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The Effect of Electoral Competitiveness on Voter Turnout

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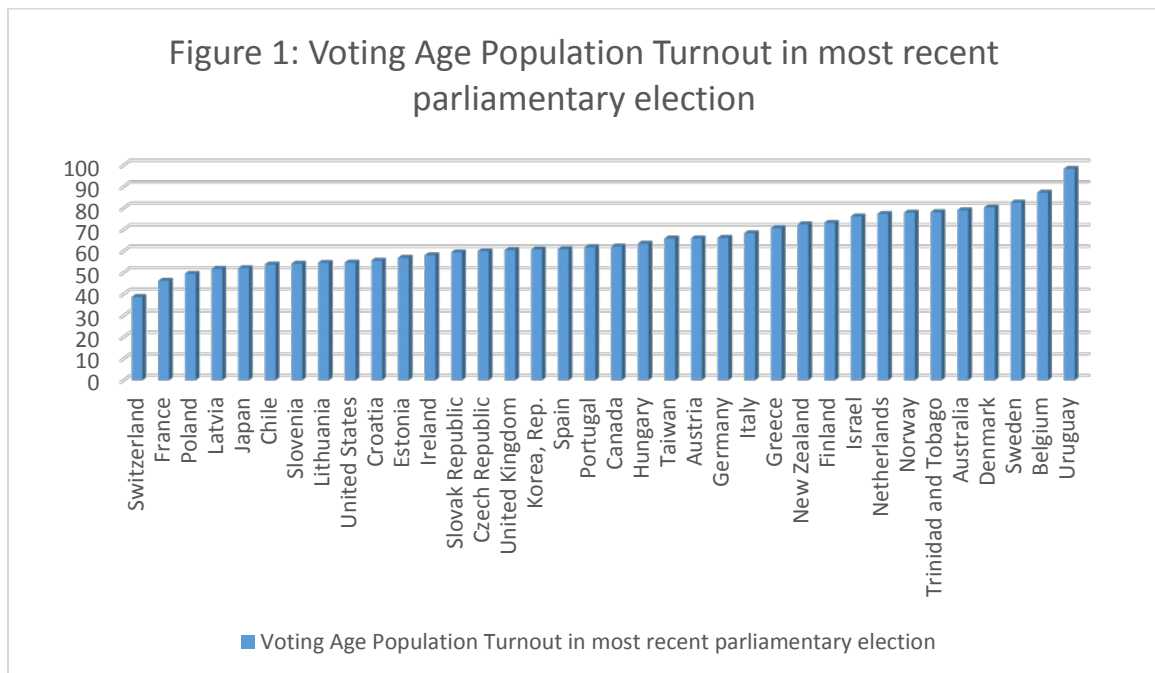*Western Washington University*

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Joel Jordan
Political Science Honors Thesis
Western Washington University

Introduction

In the most recent midterm congressional elections of 2014, over 83 million people entered the polls to vote for the 435 people who would pass legislation for the next two years (McDonald, 2016). These 83 million people, however, only account for 33% of our voting age population. Explaining the 33% voter turnout for legislative elections in the United States is of interest for three primary reasons. First, the United States has a substantially lower voter turnout than most other electoral democracies in the world. Figure 1 shows the voting age population turnout across 36 countries (IDEA, 2017). These countries contain more than one million people, are classified by the world bank as "High Income," and are classified by Freedom House as "Free" (CIA, 2015)(World Bank, 2017)(Freedom House, 2017). Of note is the fact that even in our 2016 Presidential election, our turnout ranked 28th of the 36 countries making it one of the lowest voter turnouts among large, free, and developed countries.

Figure 1: Voting Age Population Turnout in most recent parliamentary election

Institute for Democracy and Electoral Assistance. "Voter Turnout Database." http://www.idea.int/data-tools/data/voter-turnout.

Furthermore, turnout in midterm elections is falling in the United States. Figure 2 shows turnout in midterm elections since 1946. The falling voter turnout is of particular concern due to the fact that the 2014 midterm elections saw the lowest voter turnout in United States midterm elections in this entire 68-year period (IDEA).

Figure 2: Voting Age Population Turnout in midterm elections from 1946-2014
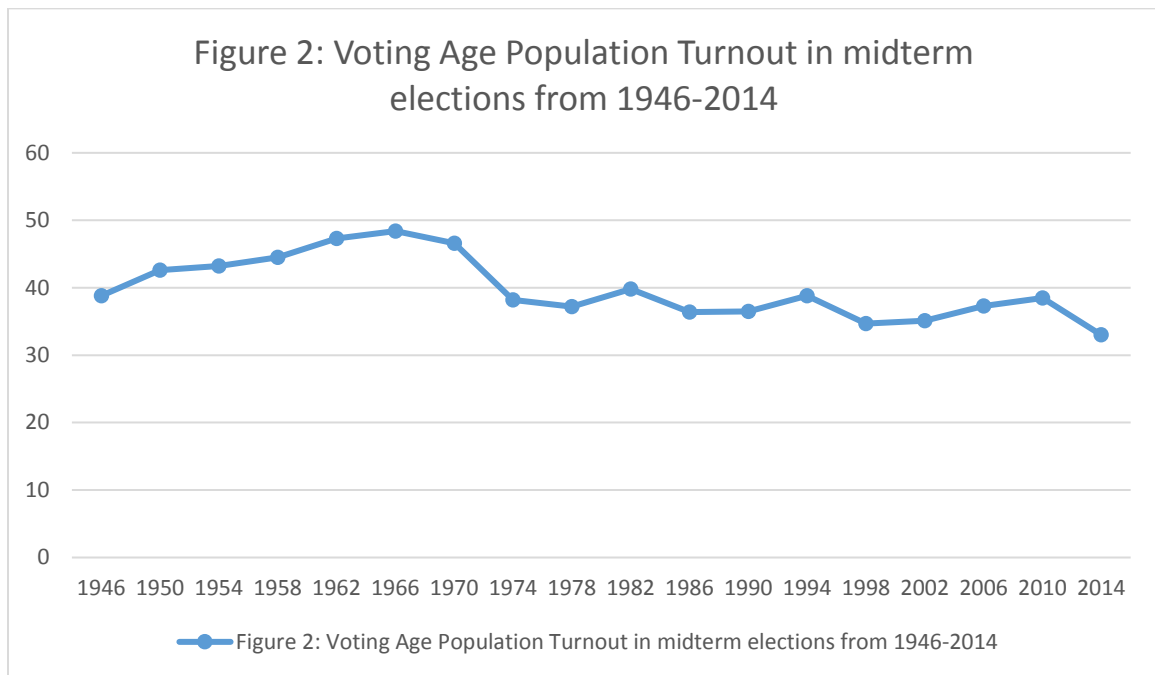
Institute for Democracy and Electoral Assistance "VAP Turnout." http://www.idea.int/data-tools/question-countries-view/524/295/ctr.

