemployment.

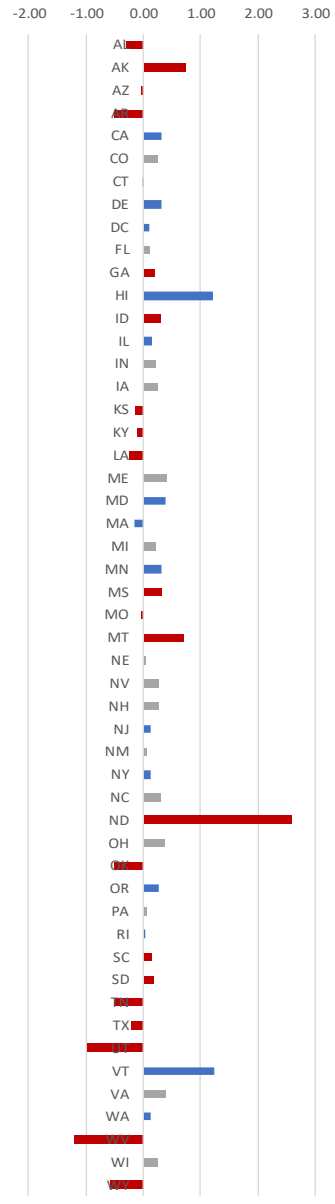
The elasticities for the democratic candidate are higher in every state, as indicated in the "net elasticity" column, with Vermont and Hawaii showing the largest advantage for the democratic candidate and West Virginia the smallest. Hence, as unemployment increases, we see a general shift toward the democratic candidate, but one that varies quite a bit by state.

Table 1

Table 1
STATE-LEVEL ELASTICITIES: POPULAR VOTE

State	Elasticity Democratic Candidate Shrinkage	Elasticity Republican Candidate Shrinkage	Net Elasticity (Democrat-Republican) Shrinkage	Elasticity Democratic Candidate No Shrinkage	Elasticity Republican Candidate No Shrinkage	Net Elasticity (Democrat-Republican) No Shrinkage
AL	**0.36**	**0.27**	0.09	0.27	0.56	-0.29
AK	**0.37**	**0.25**	0.12	1.42	0.67	0.75
AZ	**0.39**	**0.29**	0.10	**0.68**	**0.72**	-0.04
AR	**0.34**	**0.26**	0.08	-0.06	0.46	-0.52
CA	**0.37**	**0.22**	0.15	0.37	0.06	0.31
CO	**0.39**	**0.25**	0.14	**0.51**	0.27	0.24
CT	**0.33**	**0.22**	0.11	0.13	0.14	-0.01
DE	**0.38**	**0.24**	0.14	0.50	0.19	0.31
DC	**0.38**	**0.27**	0.11	0.71	0.61	0.10
FL	**0.38**	**0.27**	0.11	**0.53**	**0.43**	0.10
GA	**0.40**	**0.28**	0.12	**0.64**	**0.45**	0.19
HI	**0.37**	0.18	0.19	0.52	**-0.69**	1.21
ID	**0.37**	**0.24**	0.13	0.48	0.19	0.29
IL	**0.36**	**0.23**	0.13	0.24	0.08	0.16
IN	**0.36**	**0.23**	0.13	0.36	0.13	0.23
IA	**0.37**	**0.25**	0.12	0.50	0.26	0.24
KS	**0.36**	**0.25**	0.11	0.20	0.34	-0.14
KY	**0.35**	**0.25**	0.10	0.16	0.27	-0.11
LA	**0.36**	**0.25**	0.11	0.07	0.33	-0.26
ME	**0.36**	**0.21**	0.15	0.35	-0.06	0.41
MD	**0.38**	**0.24**	0.14	0.58	0.19	0.39
MA	**0.35**	**0.27**	0.08	0.25	**0.41**	-0.16
MI	**0.36**	**0.22**	0.14	0.29	0.07	0.22
MN	**0.38**	**0.25**	0.13	0.58	0.26	0.32
MS	**0.38**	**0.25**	0.13	0.69	0.37	0.32
MO	**0.36**	**0.26**	0.10	0.33	0.36	-0.03
MT	**0.37**	**0.23**	0.14	0.54	-0.16	0.70
NE	**0.37**	**0.25**	0.12	0.36	0.32	0.04
NV	**0.41**	**0.27**	0.14	**0.63**	**0.36**	0.27
NH	**0.38**	**0.25**	0.13	**0.53**	0.26	0.27
NJ	**0.35**	**0.22**	0.13	**0.21**	0.09	0.12
NM	**0.35**	**0.23**	0.12	0.11	0.04	0.07
NY	**0.35**	**0.22**	0.13	0.08	-0.04	0.12
NC	**0.41**	**0.27**	0.14	**0.71**	**0.41**	0.30
ND	**0.37**	**0.24**	0.13	**1.88**	-0.70	2.58
OH	**0.38**	**0.24**	0.14	**0.57**	0.20	0.37
OK	**0.34**	**0.25**	0.09	-0.12	0.39	-0.51
OR	**0.37**	**0.24**	0.13	0.40	0.14	0.26
PA	**0.36**	**0.24**	0.12	0.28	0.23	0.05
RI	**0.34**	**0.23**	0.11	0.18	0.15	0.03
SC	**0.39**	**0.27**	0.12	**0.54**	**0.39**	0.15
SD	**0.37**	**0.25**	0.12	0.46	0.28	0.18
TN	**0.34**	**0.27**	0.07	0.03	**0.55**	-0.52
TX	**0.35**	**0.24**	0.11	0.03	0.23	-0.20
UT	**0.34**	**0.29**	0.05	-0.15	**0.83**	-0.98
VT	**0.39**	0.19	0.20	0.73	-0.50	1.23
VA	**0.40**	**0.26**	0.14	**0.70**	0.32	0.38
WA	**0.37**	**0.25**	0.12	0.43	0.30	0.13
WV	0.29	**0.25**	0.04	**-0.89**	0.30	-1.19
WI	**0.37**	**0.24**	0.13	0.46	0.21	0.25
WY	**0.33**	**0.24**	0.09	-0.46	0.13	-0.59

