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The Demographic Drivers of California's Environmental Voting

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Cover Page Footnote

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Introduction

As the world's sixth largest economy, and the most populated state in the United States with nearly 40 million citizens, California represents a significant portion of the United States in having both a diverse set of inhabitants as well as a vast economy (Myers 2016). California has an image given the voting patterns of the larger cities, as the majority of Representatives sent to Congress are Democrat and tend to support ecologically motivated legislation. However, these Representatives do not portray all of the state's many voting districts. A number of the state's Representatives are from the Republican Party with some recent elections featuring changes from liberal to conservative. In recent years, the major population centers and cities have tended to support the Democratic candidate and more liberal balloted items, however, there still exist conservatively minded inhabitants in many of the state's congressional districts. Of the 53 Representatives for the state of California, there were 33 Democrats in the 110th Congress (election year 2007), followed by 34 Democrats in the 111th Congress (election year 2009). There is demonstrated variance in representation, suggesting underlying fundamental differences in political mentalities between many of the population areas.

On the same ballot as these two Congresses, three environmentally focused propositions were rejected by the public, including

- California Proposition 7, Standards for Renewable Resource Portfolios (2008),
- California Proposition 10, Alternative Fuels Initiative (2008), &
- California Proposition 23, the Suspension of AB 32 (2010).

Proposition 7 was a rejected measure that would have required California utilities to gather half of their power from renewable resources by 2025 with 2% increases annually to meet several benchmarks and penalties for noncompliance.

Proposition 10 would have created $5bil in general obligation bonds to improve statewide sustainability measures including increasing energy efficiency, funding renewable energy and alternative fuels, and reducing air emissions.

Proposition 23 would have discontinued the AB 32, or "Global Warming Act of 2006", until unemployment in California decreased. AB 32 required greenhouse gas emission levels to be drastically reduced to the 1990 levels by the year 2020. Had Proposition 23 passed, AB 32 would have been suspended until the unemployment rate in California reached 5.5% or below for four consecutive quarters.

The failure to pass Prop 7 and Prop 10 in the 2008 elections suggests that the Californian population rejected increases in the state budget to support green

initiatives. However, Prop 23 shows that the same individuals sought to continue greenhouse gas reduction legislation in the face of high unemployment, which defies traditional theory and thought patterns. The goal of this study is to analyze the population demographics that potentially drive these voting patterns, as the rejection of Propositions 7, 10, and 23 show how select population demographics can favor or repudiate movements towards renewable resources and environmental protection efforts.

To explore this notion, this paper seeks to compare the demographics of the 53 Congressional districts to the voting patterns on the three Propositions. The study will explore several characteristics of the district's population including age, income, employment, and other potential factors that may influence voting in order to show if the population's voting patterns share a correlation with any of these characteristics by using an OLS regression.

The concept of demographics and environmental voting is fundamentally important as it seeks to understand what population attributes may influence personal economic protections over environmental legislation. Furthermore, this paper hopes to show which populations may be more or less prone to environmental protection policy initiatives.

Several hypotheses will be tested in congruence with the demographic distributions, including:

H_A(1): Districts with a Democratic Representative will have higher vote percentage in favor of the bills, given they historically represent more green/liberal preferences and might be willing to support higher government budgets (in the instance of Prop 7 & 10);

H_A(2): Districts with higher income will have higher vote percentages in favor of the bills, as they will have decreased marginal loss of utility from the increase in taxes in comparison to lower incomes;

H_A(3): Districts with a greater number of individuals in lower age brackets will have higher vote percentages in favor of bills, as contact with children may inspire voters to act as role models and consider the environment for future generations; &

H_A(4): Counties with higher education rates, especially in terms of higher degrees, will have higher vote percentages in favor of bills, as they will have a greater understanding of the importance of environmental protection issues.

This paper will examine the characteristics of the Californian congressional districts in order to reject or not reject the hypotheses.