Low voter turnout will not necessarily lead to a different outcome than higher voter turnout but it does indicate the connection, or lack thereof, that Americans feel to their political system. In other words, a 33% voter turnout may be indicative of a lack of belief in the ability for citizens' voices to carry into political action. Therefore, it is important to determine what made those 83 million people feel as though their voice mattered and what made the 168 million people who did not vote feel as though it did not. Furthermore, higher voter turnout creates more legitimacy in the democratic process. Below a certain threshold, we must ask whether the results of an election represent the will of the people. Whether this threshold is 5% turnout, 10%, or 20%, it is of utmost importance that we determine what causes low voter turnout in the U.S. as to avoid the fall of legitimacy in our democratic process. This paper will seek to add to the

literature on this explanation. To do this, we will look at several factors that affect turnout including campaign expenditures, the closeness of election results, and incumbency to evaluate each of their potential effects on turnout in the 2010 and 2014 House elections. We will discuss the prior literature on each of these subjects including alternative hypotheses. Following this, we will discuss the data collected and the methods used for collecting it. Finally, we will discuss the findings of multiple Ordinary Least Squares Linear Regression models and the implications of those results.

Literature Review

Voter Turnout

Before we begin our analysis of literature on how competitiveness affects turnout, we will first look at literature that deals with what affects voter turnout in general. Blais (2006) found through a meta-analysis that factors affecting voter turnout can be broken down into three categories: voting institutions, socioeconomic environments, and party systems and electoral outcomes. Of all research done to this point, Blais points out that there is a gap in the knowledge of how competitiveness affects turnout.

Timpone (1998) found that several factors have a significant effect on voter turnout. The factor of living in the South (Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia) had a very significant negative effect on voter turnout. Factors such as age, education, how long one has lived in their home, church attendance, religious group membership, marital status, home ownership, strength of party identification, and candidate differential had a very significant positive effect on voter turnout.

Finally, the earlier a registration closing date was had a moderately significant negative effect while income had a moderately significant positive effect.

Finally, Gray and Caul (2000) found factors relating to group mobilization caused a decline in voter turnout throughout developed democracies in the second half of the 20th century. They found that in elections from 1950 to 1997, the change in size of the voting age population and change in number of parties had an extremely significant negative effect. The change in the voting age population that is between the ages of 30 and 69 and change in higher education had very significant positive effects. In other words, as the age group for 30-69 grew and as the number of people who had high education grew, turnout also grew. The change in labor party (liberal party of the country; in the case of the U.S. this would be the Democratic Party). vote share, change in union density, and change in electoral competitiveness all had moderately significant positive effects.

Campaign Expenditures

One of the primary measures we will use to evaluate electoral competitiveness is campaign expenditures. This makes it invaluable to review prior literature which looks at campaign spending and voter turnout. Matsusaka and Palda (1999) found that campaign expenditures per capita had a significantly positive effect on voter turnout in the Canadian elections of 1979 when assessed with more than three dozen other variables.

Further studies in the United Kingdom found other significant results. Pattie and Johnston (1998) found that campaign spending by the United Kingdom's Labour Party at the constituency level had a significant effect on voter turnout. Other factors that were significant were party affiliation, the strength of party affiliation, age, housing tenure, the amount that voters cared

about the election, and the electoral differential. This is particularly significant as while the United Kingdom's governmental system is parliamentary, Members of Parliament are elected in a single-member district plurality system, the same system as the United States House of Representatives. This is relevant to this study as we focus on explaining voter turnout at the congressional district, a unit of analysis that is equivalent to the United Kingdom's constituencies for Parliament.

Matsusaka (1995) offers an alternative explanation by suggesting that voters are not necessarily motivated through campaign expenditures, but rather through pressure from political elites and that campaign spending is simply a sign of elite mobilization. This would suggest spuriousness in the campaign spending variable and bring into question whether spending or elite pressure is contributing to turnout. The results of these studies provide a consistent prediction that electoral competitiveness, namely campaign spending, has a significant effect on voter turnout.

Factors within U.S. House elections

Several factors relating to House elections will also be considered in this study. Among these are the year of the election, the number of candidates within that election, whether an incumbent is running, whether both major parties have fronted a candidate in the election, and if those candidates were completely unopposed. For the purposes of this paper, these will be termed collectively as *internal election factors*.

The election year is a vital variable to take into account as, even descriptively, there was a six percent drop in voter turnout between 2010 and 2014. Boyd (1981) attributes a long-term drop in voter turnout to not only an aging population, but to an increased number of total

elections. He cites six states in which the average number of federal, state, and local elections was 2.2 per year. Boyd argues that holding elections this frequently creates a system which ensures that no one will vote in every election. Alternatively, the Conservative Tea Party had high mobilization in 2010 which may have contributed to 2010's high turnout.

The number of candidates is used as a control for total expenditures as, logically, more candidates in an election would lead to more spending. Incumbency is also a control for expenditures as, according to Abramowitz (1991), the cost of running for House elections has increased and the ability for House challengers to raise funds adequate to effectively challenge incumbents has dropped. Partial opposition (when only one major party fronts a candidate) and complete lack of opposition (when only one candidate is running) are also included as controls for turnout as, logically, if there is only one party or only one candidate, voters would not be as incentivized to vote. These variables are also indicators of competition. If there is only one candidate, that candidate is going to win. If there is only one major party, the third-party candidate is extremely unlikely to win.

Other electoral factors

Several factors relating to other ballot issues as well as how elections are administered will also be considered. These variables include Senate races, gubernatorial races, ballot initiatives, minimum wage initiatives, mail-in voting, and same-day voter registration. These factors, collectively, will be termed as *external election* variables.

The first external factors we will consider are the other elections present within the state. Cox and Munger (1989) found that expenditures in both Senate races and Gubernatorial races had a significant effect on voter turnout in House elections. This analysis would suggest that the

presence of Senate and Gubernatorial races would increase turnout as for there to not be a Senate or Gubernatorial race would equate to $0 in spending in each of these races.

Other external variables to consider revolve around ballot measures. Tolbert et al (2001) found that initiative states had an estimated 7% to 9% increased turnout in midterm congressional elections and 3% to 4.5% in presidential elections. This would suggest that the presence of the Citizen Initiated Ballot Measure would be an important factor in driving voter turnout. Minimum wage was added as a control due to the fact that, as Donovan et al (2009) point out, initiatives like minimum wage are more likely to garner media attention due to their controversy.

The final grouping of external variables to consider are election administration variables. Southwell and Burchett (2000) found that mail-in voting is a significant stimulus to voter turnout with vote-by-mail elections attributing to a 10% increase in voter turnout. Finally, Brians and Grofman (2001) highlight the fact that states without a registration closing date saw a predicted 7% boost in voter turnout. These analyses suggest that election administration is a key factor in boosting turnout.

The Effect of Demographics on Voter Turnout

Demographics become an important issue to consider when looking at voter turnout. For the purposes of this paper, demographics will include sex, age, and race measured at the district level. Timpone (1998) found that gender had a significant effect on voter turnout among recent movers. He found that female recent movers were more likely than male recent movers to vote in elections between 1980 and 1988 but that there was no significant effect when looking at the full

electorate. Due to this, it may be prudent to expect a female variable to have a positive effect on voter turnout that is insignificant.

Age is also a significant factor to account for. Olsen (1972) found that age had a significant effect on the likelihood of someone to vote and that as age increased, so did that likelihood. He found that a one standard deviation increase in the age of a voter correlated to an increase in likelihood to vote by .25 standard deviations in 1966, .17 standard deviations in 1964, and .12 standard deviations in 1960. This would suggest that over time, age has become an even more significant factor in determining whether or not someone will choose to vote.

Yet another variable that is invaluable to consider when looking at voter turnout is race. Hill and Leighley (1999) found that racial diversity has a significantly negative effect on voter turnout when looking at the states. They found that in the 1950, 1952, 1980 and 1992 elections, racial diversity was a significant predictor of voter turnout. In fact, they found that in 1992, a one standard deviation increase in racial diversity corresponded to a .32 standard deviation drop in voter turnout. Hill and Leighley use an index of ethnic fractionalization to measure racial diversity which, while it is not strictly the percentage of the population that is non-white, they point out is highly correlated with the percentage of the population that is non-white.

