Socio-Economic Determinants of Voter Participation during Presidential Election Years

I. Introduction

Voting is one of the most important rights that American citizens have. The United States is a Democracy which allows citizens to vote for candidates who will represent them in local, state, and federal government. Voting plays an important role in the lives of Americans as government officials make and implement policies that affect the entire population. However, U.S. voter turnout in the United States during presidential elections is low in recent years (McDonald 2020). For instance, in the 2016 presidential election, only roughly 56% of the voting age population voted (DeSilver 2020). By international standards, U.S. voter turnout is quite low, with voting percentages lower than many developed countries such as Sweden, Germany, France, Canada, etc. (DeSilver 2020).

Within the United States, voter turnout during presidential elections varies on the state level. Some states have greater voter turnout than other states by over 20% (McDonald 2020). Considering citizens of all states are generally impacted by the presidential election, why is there such a disparity in voter turnout by state? There are many possible reasons why certain states have a larger turnout. Although, we seek to determine if there are differences in socio-economic factors in each state that may impact voter participation. Every state has differences such as household income, education, voting laws, etc. that could be affecting the amount of people who choose to vote in presidential elections per state. We are motivated to

---

1 This excludes the 2020 election
discover if differences in socio-economic factors between states has an impact on voter participation within each state during presidential elections.

II. Sample

The sample used in this study is state-level data from all 50 states in the United States. Specifically, results will be based on data from 2012 and 2016. This will allow for 100 observations with each state having one observation from 2012 and the other from 2016 (McDonald 2020). This study assumes presidential elections, out of all U.S. elections, will provide the most insight as more people tend to vote during presidential elections.

III. Dependent Variable

Voter Turnout

The dependent variable for this study is the voter turnout rate per state during a given presidential election year. The voter turnout rate is the percentage of eligible voters who voted in each state. This percentage is determined by looking at the total number of ballots casted in a state divided by the total number of eligible voters within a state. Voter turnout based on the eligible population is a good measure for determining voter participation within a given state (McDonald 2020). During any given election, there are individuals such as children, non-citizens, and sometimes felons who are unable to vote (Potyondy 2020). Voter turnout rates won’t include those types of individuals which then will allow for a more accurate result since the data will be based on who is actually able to vote. The voter turnout rates we will use will be from all 50 states during 2012 and
2016. The data used comes from the United States Elections Project. This project is an online source of information for the United States electoral system (McDonald 2020). It covers significant voter turnout data over many election years as well as voter turnout demographics (McDonald 2020). The project is run by Michael P. McDonald, a professor at the University of Florida (McDonald 2020). It has compiled state voter turnout rates based on the respective eligible populations for the 2012 and 2016 presidential elections. The data in this study is based on two different election years due to data limitations.

IV. Independent Variables

Voter Registration

Voter registration is measured by the amount of people registered to vote before election day. This variable is included to account for omitted variable bias and to determine if voter registration has an impact on voter participation. This data comes from the U.S. Census (Bureau 2016). We hypothesize that a higher voter registration will correspond with higher voter turnout.

Battle State

The margin of victory for a presidential candidate can vary greatly by state (Wasserman n.d.). Some states are won by a margin of over ten percentage points and others are won by one percentage point or less (Wasserman n.d.). In order to account for how these differences may affect voter turnout, we created a battle state variable. This variable looks at the margin of victory by percentage points in each state during 2012 and 2016. This data comes from The Cook Political Report (Wasserman n.d.). We hypothesize
that there will be a negative correlation between this variable and voter turnout. This means that as the margin of victory decreases, voter turnout will increase. The reasoning behind this hypothesis is that more effort and resources will likely be put into states where the margin of victory is predicted to be small, thereby, likely increasing voter turnout.

**Elderly Population**

The elderly population is the amount of people 65 or older in each state. This data comes from 5 year estimates based on the ACS Community Survey from the U.S. Census (Guzman 2017). It provides data for the percent of the population which is 65 or older. By including this variable, we will be able to determine if the percentage of elderly people in a state has an impact on voter registration. It is commonly believed that older people are more likely to vote in an election. Based on this, we hypothesize that a higher percent elderly population will correlate with higher voter turnout.