Previous Literature

Previous studies regarding demographic analyses, voting patterns, and green preferences have been previously conducted. In terms of identifying individual attitudes towards the environments, studies have surveyed green consumers, or individuals who purchase allegedly "environmentally friendly products". These ideas may contribute to understanding voting preferences as these studies reveal preferences on a smaller scale than at the state level, as consumers can pay a premium to utilize daily products that have fewer environmental impacts. Other research has indicated that various demographic components have mixed effects on the consumer's choices. For example, one study indicated that females were more likely than males to have stronger stated green preferences, but sex had no statistically significant difference in writing newspapers or support political activist groups to protect the environment (Diemantopoulous et al., 2003). However, the same research suggested that social class and education level proved significant in most categories of consumer awareness and activism (Diemantopoulous et al., 2003). These outcomes were reinforced on an international scale, with one researcher suggesting these green individuals were more likely to seek sustainable living opportunities (Gilg et. al 2005). Finally, communities with a larger share of self-identified environmentalists (i.e. Green Party members) are more likely to live environmentally friendly lifestyles through usage of public transit, decreased gasoline consumption, and purchase of hybrid vehicles (Kahn 2007). These works introduced the idea of the green community, which may reveal likeminded voting patterns on environmental issues, which is the basis for this continued research.

The idea of a green consumer is difficult to measure and quantify, as the data source is often a survey that is prone to response bias. Studying voting patterns provides access to actions as opposed to written responses by the same populations, and to study green preferences in a more unbiased and clear manner. Therefore, through understanding the voting outcomes, one can create stronger understandings of the relationship between ecological and economic behavior and population demographics.

Recent research in California suggests that in alternative carbon policy voting, individuals who are wealthy, educated, liberals, or live in cities tend to support environmental initiatives (Kahn and Holian 2015). These suggestions were explored in other pieces, where at the federal level, conservative Representatives have staunchly opposed carbon footprint cutting, and wealthier districts tend to support the measures (Cragg et. al 2012). More Massachusetts-based historical research suggested that suburban individuals were more likely to support other efforts of environmental protection, with the propensity of votes supporting conservation increasing as population density increased (Deblinger et.

al 2008). These findings were consistent in an alternative proposition for green transportation taxes in the state of California, but as all political parties supported the measures, the distinctions lay in other demographic characteristics in terms of supporting environmental legislature (Agrawal et al. 2015). Other research suggested conservation groups supporting these environmental initiatives can gain aid for their efforts in the previously unrealized minority and middle class neighborhoods, in the edges of suburbs, and within the Southeast United States (Banzhaf et al. 2010). All of these findings were reconfirmed in another study, which showed age held no significant impact on balloted environmental issues, regardless how the legislature could impact environmental conservation efforts (Salka 2009).

In spite of all of the above, this field of study is hotly contested, as large bodies of research suggests that income shares a negative relationship with propensity to support environmental propositions, showing diversity in the final outcomes for research on the topic (Wu and Cutter 2011). Furthermore, several research groups suggest simple demographic features are insufficient in predicting voting outcomes and that there are more sophisticated measures than simple social networks (Cho and Rudolph 2008). This demonstrates conflict in the field of voting patterns and demographics.

It is evident that the issue of exploring voting patterns and populations needs to be examined further, and this paper seeks to resolve some of the aggregation issues in observing these voting patterns and populations. This study will disaggregate some of the characteristics previously combined in research. This paper will contribute to the existing work, and can help conservation groups target select areas for promoting referenda. This study will add to the existing body of literature by focusing on balloted issues that were not purely conservative in nature and held larger economic issues such as bond issuances or continuances/freezing of state funds. This paper can bridge the gap between demographic analysis of small alterations in budgets from conservation-based initiatives with the more drastic funding and budgetary alterations in a large state with significant diversity in population.

Data

The American Community Survey and the US Census Bureau provided the demographic data. The data's spatial resolution is at the congressional district level, whereas the temporal resolution is for the two election years (2008 and 2010). The data contains information on political affiliation of Representatives sent to the 110^{th} and 111^{th} Congress from the 53 districts, as well as median household income, educational attainment levels, age groups within the districts, labor force participation rates, and unemployment rates.

