The Rise of the Career Politician

JOE SCHLESSINGER, Massachusetts Institute of Technology, USA

I've created a website that guides the reader through an exploration of trends in length of tenure and age of members of Congress.

CCS Concepts: • **Human-centered computing → Visualization techniques**;

Additional Key Words and Phrases: visualization, politics, congress

ACM Reference Format:
Joe Schlessinger. 2021. The Rise of the Career Politician. In *6-859 '21: ACM Symposium on Interactive Data Visualization Final Projects, May 19, 2021, Cambridge, MA.* ACM, New York, NY, USA, 3 pages. https://doi.org/10.1145/1122445.1122456

1 INTRODUCTION

The motivations for this paper start with recent trends in American politics. First, there have been a number of populist campaign against senior party leaders. Whether it's Donald Trump's initial rebellion against the Republican Party or young progressive members of Congress taking issue with the Democratic establishment, there is a narrative on both sides that our career politicians have failed. Populists suggest we need to "drain the swamp" and bring in outsiders who will finally deliver for the American people. I wanted to explore the assumptions behind these claims. Has Congress really been taken over by career politicians who do not accomplish anything? Are "outsiders" better at passing legislation?

The second reason I was interested in this topic is it fits into a broader generational conflict. "OK Boomer" is mostly a joke, but it reflects a real tension between the younger and older generations. Young people perhaps feel unrepresented by older politicians, a theme that came up in the most recent Presidential election that was dominated by older candidates. [1] In part, I wanted to understand whether our politicians have really gotten older.

The last question I wanted to explore was whether there is a relationship between age/time in Congress and important outcomes. Is concern about career politicians simply a petty populist talking point, or are career politicians really different from other politicians in some meaningful way?

I wanted to make an article that explored these complicated questions in a fun, interactive way. I did not intend to definitively answer any of them, but rather to provide a sense of overall trends in Congress and some possible takeaways.

[1] https://www.theatlantic.com/ideas/archive/2020/03/why-are-these-people-so-freaking-old/607492/.

6-859 '21, May 19, 2021, Cambridge, MA

2 RELATED WORK

Much of the data driven work on Congress would be impossible without Govtrack. Govtrack is a nonprofit dedicated to collecting and processing data related to the U.S. government. They have a great collection of data of members of Congress, as well as a few years of "report cards" with various performance measures of legislators. I rely on voteview for data related to ideology scores.

There's no shortage of visualization work in politics. My work is broadly related to two oft-visualized categories: demographics and ideology. Here are some visualizations I looked at before working on this project.:

- Interactive visualization of bills
- Visualizing changes in ideological makeup of Congress
- Scatterplot of DW-Nominate scores
- Basic interactive visualizations of Congressional demograhpics
- Change in gender and ethnicity of Congress

3 METHODS

3.1 Data Processing

I started by preprocessing the congress data. It is available as a list of members of Congress, which itself contains a list of terms served. I processed the data to convert it to a list of years and the associated members serving in Congress during those years. From there, I computed statistics like cumulative time in Congress, age in current year, etc. This was slightly tedious work because there are a lot of irregularities (members who died, quit, did not have recorded birthdays, etc.) I did as much preprocessing as possible. The dataset is large and the calculations are computationally intensive, so it was important to avoid performing these computations on the client side.

Another large undertaking was accessing the Wikipedia pages of these members of Congress. It was important to me to pull in headshots of the members of Congress; I think these really enhance the tooltips. Govtrack provides a wikipedia ID, but it was quite tedious to query Wikipedia to pull these photos.

3.2 Design Philosophy

I'll start by sharing my general design principles: **Scrolly-telling.** I like the scrolly-telling format as a way to guide the reader along the visualizations. I've seen this done effectively in many data journalism articles, so I wanted to emulate that. One downside is scrolling can get old. I tried to combat this in two ways. First, I condensed the number of story elements. For each section, I tried to keep the number of sections around 3. Second, I made a quick navigation section to allow people to move around quickly without tedious scrolling.

Martini glass. For each of my visualizations, I use the martini glass format. I start by guiding the reader through the desired insights. The reader can interact with the visualization at any time

throughout the scroll, but I wait until the end of the section to explicitly invite them to interact.

Annotations. I have tooltips on my visualizations, but I found it tedious to point them out via text. I rely on callouts to alert the reader to the available tooltips. I have the callouts fade away when the user either interacts with the tooltips or scrolls.

Animations. There is not a lot of animation in my article. The main way I use animation is when I change a setting on the scroll. I use the animation to make it clear to the reader that something on the visualization has changed. I ended up going with a simple fade in / fade out because I think it serves this purpose.

4 RESULTS

I'll start by giving an overview of the article and the purpose of each section.