The Effect of Economics on Voter Turnout

Three economic variables will be considered when looking at voter turnout: unemployment, healthcare coverage, and education. Burden and Wichowsky (2012) used a state-level regression model to find that the state's unemployment rate had a significantly positive effect on voter turnout. This effect was so strong that every single percentage point increase in the unemployment rate corresponded with a .4% increase in voter turnout. Burden and

Wichowsky also conduct a time measurement model to find that change in unemployment between 1976 and 2008 was also a significant predictor of change in voter turnout between 1976 and 2008.

Rosenstone (1982) found that a person's economic adversity also has a negative effect on voter turnout. For this reason, healthcare coverage was selected as a term as lack of heath care is a substantial economic adversity. Finally, Sondheimer and Green (2010) found evidence through a cohort study to support a causal relationship between years of education and voter turnout. They found a positive relationship which indicates that as years of education go up, so does voter turnout.

Hypothesis

This paper tests the hypothesis that electoral competition had a significant effect on Congressional District-level voter turnout in U.S. House elections in 2010 and 2014, even after controlling for several other factors. In particular, this tests the hypothesis that spending and uncontested races have an effect on turnout. This is an important area to study as competition can be adjusted across place and time. Demographic variables which effect turnout such as age, race, and education are, for the most part, fixed. This makes the effect caused by demographic variables valuable as a descriptor. In other words, if large minority communities are a significant factor in reducing voter turnout, this gives us a way forward through outreach efforts to those communities. However, the overall number of people who identify as a minority is not going to change substantially over time. Competition, however, is a variable which can be influenced to effect positive change. Ideally, margin of victory would be enough to explain rises and falls in voter turnout in association with competition. However, there is a temporal issue with this variable. Margin of victory cannot affect voter turnout because citizens choose whether to vote before the results of the election are determined. Rather, margin of victory is used as an indicator of how competitive the election was. A district that is competitive will see a lower margin of victory and a district that is not will see a higher one.

To account for the temporal issue of using margin of victory, this paper looks at the amount of money spent by all candidates. This adds a more accurate temporality to the hypothesis as campaign spending occurs during an election. This would imply that political parties and candidates assess their competition and their likelihood of success. Campaigns which have a high chance of success will not need to spend as much money and campaigns with a low probability of success will not have the resources to spend money. If the probability of success is

moderate, however, campaigns would be more inclined to spend money to sway voters and get people to the polls.

Methods

Variables Used

The dependent variable used for this study is Congressional District-level voter turnout. Depending on the base that is used to calculate voter turnout, the 83 million people who voted in 2014 can create many different measures. The most inaccurate of these uses the basis of our total population which, in 2014, was 318,198,163. By this measure, the voter turnout of the 2014 elections would have been 26%. However, this measure distorts the voter turnout, primarily by including those who are under 18 and, as such, are not old enough to vote. Taking out the 73 million people under the age of 18, we are left with roughly 245 million people. This population is referred to as our Voting Age Population or VAP. This would indicate that our VAP turnout was roughly 33%. This is, however, still not quite correct as it still includes non-U.S. citizens, who also cannot vote. Once these 20 million people are removed, we are left with 224 million U.S. citizens of voting age. This will be referred to as the Citizen Voting Age Population or CVAP. Using only these 224 million Americans as a basis, our CVAP turnout is roughly 37.0%. One, final adjustment can be made for the 2.7 million non-eligible citizens over the age of 18, such as convicted felons, leaving us with a Voting Eligible Population, or VEP, of 222 million eligible voters. By this measure, our final voter turnout for 2014 was 37.4%. This indicates that only 37.4% of all people in the United States who legally could have voted chose to vote.

The U.S. Census Bureau provides most of the Demographic information required at the Congressional District level to test the hypothesis. The first step of the process began by taking the number of people in each district over the age of 18, providing each district's VAP. Then, the number of people within the district who were not U.S. citizens and were over the age of 18 were subtracted from the VAP, giving the CVAP. The lowest administrative level for which the VEP

is available is at the state level from Michael McDonald's U.S. Election Project. Dividing the VEP in each state by the total CVAP in each state provides the VEP rate for the state. Using this, we estimate the VEP in each district, a measure henceforth referred to as EVEP. The total number of people who voted in each district was then divided by the EVEP to determine EVEP turnout.

The focal independent variable measured was campaign spending in each district. Campaign spending was measured through specifically focusing on total campaign expenditures by all candidates. There is a total of 17 variables that will be controlled for in this study. Electoral factors that were considered include the number of candidates running, whether an incumbent was running, whether both major parties had fronted a candidate, and whether the election was contested. Other ballot and institutional factors considered were if there was a senate or gubernatorial race in the state, the number of citizen initiated ballot measures, whether a minimum wage was present on the ballot, the presence of mail-in voting, and the presence of same-day voter registration. Demographic factors were also considered, including the sex ratio of the district, median age of the district, racial makeup of the district, and the percentage of the district which was married. Finally, economic factors considered include the Congressional District-level unemployment rate, health care coverage, and Bachelor's degree attainment. Variables that were significant in other studies such as strength of affiliation with party, church attendance, and union density were not included due to lack of data on the subject at the Congressional District level.

Data Collection

The Federal Election Commission reports vote totals and campaign expenditures for each Congressional District. One dataset was assembled for 2014 and one was assembled for 2010. These datasets included spending and vote totals by candidate for all candidates who ran in primary or general elections. For this study, candidates who did not run in the general election were excluded and all other candidates were aggregated into their respective congressional districts. Final spending totals were broken down into Democrat, Republican, and Other with a final Sum provided as well.

The other major source of data for this study was the United States Census Bureau. Beginning in 2010, the Census Bureau released demographic, economic, housing, and social data at the Congressional District level. The data for this study comes specifically from the Census Bureau's American Community Survey which collects data in 1-year, 3-year, and 5-year intervals. For this study, 1-year estimates were used as these estimates are the most accurate for areas which contain more than 20,000 people. Along with all demographic and economic controls, the census also provides the citizen voting age population.

The final group of control variables were those relating to other elections and election administration. For other elections, states which included Senate and gubernatorial races were identified by *New York Times* accounts from each election year, while information about citizen initiated ballot measures and minimum wage initiatives was obtained from Ballotpedia. Finally, the presence of mail-in voting and same-day voter registration was obtained from the National Conference of State Legislatures.

Data Merging and Computation

The two main datasets from the FEC and Census Bureau were merged into an SPSS file. All data that came from the *New York Times*, Ballotpedia, and National Conference of State Legislatures were entered manually into the file. Several variables were then computed to create workable data.

Several variables were created and modified for internal election indicators. The first of these variables was the year of election. An election which occurred in 2014 was coded as a 1 and an election which occurred in 2010 was coded as a 0. The total number of candidates was aggregated from each congressional district. Incumbency was also coded into a dichotomous variable in which an election which had an incumbent running was coded as a 1 and one without an incumbent was coded as a 0. Partial opposition was coded from the number of parties running. If an election had both a Democrat and a Republican running in the general election, it was coded as a 0 while if only either a Democrat or a Republican was running, it was coded as a 1. Unopposed elections were coded from the number of candidates. Elections which had only one candidate were coded as a 1 and elections which had multiple candidates were coded as a 0. The reference category for the dichotomous variables is a 2010 election which featured multiple candidates of multiple parties and no incumbent.

