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Data Science

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Education And Voter Turnout in the United States

Intro:

Although voter turnout is a crucial measure of political engagement in the US, participation is still varied among social and demographic groups. Educational achievement is a key factor consistently linked to political involvement. Higher-educated people typically vote more frequently, which raises significant concerns about disparities in civic engagement. This project poses the following research question: Do Americans with higher levels of education tend to vote more frequently?

I examine information from the Current Population Survey (CPS) Voting and Registration Supplement, provided by the US Census Bureau, to answer this question. I investigate how voter turnout fluctuates across educational levels, taking into consideration critical demographic aspects, using descriptive statistics, data visualization, and logistic regression analysis. The findings suggest a substantial positive correlation between voter turnout and education, indicating that educational attainment has a significant impact on political engagement.

Background:

For a long time, academics have maintained that education affects political engagement by boosting civic engagement, political efficacy, and political understanding. Higher-educated

people are more likely to stay informed about political news, understand the voting process, and believe that their involvement can make a difference. As a result, education is often regarded as one of the most reliable indicators of voter participation (Wang et al., 2023).

Using CPS data, government agencies and research groups often record turnout disparities across educational levels. Voter turnout estimates from the US Census Bureau's Voting and Registration Supplement are nationally representative and demonstrate enduring differences by educational attainment (US Census Bureau 2020). In a similar vein, the United States Elections Project uses CPS data to report on subgroup disparities and trends in US election turnout (United States Elections Project 2024). These trends raise concerns regarding democratic legitimacy and uneven political representation.

A higher likelihood of voting is likely associated with higher levels of education, as indicated in this material. In particular, I hypothesize that, even after controlling for age and race, people with higher levels of education are more likely to vote than those with lower levels of education.

Data And Approach

The Current Population Survey Voting and Registration Supplement, conducted by the US Census Bureau in even-numbered election years, provides the data used in this study (US Census Bureau, 2020). The CPS is nationally representative of the adult population in the United States and polls about 60,000 households. The individual survey participant serves as the unit of analysis.

I utilize R's `cpsvote` package to retrieve and analyze CPS microdata from the 2018 Voting and Registration Supplement for the statistical analysis (CRAN 2024). Prof. Katherine McCabe's

Data Science for Political Science resources, particularly Sections 2.4 (Loading data into R) for importing CPS data, Sections 2.2–2.3 (Summarizing univariate data) for computing turnout rates, Section 4.3 (Barplots) for data visualization, and Section 8.3 (Regression in R) for estimating the logistic regression model, provide guidance on working with CPS survey data and performing the analysis in R (McCabe, 2024).

Voter turnout, which is determined by whether the respondent reported casting a ballot in the most recent election, is the dependent variable in the analysis. Educational achievement is the primary independent variable. Age and race are examples of control variables. Before estimating a logistic regression model that predicts the likelihood of voting as a function of education, while controlling for demographic characteristics, the analysis first examines descriptive turnout rates across education levels. A bar chart is then used to visualize these differences. Since the outcome variable is binary, logistic regression is the appropriate choice.

Results:

Voter turnout and education are clearly and consistently correlated, as indicated by the descriptive statistics. Voter turnout is significantly lower among respondents with lower levels of education compared to those with higher levels of education. The wide gap between the lowest and highest education levels indicates significant variations in political engagement.

This tendency is supported by the bar chart, which depicts a consistent rise in turnout as educational attainment increases. Respondents with some college education and higher degrees see a substantial increase in turnout, while those with less education see a minor gain.

The logistic regression results further support these conclusions. Educational attainment remains a powerful and statistically significant predictor of voter turnout, even after adjusting for

age and race. Across all educational levels, the magnitude of the coefficients grows steadily; those with a bachelor's degree or higher experience particularly large and statistically significant effects. Voting is also favorably correlated with age, but racial disparities still exist when age and education are taken into account. These findings align with earlier studies on political engagement and education (Wang et al., 2023).

Conclusion

This project examined whether higher levels of education are associated with increased voter turnout in the United States. Using CPS Voting and Registration Supplement data, the analysis finds strong evidence of a positive relationship between educational attainment and voting behavior. Individuals with higher levels of education are significantly more likely to vote than those with lower levels of education, even after accounting for age and race.

These results are significant because they demonstrate the potential link between unequal political involvement and educational disparities. Differences in educational access could lead to disparities in political voice if education is a key factor in promoting civic engagement. This study's reliance on observational survey data is one of its limitations; as a result, relationships rather than conclusive causal effects are identified. Future studies could examine how specific civic education initiatives or educational policies influence voter turnout over time (US Census Bureau, 2020; United States Elections Project, 2024).

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