Net Elasticity No Shrinkage Red/Blue States



Values in bold significant p<.05.

The analysis is repeated without shrinkage in the next three columns of Table 1. Because the data for each state is limited, it is apparent that the degree of shrinkage in the results described above is quite large. The models without shrinkage show much greater variation in elasticities across states; however, without information provided by the overall mean, far fewer are statistically significant at $p<.05$. For the democratic candidate, elasticities range from a high of 1.88 in North Dakota to a low of -.89 in West Virginia.

For the republican candidate, elasticities range from a high of .83 in Utah to a low of -.70 in North Dakota. There is also far greater variance in the net elasticity as indicated in the last column and reproduced in the graphic. Here, we distinguish between Red States (defined for convenience as states with zero Electoral College votes for a democratic candidate over the five elections in the study), Blue States (defined as states with zero Electoral College votes for a republican candidate over the five elections in the study), and neutral or "contestable" states represented by grey bars.

North Dakota, Vermont, Hawaii, Alaska, and Montana have the largest differences in their elasticities for democratic versus republican candidates, whereas several states, including West Virginia, Utah, Wyoming, Arizona, Tennessee, Oklahoma, and Texas actually show larger elasticities for republican candidates than democratic candidates. Examining the Red States, over half of them show larger elasticities for republican candidates than democrats. For states with a strong republican majority in the popular vote, a larger *percentage* change in republican votes represents an even more sizable swing in *actual* votes. Hence, for such states, we see a retrenchment where voters surprisingly turn to their favored party in more difficult economic times.

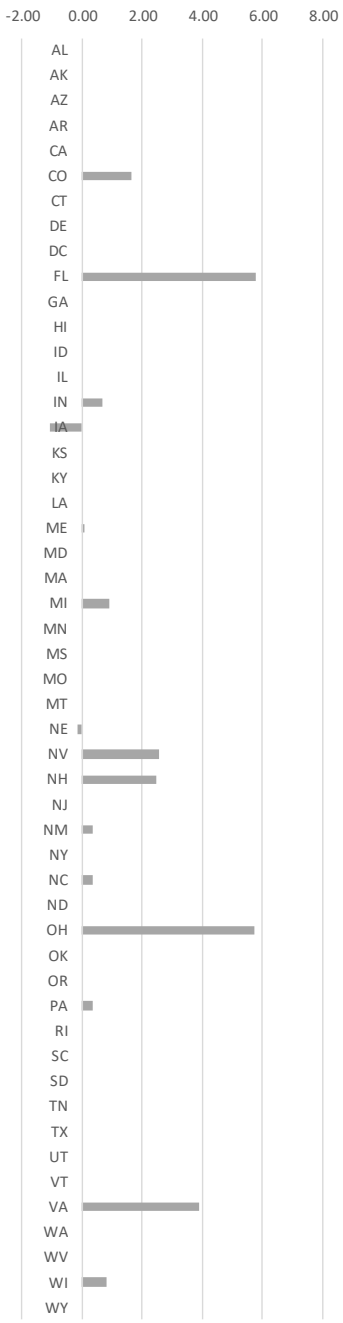
We now turn to the Electoral College votes in Table 2. The key observation is that for a great many states, incremental changes in the popular vote do not affect the winner-take-all Electoral College vote. Hence, for these states, the elasticity between unemployment and electoral votes is zero. Since this elasticity may be computed directly, we estimate the models only on the subset of contestable states where we have some electoral votes cast for each party. In addition, since electoral votes are zero-sum, we present elasticities only for the democratic candidate. The elasticities for the republican candidate are the same, but with the opposite sign.