External electoral factors were also computed and added into the dataset. Senate elections were coded in a dichotomous manner with states which contained senate elections being coded as a 1. Gubernatorial elections were also coded in this manner. Citizen initiated ballot measures were pulled from the total number of ballot measures to utilize the theorized higher turnout which they provide. Minimum wage initiatives were then pulled from this variable with states voting on a minimum wage initiative being coded as a 1. Mail-in voting and same-day voter

registration were also dichotomized, coding states with the added measure as a 1 if it contained the measure and a 0 if it did not.

Demographic variables which were obtained from the U.S. Census Bureau were computed from basic counts. While the Census Bureau does provide percentages, these are rounded to only one decimal place. Computing from the counts allowed for more precise data. For example, the sex ratio of the district was computed by dividing the female population by the total population giving us a percentage. This method was also used for determining the racial makeup of the district. Median age was the single demographic variable which was taken straight from the Census Bureau.

Economic variables were also obtained and/or computed from Census Bureau statistics. The district-level unemployment rate was created through dividing the number of people unemployed (not employed but are looking for work) by the civilian labor force. This yields a number that is different from many unemployment counts which simply divide the unemployed by the population 16 years and over. The benefit of using the civilian labor force as a basis for determining the unemployment rate lies primarily in that it not only excludes those who are under the age of 16, but also those who are in school, retired, or in the Armed Forces. Beyond unemployment, healthcare coverage was also calculated. This number is simply those who have healthcare coverage divided by the total civilian non-institutionalized population. The final economic variable used was bachelor's degree attainment. This measurement includes all those within the district who hold a bachelor's degree and those who hold a graduate or professional degree and divides that number by the total population 25 years and over. This has benefits as it excludes most of those who are currently enrolled in a school from being considered which would skew the data in a negative direction. The largest limitation with this measure is that it

does not include those who are between the ages of 18 and 25. These are people who have the ability to vote but have yet to "receive" an educational attainment as they are not 25.

Data Cleaning

After data collection, merging, and computation, the data needed to be cleaned. As the data was merged and computed rather than entered manually, the cleaning process was conducted through a spotting method. 10% of the dataset or 87 cases were somewhat randomly collected from the dataset. An equal number of 2010 and 2014 cases were gathered as well as a proportionate number of cases in each region (Midwest, Northeast, South, West). For merged variables, each of the cases was compared to the number reported in the source dataset. For example, median age was checked across the 87 cases in the original Census Bureau dataset to ensure that the median age matched up. Computed variables were cleaned through finding the source data for each case and then manually working through the math to ensure that the value matched. Frequencies were also run on all variables to ensure that all values were within expected parameters. This was mainly to ensure that no percentage values came in as negative or over 100%.

Measuring Electoral Competitiveness

The simplest way of measuring electoral competitiveness is looking at the election outcome. This is determined through the margin of victory: the winning candidate's vote share minus the closest runner up's vote share. This is a measure which is pointed to in the prior literature as being a significant predictor of voter turnout. Despite the conclusive documentation, there is a major theoretical problem with using the margin of victory to predict voter turnout: the

number of votes that a candidate receives occurs after voters decide to vote. This presents a temporal issue and prevents us from using the margin of victory as a focal independent variable in any analysis. Because of this, another variable must be used.

Campaign expenditures offer this alternative. With a correlation to the margin of victory of -.434, total campaign expenditures show a moderately negative correlation. This correlation also holds significance at the .01 level indicating that we can generalize with greater than 99% confidence that the variance is not random. This would indicate that expenditures can be used as a proxy for the electoral competitiveness.

Using campaign expenditures also solves the temporal issue. With expenditures, a significant value can methodologically be generalized due to the fact that expenditures occur before voters come out. The primary limitation with this measure is that the amount of money spent included that of primaries. Due to this, a general election could have been widely uncompetitive but would be labeled as competitive if it had a competitive primary. The number of these cases, however, was deemed as having an insignificant effect.

Analysis Method

Because we have a mixture of both dichotomous and interval level variables, this paper utilized a Multiple Ordinary Least Squares Linear Regression Model. There are several benefits to using linear regression. The first is that linear regression provides us with the amount of variance that is explained by all variables. This allows us to track across models how each additional variable affects the overall explanation of variance. The second benefit of linear regression is that it can provide us with an estimated effect on the dependent variable for every

one-unit increase in the independent. When looking at campaign expenditures, this allows us to determine how much money it costs to bring each new person to the polls.

There are also several benefits to using multiple models. The primary benefit is the ability to track how certain variables or, in this case, groups of variables affect the dependent variable. We can track the explained variance, which will tell us how much of an effect each group has; significance, which will allow us to narrow down what causes variables to become insignificant or significant; and coefficients, which can determine how the size of the effect changes over the model.

This analysis will utilize five individual linear regression models. All regression models will be based on our dependent variable: voter turnout. The first model will use only one independent variable: total campaign expenditures. To reiterate, this measure will be the total amount of money spent by all campaigns within a congressional district. The second model will add in the five internal election variables. This will take into account variances created by the year of the election, total number of candidates running, incumbency, partial opposition, and lack of opposition. The third model will add in the six external election variables. This looks at variances created by U.S. Senate races, gubernatorial races, the number of citizen initiated ballot measures, if a minimum wage measure is on the ballot, mail-in voting, and same-day voter registration. The fourth model will add in the three demographic variables. For measuring sex ratio, we will use the female population rate. Which sex to use for this measurement is arbitrary as (for the Census) those who are not female are male and those who are not male are female. The measurement for median age will be the same as discussed before. Finally, racial makeup will be determined primarily by the percentage of the district that identifies as non-Latino White. This measurement is used as this variable has more variance and is more normally distributed.

The final measures added into the fifth model will encompass our economic variables. These include the unemployment rate, healthcare coverage rate, and bachelor's degree attainment rate. Models will be reported to include all variables, the constant, unstandardized coefficients, standardized beta coefficients, significances, and explained variance.

Data

Overall, this study utilized 20 different variables to consider the effect of expenditures on turnout. As far as our dependent variable is concerned, voter turnout ranged from 8.16% in Texas's 29th District in 2014 to 76.0% in New York's 29th District in 2010 and had a mean of 37.7% with a standard deviation of 9.6%. The median of the dataset was 38.4% in Arkansas's 1st District in 2014 indicating a very slight negative skew. This variable is incredibly normally distributed, as seen in Figure 3. Geographic variances can also be seen in the data in Figure's 4 and 5.

Looking at the focal independent variable of total campaign expenditures, expenditures ranged from $760.54 in Indiana's 3rd District in 2014 to $16.5 million in Minnesota's 6th District in 2010 and had a mean of $2.0 million with a standard deviation of $2.0 million indicating a high variance in the dataset. The median of the variable occurred in Michigan's 12th District in 2014 which spent $1.2 million indicating a strong positive skew. Geographic variances can also be seen in Figure's 6 and 7.