The voting data was provided by Statewide Database, a UC Berkeley organization that provides information to the public for elections occurring after 1992. The dataset includes the total number of votes logged in each district and the division of votes in both support and opposition. Although congressional districts were redrawn in 2011, the data set analyzed the 2001 districts in order to maintain congruence between the 110th and 110th Congressional Representatives and their respective election districts.

After cleaning and merging the data, the final set contains two cross-sectional evaluations for the 53 districts in order to fully encompass any (albeit minimal) changes in the characteristics. Through this data, this study provides a small summary of the state at the congressional district level and will show how the differences in demographic populations between districts can share a relationship with voting outcomes on environmentally focused bills.

Figure 1 presents the Congressional voting districts. A noteworthy item is that the districts vary in terms of geographic size, but the number of occupants in each district is approximately 700,000. Furthermore, each district varies in terms of population density, where the districts in the vicinity of major population hubs (i.e. Los Angeles, the Bay Area, etc.) are both clustered and miniscule in size in comparison to the expansive northern districts. This ma[p simply goes to demonstrate the potential room for differences in demographics and political ideology, a notion shown in Figure 2 through the varieties of historical voting preferences.

Finally, a summary statistics table provides a view into the basic demographic information of the state of California. The diversity at the district level for the median household income, education level, median age, and other categories is shown by the large standard deviations and extremas. The table demonstrates significant discrepancies between educational levels and other demographic characteristics.

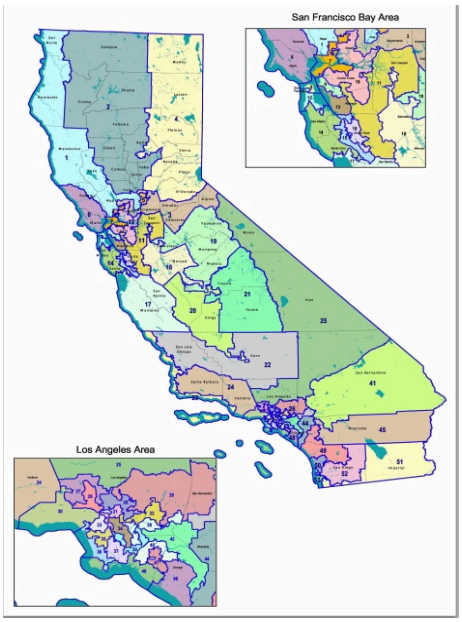

Fig. I: A plot of the congressional districts with districting from the 2001 California State election redraw. (Eberly, 2015).

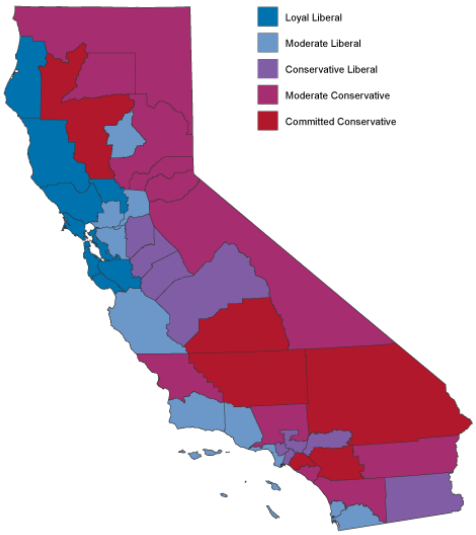

Fig. II: A plot of the congressional districts as well as their political affiliation. The Bay Area and Northern area deserves California's reputation as a liberal state and surrounding area, whereas the population can even be conservative in the Los Angeles area. (McGhee, 2012).