Table 2

Table 2
STATE-LEVEL ELASTICITIES: ELECTORAL COLLEGE VOTE

State	Elasticity Democratic Candidate Shrinkage	Elasticity Democratic Candidate No Shrinkage
AL	0.00	0.00
AK	0.00	0.00
AZ	0.00	0.00
AR	0.00	0.00
CA	0.00	0.00
CO	1.77	1.65
CT	0.00	0.00
DE	0.00	0.00
DC	0.00	0.00
FL	**2.57**	**5.79**
GA	0.00	0.00
HI	0.00	0.00
ID	0.00	0.00
IL	0.00	0.00
IN	1.54	0.66
IA	1.42	-1.07
KS	0.00	0.00
KY	0.00	0.00
LA	0.00	0.00
ME	1.50	0.08
MD	0.00	0.00
MA	0.00	0.00
MI	1.59	0.91
MN	0.00	0.00
MS	0.00	0.00
MO	0.00	0.00
MT	0.00	0.00
NE	1.68	-0.15
NV	**2.01**	2.57
NH	1.88	2.45
NJ	0.00	0.00
NM	1.66	0.33
NY	0.00	0.00
NC	1.50	0.33
ND	0.00	0.00
OH	**2.33**	**5.73**
OK	0.00	0.00
OR	0.00	0.00
PA	1.61	0.33
RI	0.00	0.00
SC	0.00	0.00
SD	0.00	0.00
TN	0.00	0.00
TX	0.00	0.00
UT	0.00	0.00
VT	0.00	0.00
VA	**2.21**	3.90
WA	0.00	0.00
WV	0.00	0.00
WI	1.66	0.80
WY	0.00	0.00

Elasticity Democratic Candidate No Shrinkage



Values in bold significant p<.05. Republican elasticities are negative of democrat elasticities

For the shrinkage estimates in the first column, we see considerable variance across states, but, as above, the coefficients are significantly adjusted toward the mean because of the small sample size. The largest elasticities are observed for Florida, Ohio, Virginia, and Nevada, all of which are significant at $p<.05$. (the coefficient for New Hampshire is of similar magnitude but not significant). These same states show the largest elasticities when we remove the shrinkage, although the variance between states is greater. Only the elasticities for Florida and Ohio are statistically different from zero at $p<.05$ due to the small sample size.

4. Discussion

The results show that economic conditions impact the popular vote, with the elasticity for the democratic candidate exceeding that for the republican candidate in most states. An exception is that over half of the Red States exhibit retrenchment whereby the elasticity for republican candidates is greater than for democrats. However, the analysis of Electoral College votes shows that unemployment only matters in a few states, with statistically significant effects in just Florida, Ohio, Virginia, and Nevada. Importantly, none of these states show retrenchment toward republican candidates as unemployment increases, so this phenomenon turns out to have no effect on electoral outcomes. The states that matter have, of course, been critical swing states in recent elections. Unemployment in certain very large states such as California, Texas, and New York, surprisingly, has not affected electoral outcomes over this period at all.

In practical terms, the findings suggest two things. First, if a 1% increase in unemployment in the US is spread evenly across states, its impact will be limited to the Electoral College votes of just four states. This will fall far short of its impact on the popular vote across all states, which is consistent with the arguments of Mutz (2018) and Sawhill (2016) cited earlier. Second, republican administrations should be particularly eager to direct economic resources to these four states, since unemployment tends to help democratic candidates. This is optimal for them even if the resources come at the expense of other states.

5. References

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