Information Visualization Final:

Does the Political Party of the President Impact Poverty Rates?

Alison Holderbaum

University of Oklahoma

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Dr. Jiqun Liu

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The information visualization I created examines the connection between poverty rates and the political party of the president in office. It shows historical data from 1959 to 2022 to help show trends over time. The project was originally inspired by a book I recently read about poverty which talked about how poverty rates did not respond much to welfare programs and other attempts to help citizens out of poverty. I feel that there is an idea in American culture that things are better politically when leaders that you support are in charge. Using this logic, if the current president is someone from your party whom you support, the economy and poverty rates are going to be better while they are in office. This led me to look into the change in poverty rates depending on which party the current president belongs to. I also added median household income and the unemployment rate to help provide context to the changes in poverty rates. The purpose of this visualization was originally to decide if there is any connection between poverty rates and political affiliation. However, since there is not a significant correlation, I feel that it now mainly serves the purpose of disproving the idea of the connection. This helps prevent people from falsely believing that political parties have a direct impact on the economy and poverty rates.

The expected audience for the visualization is likely American citizens who are interested in politics, economics, and social change. I feel that this graph does a good job of debunking the claim that poverty rates change with the political affiliation of the current president. This would be interesting to those interested in politics because it shows that there is not a strong connection between presidents and the strength of the economy. This helps us to start thinking about other reasons for the changes in the poverty rate. This visualization would be interesting to those interested in economics because it shows how the economy has changed over time and how the

three measurements shown change independently of each other. The overall design and topic of the visualization remind me of something that would be published in the New York Times or similar publications. Readers of the New York Times may not be directly interested in politics or economics but may want to learn more about what is going on around them and generally become more informed. This would allow the visualization to appeal to an even broader audience. This visualization also ties to social justice. Without getting too much into politics, this graph easily shows that the poverty rate has remained fairly steady since the 1970s while the median household income has increased significantly. If we want to decrease poverty rates, more needs to be done than what has been done between now and when the data started in 1959. This visualization could be used as proof for someone who is trying to prove that a certain change needs to be done to decrease poverty in America. Additionally, this could be a good visualization to include in a textbook or course material related to the topic.

The data I used came from the United States Census Bureau and Federal Reserve Economic Data from the St. Louis Federal Reserve Bank. I used the "Number and Percent of People at Varying Degrees of Poverty and the Near Poor" (U.S. Census Bureau, n.d.-a) table from the Census Bureau's collection of historical poverty tables to show the poverty rates over time. It covers the years 1959 to 2022 which influenced which years I kept from the other datasets. I got the data on median household income (U.S. Census Bureau, n.d.-b) and unemployment rates (U.S. Bureau of Labor Statistics, n.d.) from the St. Louis Federal Reserve Bank's FRED. The income data represents the real median income which I felt would be more accurate than data that used the mean income or was not adjusted for inflation. I also got the unemployment rate data from FRED. The main flaw with the unemployment rate dataset is that it was measured by month rather than by year. To make it easier to display, I used the average

unemployment rate for each year. It was nice to have the option to use more precise data but this was more information than I needed for the visualization I was making. It also makes the creation of the visualization much easier when all the data uses the same time frame. Due to this I also only used data from the years that had available data for all three measurements. This reduced my time range by a few years but allowed me to create a more complete picture.

Since the data has been slightly altered and filtered, it is important to tell the audience of those changes. However, I could not figure out how to add this information to the visualization using the program I created the graph with. My desire to add this additional context was highly influenced by Dork's concept of adding disclosure to information visualizations. I want to be as open as possible with the audience about the background information and how the graph was created. As Dörk stated, "When the designer's intentions and decisions are concealed, it is difficult to trust a visualization and engage with the presented issue" (Dörk et al., 2013). Since this visualization could be used as a means for change, it is even more vital that the audience trusts the information they are presented and knows how it was used. I would have liked to include enough information so that my visualization could easily be recreated and fact-checked if the same data and alterations were performed. In an ideal world, there would be the ability to add text boxes to my visualization. I would use this to include sources as well as a small summary and information about how the graph was produced.

There is a large amount of data held in a small graph. This is where it is even more important to create trust between the audience and the visualization and its creation. There are a lot of details that the audience wants to see in a quick and easy way to understand. This is where the design and details of the visualization come in. There is not as clear of an answer from this visualization as there is from others. This leads the audience to think about the full picture that

the data shows. Some people may be more interested in how much incomes have increased since 1959 while others may be curious about if there is a connection between unemployment and poverty rates. Using Tufte's principles for information visualization (Tufte, n.d.), this visualization provokes thought about the subject and encourages the viewer to compare details. It also reveals different connections between the different layers of data depending on what the audience is focused on.

The way I created my information visualization was heavily influenced by what I learned from Whitney's pathway to data wisdom (Whitney, 2013). I ensured that I got the data I used from reliable sources and carefully altered it when needed. This should help reduce undetected errors and misinformation. I also explained the chart and the background of the data in order to reduce misinformation. While this is not a topic that I am an expert in, I feel that I tried to prevent hearsay and unfounded beliefs by allowing others to create their own conclusion about the visualization while providing the details they need to be able to see the full story.

I also used what I learned from Shaffer's 4 C's of Data Visualization (Shaffer, 2012). I feel that the visualization I created is clear. It is easy to tell what the message is and why it was created. The title and labels help with this and provide the context needed to fully understand the graph. I also feel that it has a good color choice by using red and blue to represent the parties. Since these colors are traditionally associated with each party, this makes it easier to understand rather than if random colors were used. The visualization is clean. The data and details on the graph are organized and formatted well. I consider the graph to be concise. There is a lot of information held in the visualization but it is not overwhelming and is easy to understand. The visualization is captivating and quickly grabs your attention. I feel that the color scheme and the red and blue bars help with this as they are interesting and colorful.

I originally was going to use Tableau to create this visualization but I ended up using Plotly's online graph maker. The main feature that set Plotly apart was the fact that it easily allowed me to stack bar and line graphs on the same chart. Plotly was very easy to use and it was not hard to create the type of visualization I originally intended to make. There were a lot of features that allowed me to customize almost everything. The one complaint I had was that certain features were behind a paywall and it was harder to find ways to change certain features. One thing I wanted was to have the colors in the bar graph to represent the colors typically used with the Democratic and Republican parties. If I tried to change the colors to reflect this in one part of Plotly, it would not allow me without upgrading my account but there was still a way to change the colors using a different part of the menu. Generally, Plotly was extremely easy to use and did not involve any research to figure out how to do the things I wanted. Most of the time spent creating the visualization was on perfecting it and the design rather than adding the data and making the graph. It was also not hard to find the data for the visualization because it came from official sources and I was looking for commonly used information. I wish that I could have been able to add more text to the graph to add additional context and information about sources. This is a key feature that Plotly lacks.

If I were to remake this visualization, I feel that one thing I might change would be which datasets were shown as line graphs and which were shown as bar graphs. While I wanted poverty rates to be the main focus with direct ties to the changes in political parties, it might make sense to have both of the line graphs as percentages. This could make the visualization easier to read and understand. However, it would put the median household income as being shown on the same bars that show political parties which would take away from the intended message. I think in the future, similar graphs could be made to show connections between other economic

metrics. It could also be used if I was a policymaker and had data for a short period of time that I wanted to show to prove that a certain law or action created a change. This would likely not be tied to political parties but I could show the change in the poverty rate and other factors since we started a program that helped lower poverty rates. A visualization like this could help show that this program works and should continue to receive funding.

Works Cited

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