2008 California State Data	Mean	Standard Dev.	Minimum	Maximum
Total population	36418499	65066	639510	769642
Median age (years)	34.70	3.37	28.2	41.3
Age 0-17 (%)	0.26	0.04	0.14	0.33
Age 18-64 (%)	0.63	0.03	0.58	0.72
Age 65+ (%)	0.11	0.02	0.06	0.16
Some High School (%)	0.20	0.04	0.18	0.26
High School (%)	0.22	0.03	0.20	0.26
Bachelor's (%)	0.19	0.01	0.15	0.16
Higher Degree (%)	0.11	0.02	0.08	0.11
In Labor Force (%)	0.65	0.00	0.66	0.67
Unemployed (%)	0.05	0.00	0.05	0.06
Median household income ($)	61154	1012.5	60234	62259
Proposition 7 Total Votes	767412	57748	112298	360999
Proposition 7 Yes votes	511062	43703	62575	252349
% Votes Yes Prop 7	0.175	0.061	0.096	0.326
Proposition 10 Total Votes	764726	56664	112754	360613
Proposition 10 Yes votes	492124	44947	52945	254517
% Votes Yes Prop 7	0.167	0.062	0.081	0.329

2010 California State Data	Mean	Standard Dev.	Minimum	Maximum
Total population	36971641	61482	619531	889614
Median age (years)	35	3.39	27.8	41.6
Age 0-17 (%)	0.25	0.04	0.13	0.33
Age 18-64 (%)	0.64	0.03	0.58	0.74
Age 65+ (%)	0.11	0.02	0.06	0.15
Some High School (%)	0.19	0.04	0.12	0.27
High School (%)	0.21	0.05	0.20	0.40
Bachelor's (%)	0.19	0.07	0.05	0.35
Higher Degree (%)	0.11	0.06	0.02	0.29
In Labor Force (%)	0.65	0.03	0.56	0.71
Unemployed (%)	0.07	0.01	0.05	0.10
Median household income ($)	60016	14703	33946	95587
Proposition 23 Total Votes	9649083	50810	86803	305227
Proposition 23 Votes Yes	5932865	33633	48560	195268
% Votes Yes Prop 23	0.16	0.05	0.07	0.29

Table I & II: Summary statistic tables of the various congressional districts compared to the State's values for both 2008 and 2010. The diversity in educational attainment as well as age groups, household income, and other economic health indicators is shown through the large standard deviations and extremas.

Empirics

This regression set will contain two models in order to test the four hypotheses aforementioned. The first model is as follows:

$$PCY = \alpha + \beta_{(1-3)}Age + \beta_{(4-7)}Educ. + \beta_8 LaborForce + \beta_9 Unemployment + \beta_{10} Income + \beta_{11} Congress + \varepsilon$$

PCY represents the percentage of yes vote on each proposition. The Age variables include the three age groups in percentage (0-17, 18-64, 65+) to test the hypothesis whether younger populations have an influence on the older electorate. Education breaks down the four levels of education attained in percent for the population older than 25 years, with the four categories including some high school, high school diploma/equivalent, bachelor's degrees, and higher degrees. The purpose of separating bachelor's degrees from other degrees is to understand if holding a masters degree and higher has significant influence on how votes will proceed. Labor Force represents the labor force participation rate, in order to understand the districts' economies and determine whether the populations valuing economic safety over environmental protection. On a similar note, Unemployment is the unemployment rate in the district. Income represents the logarithmic median household income level to account for changes in income and the potentially large discrepancies in district-level income. Congress is a binary variable, where a 1 signifies a Democratic Representative from the Congressional district and a 0 a Republican.

The second regression model is of the form:

$$PCY = \alpha + \beta_{(1-4)}Educ. + \beta_5 Median_{HH} + \varepsilon$$

This model seeks to test whether dropping the age groups, unemployment rates, the median household income, and the political affiliation of the Representative allows for statistically significant regression results from the education rates, income groups, median household incomes, and the elected Representative. The model will test if the remaining variables explain enough of the variation in the voting outcomes to provide an adequate picture of how future voting patterns may proceed, regardless of the dropped variables.