Controls are once again broken down into four categories, internal election factors, external election factors, demographics and economics. Looking at internal election factors, the number of candidates ranged from one in 12 different districts to 13 candidates in Louisiana's 6th district in 2014. The mean of the variable was 3.8 candidates with a standard deviation of 1.5 candidates. The median of the variable occurred in many districts with four candidates indicating a strong negative skew. For other variables, 45% of races had an incumbent running in them, 17% of races had only one major party running, and 1.4% of cases were completely unopposed. For external election variables, 62.5% of elections were on the same ballot as a Senate election, 79.3% were on the same ballot as a Gubernatorial election, 3.1% of cases were on the same

ballot as a minimum wage measure, 4.9% of cases were in mail-in voting states, and 17.9% of cases were in same-day voter registration states. Citizen initiated ballot measures ranged from zero in many states to nine in California.

Female population rates ranged from 45.1% in New York's 11th District in 2010 to 54.9% in Pennsylvania's 11th District in 2014 with a mean of 50.0% and a standard deviation of 1.3%. The median of the dataset was in multiple cases at 50.0% which indicates almost no skew. The median age ranged from 26.9 in Utah's 3rd District in 2010 to 52.8 in Florida's 3rd District in 2014 with a mean of 37.7 and a standard deviation of 3.5. The median case occurred in multiple cases at 37.7 indicating very little, if any, skew. The percentage of the population which identified as non-Latino white ranged from 2.0% in New York's 7th District in 2014 to 96.5% in Kentucky's 5th District in 2010 with a mean of 62.9% and a standard deviation of 22.9%. The median case occurred in Illinois's 8th district and Arizona's 8th district, both in 2010, at 68.4% indicating a moderate negative skew.

The unemployment rates ranged from 3.0% in North Dakota in 2014 to 27.5% in Michigan's 14th District in 2010 with a mean of 9.1% and a standard deviation of 3.2%. Many cases occupied the median 8.7% which indicates a slight positive skew. Healthcare coverage ranged from 58.9% in Texas's 29th District in 2010 to 97.3% in Massachusetts's 4th District in 2014 with a mean of 86.5% and a standard deviation of 5.8%. The median healthcare coverage rate was 87.3% indicating a slight negative skew. Finally, Bachelor's degree attainment ranged from 7.1% in Texas's 29th District in 2010 to 71.8% in New York's 4th District in 2014 with a mean of 28.8% and a standard deviation of 10.1%. The median was 27.1% indicating a small negative skew in the data.

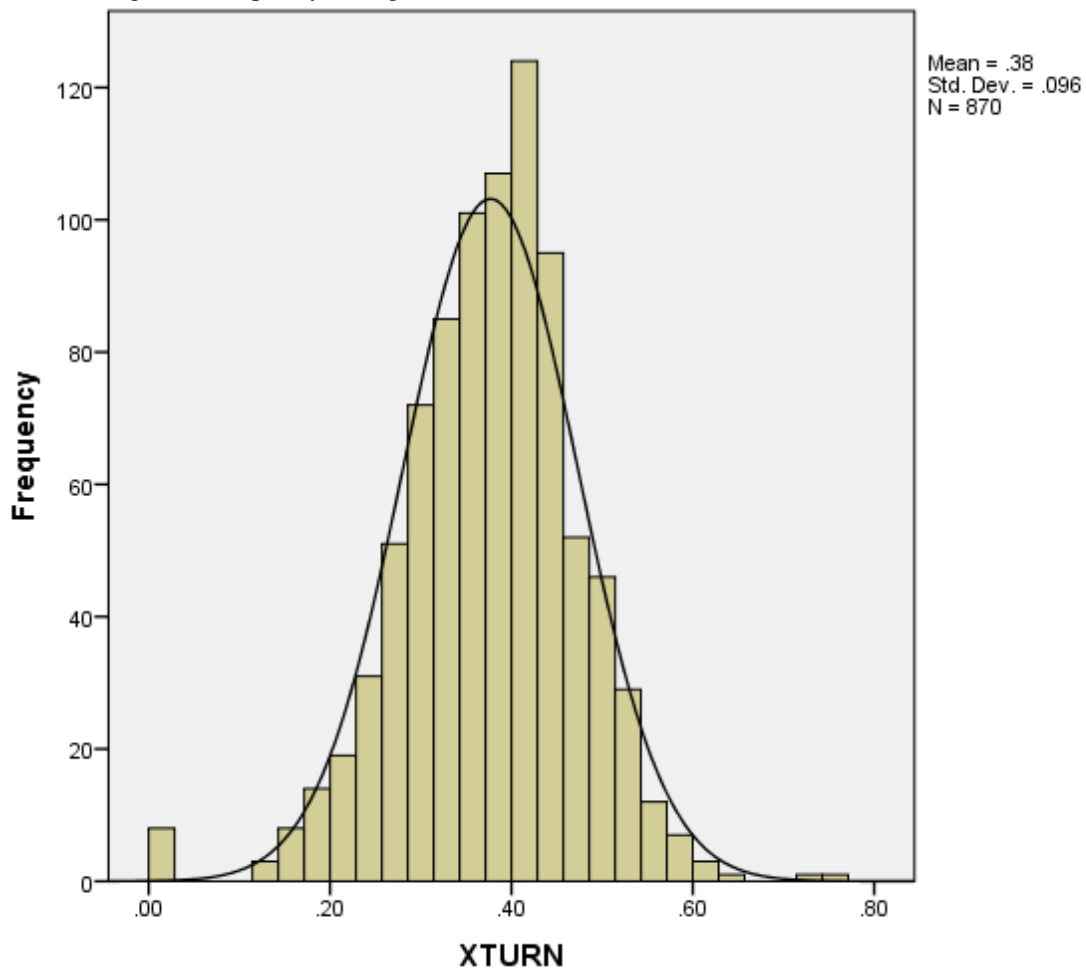Figure 3: Frequency Histogram for Voter Turnout in U.S. House Elections

Figure 4: Voter Turnout in the 2014 U.S. House Elections

Legend

2014

Congressional Districts
- 0.0000 - 0.2500
- 0.2500 - 0.2960
- 0.2960 - 0.3400
- 0.3400 - 0.4000
- 0.4000 - 0.5900
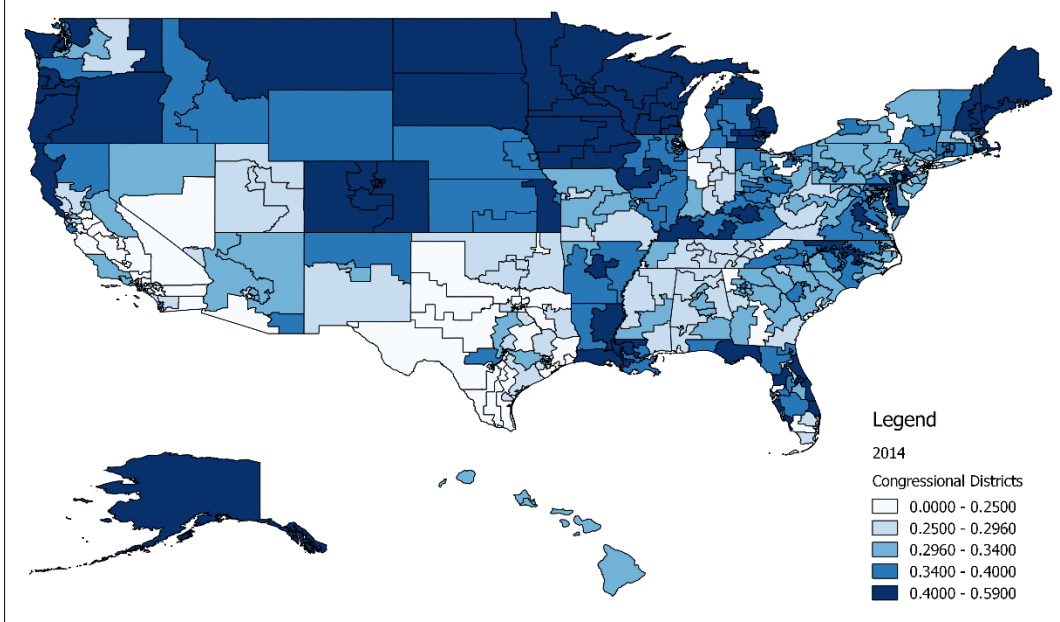
Figure 5: Voter Turnout in the 2010 U.S. House Elections

