To: Taylor Corbett

From: Doug Hummel-Price

Date: December 20st, 2019

Re: Final Project

Executive Summary

This semester, I have centered my data visualization assignments around NASA procurement data. As a member of the Planetary Society, I have learned that Space Policy represents a policy arena in which civic engagement can have a disproportionate impact on the decisions of elected officials. Nearly every other issue under the political sun has a clear left-right divide, but space exploration has yet to fall victim to partisanship. With that in mind, I created a story with GitHub Pages and Tableau with two goals: education and inspiration.

Education

As the recent impeachment proceedings have made clear, the average voter is underinformed about the processes of the Federal Government. Therefore, I aim to provide a brief primer on the Congressional budget process so that the reader understands the context for the visualizations. I pulled inspiration for this from the Planetary Society’s Space Advocacy 101 course, though I had to explain in just a few minutes what takes the course several hours to do. Throughout the story, I have opted to provide the minimal amount of information I believe is required to understand the story, while providing links to sites for deeper learning for those who want it.

Inspiration

Educating the public about government process is not enough for my story to impact readers. I placed significant emphasis throughout on allowing the reader to obtain their own district information to use when they interact with the choropleth maps and parallel coordinate diagrams. I end the story with an explicit call to action.

Data Sources

The data used for this project is the essentially the same I have been using all semester. That paper is part of the GitHub repo, so I won’t repeat that here. In short, the data is collected from the NASA Procurement Data View website. I have rerun the necessary process to obtain the most recent data, which makes the data for the previously incomplete fiscal year 2019 complete. The story also uses committee and subcommittee appointment data, pulled directly from the membership tabs of each committee’s website.

Technology and Methodology

The story itself was created with GitHub Pages. The only big challenge presented by this tool was embedding my visualizations. Using the embedding code directly from Tableau did not work like I hoped, so I ended up embedding the visualizations by tweaking iframe code. By setting the sizing on each Tableau dashboard to auto, I was able to get the maps and plots to have the optimal width while specifying a specific height.

Tableau: Choropleths

Using the choropleth map that I had previously created with Plotly Express as a target, I used Tableau’s ability to autodetect state and Congressional district fields for each choropleth map. Because congressional district boundaries change over time and committee membership changes every election, I opted to restrict all maps to fiscal year 2019. This decision also keeps my story focused by limiting the map interactions possible. All of the maps except one give the reader the ability to enter their own state or district. I opted against including this on the map showing which districts contain NASA field centers since so few districts had centers. I’ve also made sure that each map has relevant rollover information. This is particularly important for the contract award totals because the underlying data to form the maps is logged for clarity. The rollover contains the actual real dollar amount, preventing the user from having to think about what orders of magnitude are.

Tableau: Parallel Coordinate Diagrams

Creating the parallel coordinate diagrams in Tableau required first standardizing the chosen variables so they are all on the same scale. While this decreases interpretability of the diagram, I did so because readers are generally not familiar with such diagrams; I only want the reader to see that the paths are not straight lines across, emphasizing how uncorrelated the three variables.

Talking Points

For the most part, the GitHub Pages story itself covers the relevant talking points. For that reason, I refer you to the story itself for explanation of how the visuals are used.

Technical Documentation

All the relevant documentation is contained on the GitHub Repo for the Pages story. There are three Jupyter Notebooks used for wrangling and cleaning the data and two Tableau Workbooks that contain the maps and plots as dashboards.