	Prop7 Yes%	Prop10 Yes%	Years 1-17	Years 18-64	Years 65+	Some HS	High School	Bachelors'	Higher Deg	Labor Force	Unemploy	Income (Log)	Congress Rep.
Prop7 Yes%	1												
Prop10 Yes%	0.913***	1											
Years 1-17	0.468***	0.473***	1										
Years 18-64	-0.216	-0.166	-0.848***	1									
Years 65+	-0.575***	-0.645***	-0.758***	0.297*	1								
Some HS	0.765***	0.762***	0.673***	-0.411**	-0.708***	1							
High School	0.308*	0.288*	0.703***	-0.673***	-0.443***	0.536***	1						
Bachelors'	-0.545***	-0.492***	-0.820***	0.689***	0.631***	-0.822***	-0.874***	1					
Higher Deg	-0.528***	-0.475***	-0.759***	0.642***	0.577***	-0.756***	-0.896***	0.925***	1				
Labor Force	-0.203	-0.0806	-0.424**	0.588***	0.0404	-0.395**	-0.625***	0.662***	0.543***	1			
Unemploy	0.289*	0.284*	0.541***	-0.388**	-0.502***	0.595***	0.642***	-0.741***	-0.649***	-0.527***	1		
Income (log)	-0.566***	-0.528***	-0.441***	0.274*	0.456***	-0.794***	-0.608***	0.787***	0.737***	0.599***	-0.724***	1	
Congress Rep.	0.405**	0.444***	-0.130	0.338*	-0.180	0.294*	-0.165	0.0247	0.0778	0.0735	0.100	-0.216	1

	Prop23 Yes%	Years 1-17	Years 18-64	Years 65+	Some HS	High School	Bachelors'	Higher Deg	Labor Force	Unemploy.	Income (Log)	Congress Rep.
Prop23 Yes%	1											
Years 1-17	0.453***	1										
Years 18-64	-0.650***	-0.813***	1									
Years 65+	0.0203	-0.674***	0.139	1								
Some HS	0.430**	0.733***	-0.687***	-0.396**	1							
High School	0.660***	0.121	-0.462***	0.333*	0.368**	1						
Bachelors'	-0.297*	-0.836***	0.656***	0.600***	-0.868***	-0.0968	1					
Higher Deg	-0.348*	-0.766***	0.605***	0.562***	-0.885***	-0.181	0.926***	1				
Labor Force	-0.441***	-0.506***	0.690***	0.00908	-0.628***	-0.350*	0.649***	0.536***	1			
Unemploy	0.115	0.663***	-0.445***	-0.583***	0.663***	0.0337	-0.738***	-0.716***	-0.352**	1		
Income (log)	0.0367	-0.470***	0.265	0.485***	-0.591***	0.114	0.791***	0.754***	0.547***	-0.689***	1	
Congress Rep	-0.816***	-0.109	0.377**	-0.296*	-0.144	-0.673***	-0.0199	0.0293	0.244	0.145	-0.214	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table III & IV: A plot of the correlation of the independent variables.

It is unfortunate that a large number of the variables are highly correlated, but not unexpected. However, it is logical that the age groups as well as the various education levels have high correlation. The age groups for each congressional district must sum to 100%. Further, traditional economic theory suggests areas with higher education rates tend to support individuals seeking higher education. This problem is removed by maintaining pure education rates for the second regression in order to test for more significant and distinct variable outcomes.

Results

Each proposition yielded unique results using the first model. As shown below, for 2008's proposition 7, the only statistically significant variables are district unemployment rates and the political party of Congressional Representative. In this model, for a one percentage point increase in the unemployment rate for a given congressional district, there is a corresponding 1.40 percentage point decrease in the amount of total yes votes. The Congressional Representative indicator variable (where 1 represents Democrat and 0 represents Republican) shows that districts with Democratic Representatives had a 0.02 percentage point increase in the amount of votes in favor of the proposition.

Proposition 10 of 2008 held the Some High School education level as the only strongly significant demographic variable. The coefficient of the Congressional Representative was of the same magnitude for Prop 10 as Prop 7, but was not statistically significant, therefore providing little value for interpretation.

Proposition 23 of 2010 provided entirely different significant variables. The Higher Degree holders and the Congressional Representative variable were significant, both of which resulted in a negative effect on the propositions voting. This demonstrated a propensity for Higher Degree holders to vote in favor of environmental protection, as this proposition sought to cut back on greenhouse gas reduction policy.

After evaluating the first regression model, there is little consistency in the significance of the regressed variables with exception to the Congressional Representative. This model unfortunately did not evaluate the Congressional Representative effect, but instead sought to understand the effect of the education rates in conjunction with economic indicators on the environmental voting.