Legend

2010 House

2010 Congressional Districts
- 0.0000 - 0.3069
- 0.3069 - 0.3575
- 0.3575 - 0.3969
- 0.3969 - 0.4352
- 0.4352 - 0.7477
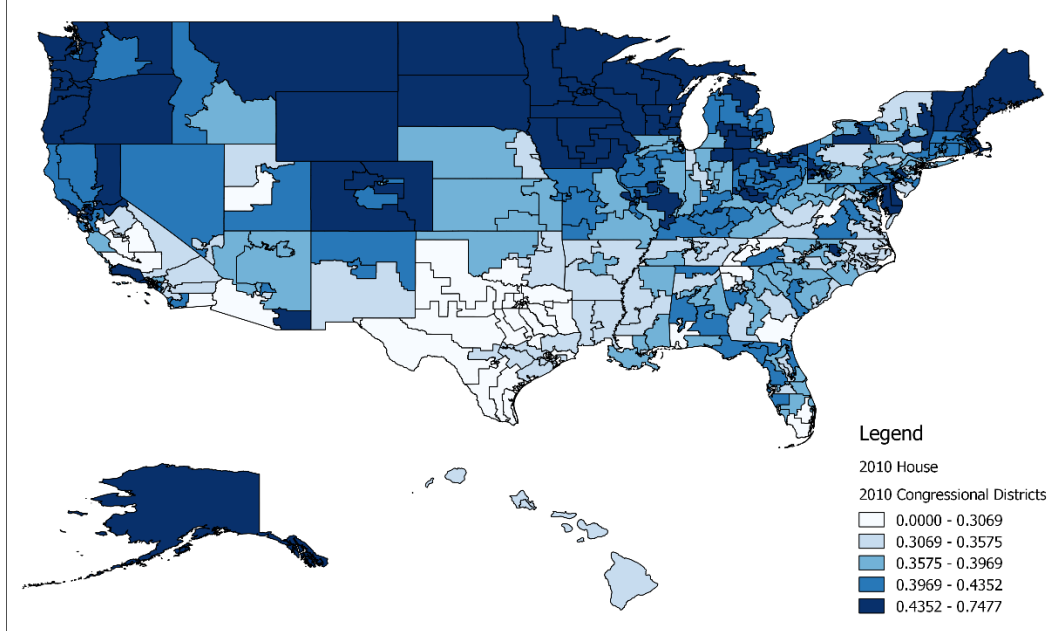
Figure 6: Total Campaign Expenditures in 2014 U.S. House Elections

Legend

2014

Congressional Districts

760.54 - 576995.59
576995.59 - 863568.37
863568.37 - 1362293.10
1362293.10 - 3113296.03
3113296.03 - 10241573.22
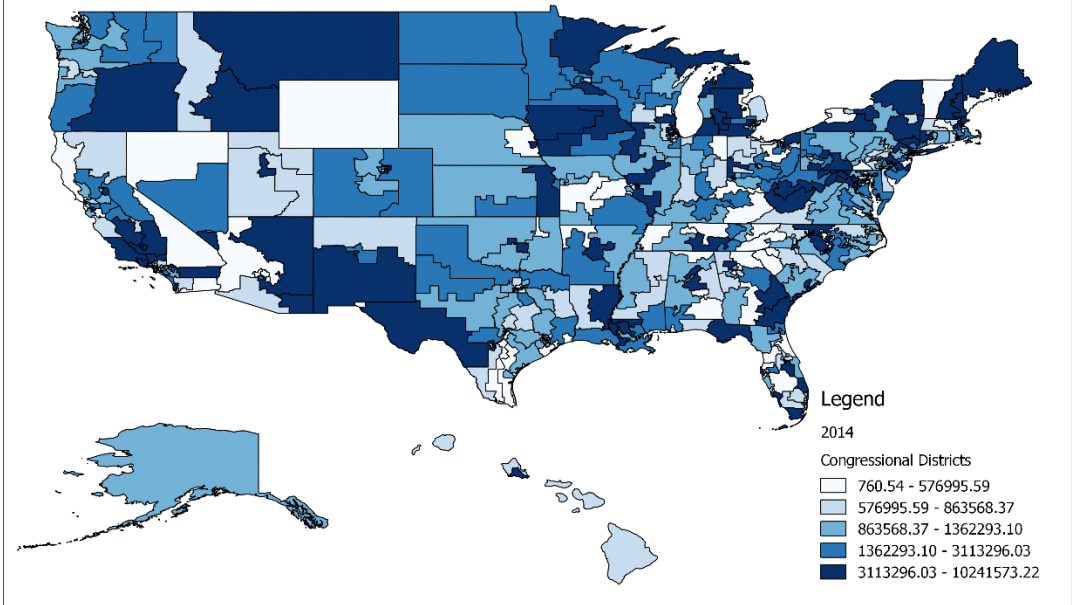
Figure 7: Total campaign expenditures in the 2010 U.S. House Elections

Legend

2010 House

2010 Congressional Districts

112470.960 - 712217.020
712217.020 - 1051984.072
1051984.072 - 1826764.962
1826764.962 - 3691162.564
3691162.564 - 16502856.210
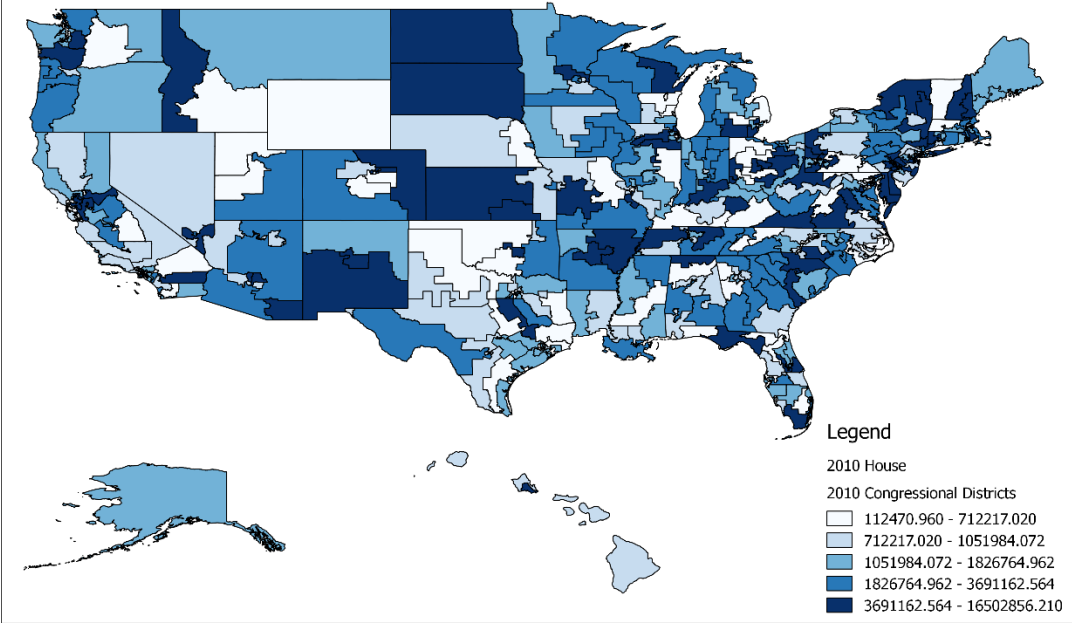
Results