**Education Level**

Education level can be measured by looking at the percentage of the population which has a certain level of education. Education level will be a variable that measures the percentage of the population that has a bachelor’s degree or higher. The data comes from GEOFRED which is a database that has geographical economic data gathered by the Federal Reserve Bank of St. Louis (St. Louis Fed 2019). GEOFRED has geographical maps that show differences in socio-economic factors by state such as disparities in wealth, education, etc. (St. Louis Fed 2019). This source is quite useful and was chosen since it is able to give an estimation of any state’s educational level during any given year (St. Louis Fed 2019).
It is hard to predict how education level will impact voter turnout. The data will be able to show if a state is on average more “educated,” however, the most educated people are not necessarily the ones who always vote. There is no educational requirement to vote in the United States. However, higher education generally appears to represent more success in one’s career and opportunities for civic engagement. As a result, we hypothesize states with higher education levels will have a higher voter turnout rate. This would be consistent with literature that shows that education tends to have a substantial impact on voter turnout levels especially at the national level (Snyder 2011). However, it is still quite hard to predict based on these election years and it is possible that there might be either no statistically significant result or a negative correlation.

**Race**

In each state, there are differences in the racial demographics in the population. We will be looking at demographics for each state. In order to condense the topic of race into one variable, we will be looking at the percentage of the population which is white. This data comes from the U.S Census which provides demographic characteristics for each state. (Bureau 2016). These characteristics, including the percentage of the state’s population which is white, are based on five year estimates from the American Community Survey (Bureau 2016). By using this data, we will be able to see if race appears to have an impact on voter turnout.

We hypothesize that states with a higher percentage of white individuals will have a higher voter turnout rate. This is based on the belief that non-white citizens, especially marginalized groups, have historically faced many barriers to voting. For example, gerrymandering often impacts minority communities which in turn makes it challenging
for them to get to the polls to vote. Previous literature shows that African Americans tend
to not only vote less but their decision to vote is greatly impacted by voting accessibility
(Dietz 2013). Similarly, it also shows that poverty is negatively correlated with higher
evoter turnout and research suggests that race is correlated with poverty (Dietz 2013).
Taking these racial influences into account, we believe that there will be a positive
correlation between states with higher percentages of white people and states with higher
voter turnout rates.

**Felon Voting Rights**

There is no federal law which controls felon voting rights. As such, there are
differences in felon voting laws between states (Potyondy 2020). These legal differences
are grouped into four different categories. In the first category, felons never lose the right
to vote. In the second category, felons only lose their right to vote while they are
incarcerated. In the third category, felons lose their right to vote until they complete their
entire sentence which includes things such as parole and probation. In the fourth
category, these states require felons do something additional to gain their right to vote
back. This can include waiting for an additional period after their sentence or having to
pay all outstanding court fees to be eligible (Potyondy 2020). For the purpose of this
study, these categories will be grouped together into three different dummy variables.
The first variable will include states in which felons never lost their right to vote or only
lost it while they were incarcerated. The second variable will include states where felons
lose their right to vote until they complete their entire sentence. The third variable will
incorporate felons who lose their right to vote until some additional measure is
completed. The information for these three variables comes from the National
Conference of State Legislatures (NCSL). This bi-partisan organization has information about many state legislatures and their laws, including felon voting rights (Potyondy 2020). The NCSL already has each state grouped into the three categories we will be using as our variables. As our data is from presidential election years 2012 and 2016, we will be categorizing each state based on their felon voting laws during the election, not their current laws.

In total, there are three dummy variables for felon voting rights which will allow each state to be grouped into one category. There are no states which are in overlapping variables. As such, a state will receive a value of 1 for the variable which represents their felon voting laws category and a 0 for the other two categories. For example, in the state of Maine, felons never lose their right to vote. This means that Maine would receive a value of 1 for the first variable and a 0 for the other two variables which account for the other two felon voting rights categories.

The hypothesis for the first variable, felons who never lost their right to vote or gain it back after incarceration, is that these states will have a higher voter turnout rate. The reasoning behind this is that states with these laws likely are also the states which encourage voter participation and have the least number of barriers to vote. This is because states which have made an effort to allow felons to vote likely care a lot about voter suppression. The second variable regarding felon voting rights is the hardest to predict. It is the category of states in which felons gain their right to vote back after the completion of their entire sentence. Our hypothesis is that this variable will either produce no statistically significant result or that it will be somewhat similar to the first variable. This category of law has the most states out of all three and doesn’t tend to tell
us much about a state in comparison to the first variable. As such, we predict nothing surprising from this variable but there is the possibility there is a positive correlation between this variable and higher turnout rates. The hypothesis for the third variable, felons who need to meet some additional requirement to get their voting rights back, is that these states will have a lower voter turnout rate. The thought behind this is essentially the opposite of the first variable. If a state requires felons to partake in additional requirements after the completion of their sentence it is a form of voter suppression. Taking this into consideration, we believe the states with this category are on average more likely to have additional barriers to voting compared to other states. This makes us hypothesize that there will be a negative correlation between high voter turnout rates and states which represent this third category of felon voting rights.