In the secondary model, Proposition 7 had its' lone statistically significant result as the number of individuals with Some High School attainment. Proposition 10 yielded statistically significant variables with Some High School as well as the Bachelors' degree holders. Finally, Proposition 23 had the significant variables of High School Diploma holders and logged income. These results unfortunately proved inconsistent with the previous regression model, but not insignificant in terms of the findings.

Interestingly, the R^2 values for both the first and second model regressions were large, as six of the adjusted coefficients of determination were approximately 0.6 and greater with a maximum of Prop 23's R^2 of 0.86. Of course, this is not significant for the OLS, but an item of note that more than half of the variation in the voting outcomes can be explained through the regressions.

Something of note is that the demographics in this study may encompass a large number of unobservables that accounts for significant variation in the voting outcomes, regardless of the statistical significance of the variables.

	Prop 7 '08	Prop 10 '08	Prop 23 '10	Prop 7 '08	Prop 10 '08	Prop 23 '10
Some High School	0.175	0.610	-0.380	0.368	0.855	-0.847
	(1.36)	(3.47)**	(0.81)	(3.83)**	(6.26)**	(1.21)
High School / Equivalent	-0.262	0.899	0.045	-0.085	0.808	1.195
	(0.77)	(1.93)	(0.21)	(0.28)	(1.83)	(4.98)**
Bachelors' Degree	-0.019	0.826	0.115	0.214	0.884	-0.847
	(0.06)	(1.94)	(0.28)	(0.97)	(2.81)**	(1.84)
Higher Degree	-0.259	0.266	-0.834	-0.169	0.147	-0.697
	(1.10)	(0.83)	(2.30)*	(0.81)	(0.50)	(1.38)
Income (log)	-0.021	-0.064	0.166	0.004	0.016	0.220
	(0.53)	(1.19)	(2.33)*	(0.16)	(0.45)	(3.08)**
Unemployment	-1.405	-1.462	0.481			
	(2.14)*	(1.63)	(0.52)			
Ages 1-17	-1.132	5.855	-1.710			
	(0.27)	(1.02)	(1.32)			
Ages 18-64	-1.184	5.438	-2.159			
	(0.28)	(0.95)	(1.65)			
Ages 65+	-1.485	5.041	-2.413			
	(0.35)	(0.87)	(1.98)			
Labor Force Participation	-0.078	0.219	-0.833			
	(0.29)	(0.60)	(2.00)			
Congressional Representative	0.020	0.020	-0.141			
	(2.04)*	(1.48)	(7.68)**			
Constant	1.949	-4.979	1.369	0.237	-0.298	-1.983
	(0.45)	(0.84)	(1.01)	(0.77)	(0.68)	(2.81)**
R^2	0.68	0.74	0.86	0.61	0.67	0.58
N	53	53	53	53	53	53

* $p<0.05$; ** $p<0.01$

Table II: A table of the two regression models and their outcomes.

Analysis

The hypotheses suggest that counties with Democrat Representatives, higher income, greater youth populations, and higher education rates would have higher vote percentages in favor of environmental support. However, the results of the regression show mixed agreement with the original hypotheses.

The first hypothesis suggested that a Democratic Representative would support environmental protection legislature. The results of the regression showed that a Democrat Representative yielded an increase in positive votes for Proposition 7, no significant result in Prop 10, and a negative outcome for Proposition 23. This fails to reject the first hypothesis, in that the Democrat counties had a significantly larger propensity to vote in favor of increasing environmental spending with Proposition 7, as well as maintain greenhouse gas regulation with Proposition 23. Proposition 10 is not in agreement with the hypothesis as Prop 7 and Prop 23 are, as there is a of statistical significance of the Congressional Representative coefficient. Regardless of the lack of significance in Prop 10, the first hypothesis fails to be rejected in regards to the Californian environmental propositions.