The results of the multiple regression analyses can be seen in Table 1. The explained variance increased with each model. The first model, which contained only campaign expenditures, explained a total of 5.5% of all variance in turnout at the Congressional District-level. Adding in internal election data increased the explained variance to 25.8% while adding external election factors increased the explained variance to 43.0%. Demographic factors raised explained variance to 52.7% and finally, economic factors raised explained variance to 54.6%. Given the standardized coefficients, it would appear that the jump from external factors can be attributed to election administration the most while the jump from demographics can be attributed to race the most. The largest explained variance jump came in model 2 when internal election variables were added into the models. This can be explained through the fact that these variables contained many dichotomous variables which could contribute to the amount of variance that they each explain.

Our focal independent variable of Campaign expenditures, lost both size of effect and significance throughout the five models although maintaining a significance below .01. With this, we can say with 99% confidence that there is an association between campaign expenditures and voter turnout. The largest drop in effect came when internal election variables were added in. When looking at correlations between variables, the year, incumbency, number of parties, and number of candidates all had significant associations with the amount of money spend on campaigns. In the final model, every $1,000,000 spent on a congressional campaign increased the voter turnout by 0.4%. This is equivalent, in the average congressional district, to roughly 2,000 voters in a district. Put another way, each voter brought to the polls by campaign expenditures costed roughly $500.

Table 1: Multiple Regression Model for Voter Turnout

Dependent Variable: Voter Turnout	Model 1	Model 2	Model 3	Model 4	Model 5
Focal Independent					
Total campaign expenditures	1.128*** (.234)	.715*** (.148)	.657*** (.136)	.443*** (.092)	.398** (.082)
Controls					
House Election					
Year of Election[c] (2014=1)		-5.324*** (-.277)	-4.760*** (-.248)	-5.070*** (-.264)	-5.161*** (-.269)
Total number of candidates		.346 (.053)	.413* (.064)	.316 (.049)	.169 (.026)
Incumbency[c] (Incumbent Running=1)		-.786 (-.025)	-1.494 (-.047)	-1.526 (-.048)	-1.704* (-.053)
Partially Unopposed[c] (<2 major parties=1)		-5.305*** (-.191)	-4.533*** (-.163)	-4.356*** (-.157)	-4.515*** (-.163)
Unopposed[c] (<2 candidates=1)		-15.371*** (-.215)	-14.001*** (-.196)	-14.372*** (-.201)	-14.637*** (-.205)
Other Elections/Administration					
Senate Races[c] (election occurring=1)			2.564*** (.129)	2.367*** (.119)	2.538*** (.128)
Gubernatorial Races[c] (election occurring=1)			-.589 (-.025)	.130 (.005)	.195 (.008)
Citizen Initiated Ballot Measures			.340** (.087)	.615*** (.158)	.508*** (.130)
Minimum Wage Initiatives[c] (Initiative=1)			.378 (.007)	.815 (.015)	.585 (.011)
Mail-in Voting[c] (MIV=1)			9.045*** (.204)	7.799*** (.176)	7.721*** (.174)
Same-day voter registration[c] (SDVR=1)			7.521*** (.300)	6.456*** (.258)	5.790*** (.231)
Demographic Factors					
Female population rate				.157 (.021)	.226 (.030)
Median Age				.323*** (.119)	.225** (.083)
White Population Rate				.104*** (.247)	.094*** (.224)
Married Rate				-.099** (-.066)	-.084* (-.057)
Economic Factors					
Unemployment Rate					.199 (.066)
Healthcare Coverage					.167* (.101)
Bachelor's attainment					.103** (.107)
Constant	35.376***	39.291***	35.986***	14.592	-3.438
R^2	.055	.258	.430	.527	.546

The year of election (2014) maintained significance in the .001 level. In the final model, the 2014 election year was attributed to a 5.2% drop in voter turnout. This attributes an average of 26,000 fewer voters in a district attending the polls in 2014 as opposed to 2010. This is supported by the fact that voter turnout in 2010 was 42% while voter turnout in 2014 was 37%.

The total number of candidates began as insignificant but then raised to the .05 level when internal election variables were added and finally fell from significance when demographic variables were introduced to the model. This would indicate that when the effect of sex, age, race, and marital status were removed from the total number of general candidates' effect on voter turnout, it became clear that there was no significant association. A cause for this can be found through bivariate correlations in which the female population, median age, and white population all had significant positive relationships with the total candidates at the .05 level. This would suggest that demographics have some form of effect on the number of candidates who run. Incumbency began as having no significant effect on voter turnout until economics was added to the model. As none of these variables have a significant correlation with incumbency, it would seem as though incumbency became significant as the variation caused by other variables was removed. In the final model, an incumbent running in the election corresponded to a 1.7% drop in voter turnout, the equivalent of 8,500 voters in the district.

Unsurprisingly, any degree short of full opposition (at least one Democratic candidate and at least one Republican candidate) had an extremely significant effect on voter turnout. Only one major party running in the election was associated with a 4.5% drop in turnout, equivalent to 22,500 fewer people choosing to vote whereas elections with only one candidate had, on average, a 14.6% drop in turnout, or 73,000 voters in the district.

Senate races per district significantly increased voter turnout at the Congressional District level. Throughout the three models that the Senate variable was a part of, it maintained significance at the .001 level and hovered around the same strength of effect. In the final model, a Senate race was associated with a 2.5% increase in voter turnout in House elections, equivalent to 12,500 extra voters in the district. Gubernatorial races were not significant at any point in the model. A bivariate correlation between gubernatorial races and voter turnout presents the answer as to why. With a correlation of -.005, the two measures are not associated with each other in any statistically significant way.

Citizen initiated ballot measures began as being significant at the .01 level, then became significant at the .001 level when demographics were taken into account. Once again, bivariate correlations can be used to explain the changes. On demographics, median age and the white population both have a significant negative association with the number of ballot measures. As these two variables are added into the model, their effects on turnout are removed allowing the association between ballot measures and turnout to become more clear. In the final model, each citizen initiated ballot measure increased voter turnout by 0.5% or 2,500 voters. Whether or not a minimum wage initiative was on the ballot had an insignificant association with voter turnout. A correlation of .044 indicates the overall lack of association between minimum wage initiatives and voter turnout.

Mail-in voting maintained significance at the .001 level throughout all three models it was a part of. While the size of the effect was diminished when demographics were added, the final model saw mail-in voting being associated with a 7.7% increase in turnout, the equivalent of 38,500 extra voters in the district. Same-day voter registration also maintained significance at the .001 level throughout all three models with its effect being diminished with each addition.

The final model saw same-day voter registration being associated with a 5.8% increase in voter turnout, an additional 29,000 voters in the district.