**Presidential Election Years**

Since the data comes from two different presidential election years, the year will also be a dummy variable. Each state will be listed twice totaling 100 observations overall. For the year 2016, each state will receive a variable of 1 and for 2012 they will receive a variable of 0. For example, the state of Florida will get a variable of 1 for 2016 and 0 for 2012.

**Bachelor’s Degree x Year 2016 Interaction Term Variable**

It is possible that the bachelor’s degree variable might have a unique effect in the year 2016 as compared to 2012. The 2016 election was unique in that Donald Trump secured a large share of the vote from white voters with and without college degrees (Galston 2016). His political opponent, Hillary Clinton, lost white college graduates by four percentage points and under-performed among white women with a college degree
(Galston 2016). With this in mind, we believe it is important to test if 2016 was a unique year in coming to any conclusions. As such, an interaction term was created which is a new variable that was created by multiplying the bachelor’s degree variable by the year 2016 dummy variable. This variable will enable us to see if the bachelor’s degree variable had a stronger positive relationship during 2016 than in 2012. We hypothesize that this variable will not produce any statistically significant results because while 2016 had unique margins for who college graduates voted for, we do not think that the overall correlation between the bachelor’s degree variable and voter turnout was much different in 2016 than in 2012.

**Omitted Variables**

Originally, median household income was an included independent variable. Although, due to possible multicollinearity, this variable was excluded. In addition, there’s a possibility voting barriers or time spent voting could be an omitted variable. However, data to accurately measure this was not readily available.

**V. Summary Statistics**

**Descriptive Statistics and Correlation Matrix**

The summary statistics table and correlation matrix can be seen below.
### Table 5.1 Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voter Turnout</td>
<td>0.6098</td>
<td>0.6085</td>
<td>0.0652</td>
<td>0.4321</td>
<td>0.764</td>
</tr>
<tr>
<td>Voter Registration</td>
<td>0.6741</td>
<td>0.6802</td>
<td>0.0585</td>
<td>0.498301</td>
<td>0.828</td>
</tr>
<tr>
<td>Elderly Pop. Median H.I.</td>
<td>54739.18</td>
<td>53318.5</td>
<td>9526.5171</td>
<td>37095</td>
<td>78945</td>
</tr>
<tr>
<td>Bachelors</td>
<td>0.2947</td>
<td>0.289</td>
<td>0.0504</td>
<td>0.186</td>
<td>0.427</td>
</tr>
<tr>
<td>White</td>
<td>0.7763</td>
<td>0.791</td>
<td>0.1267</td>
<td>0.249</td>
<td>0.953</td>
</tr>
<tr>
<td>Never lost</td>
<td>0.31</td>
<td>0</td>
<td>0.4648</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lost complete</td>
<td>0.45</td>
<td>0</td>
<td>0.5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lost additional</td>
<td>0.24</td>
<td>0</td>
<td>0.4292</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Year 2016</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5025</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Battle State</td>
<td>0.1714</td>
<td>0.1633</td>
<td>0.1140</td>
<td>0.00223</td>
<td>0.4804</td>
</tr>
<tr>
<td>Bachelors x Year 2016</td>
<td>0.1525</td>
<td>0.104</td>
<td>0.15733477</td>
<td>0</td>
<td>0.427</td>
</tr>
</tbody>
</table>

### Table A1: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Voter Registration</th>
<th>Elderly Pop.</th>
<th>Median H.I.</th>
<th>Bachelor's Degree</th>
<th>White</th>
<th>Battle State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voter Registration</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elderly Pop.</td>
<td>0.07932</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median H.I.</td>
<td>-0.2203</td>
<td>-0.2147</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>-0.0675</td>
<td>-0.0783</td>
<td>0.8264</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>0.4328</td>
<td>0.2197</td>
<td>-0.2330</td>
<td>-0.04</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Battle State</td>
<td>-0.2821096</td>
<td>-0.0968</td>
<td>0.08137895</td>
<td>-0.07288</td>
<td>-0.0356</td>
<td>1</td>
</tr>
<tr>
<td>Bachelors x Year 2016</td>
<td>-0.0777</td>
<td>0.1918</td>
<td>0.4468</td>
<td>0.3594</td>
<td>-0.0376</td>
<td>-0.0380</td>
</tr>
</tbody>
</table>
VI. Regressions and Results