The second hypothesis proposed that counties with higher median household incomes would favor environmental protection. This hypothesis was rejected by both the 2008 Proposition regressions by lack of statistical significance and again in 2010 Prop 23 by the statistical significance of a positive coefficient. A yes vote in Prop 23 was in favor of suspending environmental protection until unemployment had stably decreased. The positive coefficient of 0.220 percentage points for a 1% increase in median household income shows that the households with higher incomes were in favor of suspending the environmental protection. This strongly rejects the initial hypothesis, as in no Proposition did higher median household income lead to greater support for environmental policy.

The third hypothesis proposed that counties with younger populations would have higher proportions in favor of environmental protection. This hypothesis was tested and rejected by all three regressions using the first model. None of the age groups proved to be statistically significant at any level, regardless of the proposition. Therefore, we can reject the third hypothesis within this study's context.

Finally, the fourth hypothesis that proposed higher education rates would lead to higher environmental support. Interestingly, the most frequently significant education variable was Some High School, which held a positive and non-negligible relationship votes on the first Proposition 7 regression and the two Proposition 10 regressions. Out of all four tiers of education that were regressed, the lowest category yielded the strongest positive effect on the propositions.

Bachelors degree holders in Prop 10 were statistically significant, whereas Prop 23 yielded statistically significant High School diploma holders. In each instance there was lack of consistency in support that higher education would lead to more environmental protection. However, this hypothesis cannot be rejected given that the education level proved statistically significant throughout the various propositions. Further work must be performed in order to evaluate the effectiveness of including education levels as significant variables.

Hypotheses two and three (regarding income and age of population) were consistently rejected throughout this study, whereas the first and fourth hypotheses (political affiliation and educational attainment) were only weakly not rejected. Both of the non-rejected studies could benefit from further research, perhaps with a greater spatiotemporal resolution as well as a greater number of states to be regressed upon.

This simply shows that the results marginally resolved by this study, which confirms previous literature surrounding the notion that demographic breakdowns of the populations are unable to act as a proxy for predicting future environmental voting outcomes.

Conclusion

With two of the four hypotheses rejected on ground of lack of statistically significant variables, this research fundamentally suggests that the demographics of the population are poor indicators of the 2008 and 2010 Californian environmental voting outcomes. The hypotheses surrounding household income and ages were rejected, whereas the hypotheses regarding the political affiliation of the Congressional district and the education level were not rejected. Even though previous work identify some green voting patterns among communities given select demographics, this study does not find conclusive evidence that any of the hypotheses regarding characteristics of the population are strongly correlated with voting patterns.

In terms of contributions to the topic, this paper reemphasizes the necessity of future research in the field of voting patterns and demographics. As mentioned, the literature on the topic is often conflicting in determining whether various characteristics are important in environmental voting outcomes. Furthermore, many researchers have suggested there to be factors beyond social interactions within the population as well as the demographic characteristics of the population that lead to voting outcomes. Although intended to originally bridge the gap between these two distinct topics, this study instead only strengthens the above hypothesis and continuing to study what causes the deviation from expected outcomes given attributes.

This suggests that existing policy for environmental groups to target select populations should be modified. Although Democratic districts were shown to have a marginally higher propensity for environmental protection, the educational breakdown proved to be only weakly correlated with the votes, and the traditional criteria regarding income and age were rejected in this study. Furthermore, this research can potentially demonstrate that campaigning for environmental efforts in select districts may require extra efforts or that the funds and time may be better spent elsewhere.

Future research can be produced using a variety of methods. For example, future researchers could explore a greater array of environmental propositions, such as ballots focused on other efforts such as conservation and land ownership and industrial regulation. An alternative study would include more demographic characteristics such as population density, study of occupations within each region, or even consumer habits. By including a larger number of variables, future research can remove correlation between the demographics that inhibited this data set. Additionally, this study was limited by the resolution of the data provided. By moving to the zip code or census tract level, the results regarding each of the proposed hypotheses would be stronger and could show a greater impact by each theory.

The motivation behind this research is to understand who values environmental protection and how to aid future ballot initiatives in ensuring success. This is of the utmost importance, as not has the current budget of the EPA become drastically decreased in a short few months, but with a polarized political climate where voting falls along traditional party lines, recognizing how to proceed with legislation becomes a difficult task.

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