

Makayla Yee
Professor Weidman
Economic Data Analysis
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Final Project

Introduction and question

In this report, I aim to answer the following question:

“Is there a correlation between voter turnout and state minimum wage?”

Data description and sources

Minimum wage by state from 1968 to 2020

- Source: FRED
- Link to website: <https://fred.stlouisfed.org/release/tables?eid=243906&rid=387>

Voter turnout rate by state from 1976 to 2020

- Source: Government Census
- <https://www.census.gov/data/tables/time-series/demo/voting-and-registration/voting-historical-time-series.html>

Control: Median household income

- Source: Government Census

Link to website: <https://share.google/fQJU7ulb9Dis12bdF>

Methodology

I found three separate data sets containing the information relevant to my research. I then decided that I would only use data from 1980 – 2020. This is because this is the range that all three data sets were able to cover. I also decided to minimize the number of data points, I would only use information from presidential election years. I saved all of the data sets as separate Excel sheets, and then I combined them. This was difficult because the data sets came from different sources and so the variables were not identical. For instance, one of the data sets contained information about Guam, and another the Virgin Islands. I used the final data set to upload into Colab, and I used class materials and the Google Colab Gemini to run my code and create a linear regression model. I used median household income as my control variable.

Results and analysis

Null Hypothesis:

There is a statistically significant relationship between voter turnout and minimum wage.

Alternative Hypothesis:

There is not a statistically significant relationship between voter turnout and minimum wage.

My results found a large p-value that exceeded the value needed for a 95% confidence level by a large amount. This meant that I needed to reject my null hypothesis and accept the alternative.

Conclusions

Even though my regression line is positive, there is no statistical evidence to suggest any causation between minimum wage and voter turnout. These two variables appear to be unrelated. Another way to potentially test this theory would have been to instead take a sample size of two states: one that has increased its minimum wage and one that has not. Then, I could have compared the two in a regression and tested the treatment effect. The treatment would have been the increase of minimum wage. This probably would have been simpler and more clear. I took such a massive sample size by using every single state. Also, some states like Pennsylvania and Alabama use the same federal minimum wage, but Alabama's input for minimum wage was \$0, and Pennsylvania's was \$7.25. This is because Alabama doesn't have any state minimum wage. This probably caused inaccuracies because in reality, the two states use the same minimum wage but the data represents them as not using the same minimum wage.