Demographically, the percentage of the population that was female had an insignificant effect on voter turnout. This is of interest as the female population rate has a significant negative correlation with voter turnout. A possibility as to why this became insignificant comes from significant positive correlations between the female population and the year, total number of candidates, partial opposition, senate races, and minimum wage initiatives. As the year, partial opposition, and senate races were all significant predictors of voter turnout, the effects that these variables created were removed from the effect the female population has on turnout, illuminating a lack of association. Unemployment and healthcare coverage are also significantly correlated with the female population with unemployment having a negative correlation and healthcare coverage a positive correlation. As these variables were added in, the female population's coefficient became larger but was still not significant.

The median age of the district began as significant at the .001 level but then fell to significance at the .01 level once economic variables were added to the model. Bivariate correlations find that median age has a significant negative correlation with the unemployment rate and a significant positive correlation with healthcare coverage and bachelor's attainment. Once again, as the effect that these variables have on voter turnout is removed from the effect of age, the association becomes weaker. In the final model, a one-year increase in the median age saw a 0.2% increase in turnout, or 1,000 voters. The non-Latino White population rate maintained significance at the .001 level in both models it was a part of. In the final model, a 1% increase in the white population of a district was associated with a .1% increase in voter turnout, an equivalent of 500 voters. The percentage of the population which was married began as

significant at the .01 level and the fell to significance at the .05 level when economics was added. As there are no significant correlations between marital status and any economic variables, it may be that the combined effect of economics simply illuminated a weaker association. In the final model, a 1% increase in married population corresponded with a .1% drop in turnout, the equivalent of 500 voters in the district.

Finally, economic variables had varying effects. The unemployment rate of a district was insignificant. Healthcare coverage was significant at the .05 level with a 1% increase in people having healthcare coverage being associated with a 0.2% increase in voter turnout, the equivalent of 1,000 voters. Finally, Bachelor's degree attainment was significant at the .01 level. In the final model, a 1% increase in Bachelor's degree attainment was associated with a 0.1% increase in turnout, the equivalent of 500 voters.

In the final model, the largest driver of turnout was the year with one standard deviation increase in the year being associated with a .27 standard deviation drop in voter turnout. Following year, same-day voter registration had a standardized coefficient of .231. For our focal independent variable, campaign expenditures, a one standard deviation increase in total expenditures was associated with a .082 standard deviation increase in turnout. This is the twelfth largest effect indicating that it does drive turnout but not as much as factors such as race, year, same-day voter registration, and mail-in voting.

Discussion

Implications

This study produced 14 significant variables that drive voter turnout in U.S. House elections. These variables and the effects of five others can explain 55% of the variance in voter turnout in congressional elections. There are several implications that this study provides.

Our focal independent, campaign expenditures, also was a significant booster for turnout, although relatively small. Bringing an extra 2,000 people to the polls does not seem an efficient way to spend $1 million dollars campaigning, but this does suggest that the commercials, billboards, and canvassing does have an effect on people's decisions to vote.

For the internal election variables, 2014 seeing a significant drop from 2010 is supportive not only of the literature which shows an overall trend but also shows the impact of the Tea Party mobilization in and around 2010. Incumbency was an interesting factor to be significant because we know that they, indeed, affect election outcomes. Incumbency having a negative effect on turnout was unsurprising and is an indication in itself of how competition effects turnout. The fact that lack of opposition was significant was unsurprising as it indicates that when voters are actively told that their decision does not matter, they will not feel an incentive to vote. This also implicates that people do not vote in elections that are blatantly uncompetitive. These effects are similar and opposite to the effects of same-day voter registration and the white population rate.

For the external election variables, Senate races being significant supports the idea that turnout can be driven by the highest office running. Yet another significant driver, citizen initiated ballot measures saw a smaller effect than was predicted by the literature. Regardless, it does suggest that voters are mobilized by the presence of controversial issues on the ballot. Mail-in voting and same-day voter registration are both administrative measures designed to make

voting easier. Therefore, it makes sense to see that these systems work in a way that increases voter turnout.

Demographically median age, a positive predictor, supports the literature which has found, on an individual level, age to impact one's likelihood to vote. This also points to a larger implication that congressional candidates or the Party's themselves fail to reach out, appeal to, and mobilize younger voters. The white population being a significant booster of voter turnout signifies a reality similar to that with age: House candidates and political parties either do not or do not effectively reach out to racial minorities. Marital status was the single finding which contradicted the literature, which showed a positive effect. That being said, marital status was barely significant at the .05 level and did not have a large substantial effect.

Economically, healthcare coverage was a significant booster on voter turnout although, it should be stressed that healthcare coverage was used as a proxy for income. The effect that healthcare has is more likely that people with enough financial ability to purchase healthcare also have the financial stability to spend time at the polls. Finally, Bachelor's degree attainment significance is a finding expected by the literature as those with higher education vote more often.

Sources of Error

The primary source of error for this study is that much of the literature on what we know to effect someone's likelihood to vote, namely age, race, and education is conducted at an individual level. Another barrier to the analysis in this area is that congressional districts are, for the most part, arbitrary lines drawn to contain a relatively equal population. In other words, there is no Washington, 2nd District economy, and no Washington, 2nd District culture. These are more

likely to be connected to the cultures and economies of Bellingham, Everett, Snohomish, Whidbey Island, and the San Juan Islands. For this reason, it is difficult to say that being unemployed increases your likelihood to vote. All that we can say is that as unemployment increases within the congressional districts, the voter turnout went up.

Future Research

To compensate for this primary error, there are a few areas of research that would be necessary to focus on. The first area of research would be to conduct a similar study at the individual level. This would allow for us to determination the significance of variables like race, age, and sex in predicting their likelihood of voting. Second, future studies would combine data from multiple years of elections. As House elections occur every two years, this gives us an abundance of data to draw from. This would also help determine if the change in turnout between 2010 and 2014 was part of the larger trend or if this year was, indeed, out of the ordinary. Third, future studies should look not only at U.S. House elections, but at Presidential elections, U.S. Senate elections, Gubernatorial elections, state senate elections, state house elections and county elections to determine if the trends that we have found here are localized specifically to U.S. House elections or if they can be generalized to the broader United States electoral system. Finally, future research should broaden this study to other electoral democracies. This would allow us to determine if these factors are, once again, localized or generalizable.

Conclusion

Given the significance of campaign spending on voter turnout through all five models, we can safely reject the notion that campaign spending has no effect whatsoever on voter turnout. However, given the fact that it costs $500 to get a single voter to the polls, raising voter turnout by a single percent across the country would cost $1.1 billion. To raise voter turnout to the 50% mark, it would cost $14 billion. To raise voter turnout to the high income free median of Canada's 62% would cost $27 billion. Finally, to raise voter turnout to 100% would cost $69 billion. This effect is so small, it would be safe to conclude that this is not a primary driver of turnout. However, this does not indicate that competition does not increase turnout. Looking at When all other factors are controlled for, having an uncontested race was associated with a 14.6% drop in turnout. If the five uncontested elections in 2014 were to have any candidate, controlling for all other factors, we would expect to see an extra 365,000 extra voters across the country. Furthermore, elections with only one party saw a 4.5% drop in turnout. If the 91 partially unopposed races in 2014 had a candidate from the opposing party, we would expect to see an extra 2,047,500 voters across the country. Therefore, while we can say that spending does not have a substantial effect, we can say that competition as a whole does. Given a goal of increasing voter turnout, spending would not be as effective at increasing turnout as ensuring that both major parties have a candidate, creating election administrations that make it easier for voters to vote, and reaching out to non-white young voters.

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