Regressions

Two regressions were run in coming to these results. The first regression consisted of all of the independent variables while the second dropped median household income. The main regression which will be referenced, and can be seen below in Table 6.1, is the one that did not include median household income. The reason for this is to account for possible multicollinearity. The correlation matrix is available in Table A1 above. If a correlation is > 0.8 then severe multicollinearity may be present. As the table shows, there is high correlation between percent of the population with a bachelor’s degree or higher and median household income. This is not surprising since as literature suggests, having a degree tends to increase income on average (Snyder 2011). Based on multicollinearity and the fact that median household income did not produce any statistically significant results, this variable was excluded from the main regression.
Bachelor's Degree Variable

The bachelor’s degree variable is statistically significant at the 0.001 significance level. It also has the largest positive coefficient in this regression. For all states, this coefficient implies that a one percentage point increase in bachelor’s degree is associated with a 0.75 percentage point increase in voter turnout. Which is to say, that states with a higher percentage of
individuals with a bachelor’s degree or higher tend to have a higher percent of voter turnout. This is consistent with the original hypothesis that states with higher education levels would likely have a higher voter turnout. The likely explanation for this is that educated individuals have more opportunities for civic engagement and political learning which would be consistent with previous literature (Snyder 2011).

Race Variable

The race variable measured by percent white is statistically significant at the 0.001 significance level. It has a smaller but moderately sized positive coefficient. For all states, this coefficient implies that a one percentage point increase in percent white is associated with a 0.11 percentage point increase in voter turnout. This means that states with a higher percentage of white individuals tend to have a higher percent of voter turnout. This is consistent with the original hypothesis that states with a higher percentage of white individuals will have a higher voter turnout rate. One possible explanation for this is that white individuals face less barriers to voting which is consistent with the literature referenced earlier (Dietz 2013).

Voter Registration and Battle State

The voter registration variable is statistically significant at the 0.001 significance level. It has a large coefficient. For all states, this coefficient implies that a one percentage point increase in voter registration is associated with a 0.51 percentage point increase in voter turnout. This is consistent with our original hypothesis that higher voter registration would correlate with higher voter turnout. In addition, the battle state variable is statistically significant at the 0.001 significance level. It has a smaller but moderately sized negative coefficient. For all states, this coefficient implies that a one percentage point increase in the margin of victory is associated with
a 0.18 percentage point decrease in voter turnout. This is in line with our original hypothesis that a smaller margin of victory would correlate with higher voter turnout and vice versa.

**Elderly Population and Interaction Term**

The elderly population variable was not found to be statistically significant. This is inconsistent with our original hypothesis that a higher percent elderly population would correlate with higher voter turnout. It is possible that we do not have enough data to produce a significant result or that elderly population only correlates with higher voter turnout in a select number of states. The interaction term was not found to be statistically significant either. This is consistent with our original hypothesis that while 2016 was a unique year, the bachelor’s degree variable did not have a stronger positive relationship during 2016 than in 2012.

**Felon Voting Rights and Time Dummy Variables**

The felon voting rights variables and the year variable were all dummy variables in this regression. None of these variables were found to be statistically significant under conventional significance levels except one but none of their coefficients are large enough to be significant. This is inconsistent with the hypothesis that states under the “never lose their right” to vote category would have a higher voter turnout. Similarly, it is inconsistent with the hypothesis that there would be a negative correlation between states under the “lost their right” to vote until additional measures are completed category and states with higher percent voter turnout. The only variable under felon voting rights that is somewhat in line with the original hypothesis is the second category, “lost until sentence is complete”, since the prediction was that it may produce no statistically significant result. Based on these results, it appears as though felon voting rights
and the year (2012 or 2016) had little effect on the percent of voter turnout in each state. There are a few possible explanations for this. One explanation is that felon voting rights have little to no influence on the percent voter turnout in each state. Another possible explanation is that there is not enough data from multiple years to produce a significant result.

**VII. Conclusion**

The results indicate that education level, race (%white), and voter registration have a statistically significant positive correlation on percent voter turnout. It also indicates that the battle state variable has a statistically significant negative correlation on percent voter turnout. It suggests that race, voter registration, how educated people are, and battleground states have an impact on people’s decision to vote.

Moving forward, it may be possible other independent variables and more yearly data could lead to more statistically significant results. Once data for the 2020 election and U.S. Census becomes available, it could aid in this research. Overall, this regression model produces promising results, but more data would likely aid in better explaining the socioeconomic determinants of voter turnout.
References


Snyder III, R. E. (2011, December). The impact of age, education, political knowledge and political context on voter turnout. Retrieved November 03, 2020, from
  https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=2401&context=thesesdissertations

  https://geofred.stlouisfed.org/map/?th=bupu

  https://cookpolitical.com/presidential-results-year