- **Introduction:** the introduction is intended to motivate the article
- **Bubble plot:** the bubble plot is not the most informative section, but I intended it to be like another introduction. I wanted to introduce the reader to this concept of the distribution of experience in Congress and career politicians. I wanted the reader to see the large area taken up by a few politicians and think "wow, those are some long careers."
- **Box plot:** the box plot is intended to show how the distribution of age and experience has changed over time. This is supposed to give the user a more precise understanding than the bubble plot
- **Scatter plot:** the scatter plot is intended to explore whether there is a relationship between experience and other outcomes we might care about (like ideology, or bills introduced)
- **Conclusion:** wrap up the article with my main takeaways

Below, I describe the three main visualizations in more detail:

4.1 Bubble Plot

The bubble plot visualization can be found in Figure 1. Each bubble represents a member of Congress. Bubbles are sized by years spent in Congress, which is printed as text inside the bubble. The color corresponds to the political party. While this isn't the best way to see the precise distribution of experience, I think it is one that is provocative and makes the reader curious to read more. I was leaning towards scrapping this visualization but it received positive feedback from my peers during the MVP presentation so I left it in.

Interactions. I intentionally do not display the name of the member of Congress. I want to invite the user to explore these bubbles, which they can do using the tooltips. The tooltip pulls the image of the member of Congress from their Wikipedia page and displays other information.

The other interactive component is the slider, which allows the user to adjust the year. As part of my story telling, I set an interval that circulates between a few years. This cycling through years serves two functions: showing my point that 2021 may not be an anomaly and inviting the reader to try exploring other years.

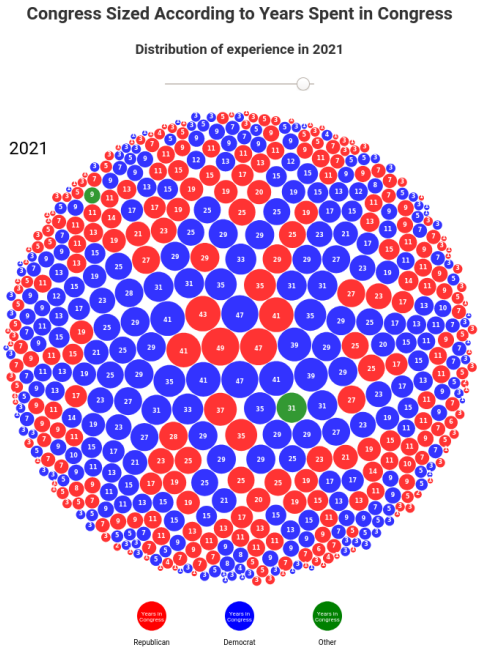

Fig. 1. Bubble plot of distribution of Congressional experience.

4.2 Box Plot

The box plot can be found in Figure 2. I plot a box plot with outliers for each decade. I chose a box plot because I think most people understand it. One difficulty with visualizing distributions is statistical knowledge is generally low. I thought about doing vertical kernel density estimates, but I thought this worked better. I really like the way the outliers stand out, and indeed these are an important thing to highlight, as the outliers are often the career politicians.

Interactions. The users have the same tooltip functionality for the outliers. They can also hover over the boxes to reveal the precise numbers. There are also toggles at the top of the graph. As the user scrolls, the graph updates and the toggles change. I rely on fading animations to make clear to the reader that the graph is changing.

4.3 Scatterplot

The scatter plot can be found in Figure 3. The scatter plot attempts to look at outcomes and how they're correlated with time in Congress. One difficult decision I made was to put my independent variable, years of experience, on the y axis. I did this because I wanted to plot ideology on the x axis because ideology is typically thought of as "left" or "right". I thought it would be too confusing to have years of experience on the y axis when compared with ideology, and then on the x axis otherwise.

Interaction. The scatterplot has the usual hover tooltip, but I also have many settings the user can play with. I keep these hidden by default, and reveal them explicitly after the exploration (at the end of the martini glass). The other interaction I implemented was a search bar. A user can search for a member of Congress they are interested in and append a text label to the plot.

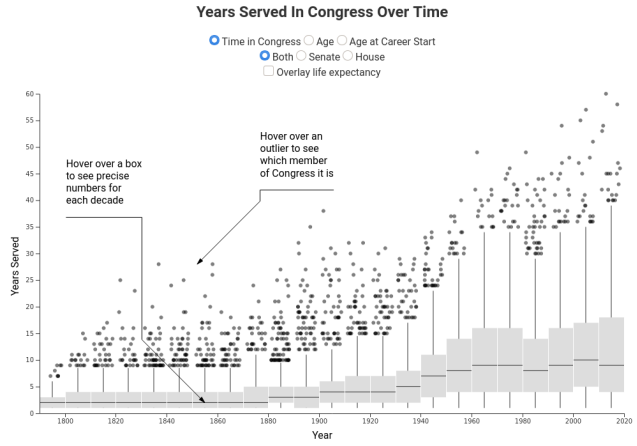

Fig. 2. Box plot of Congressional age and experience over time.

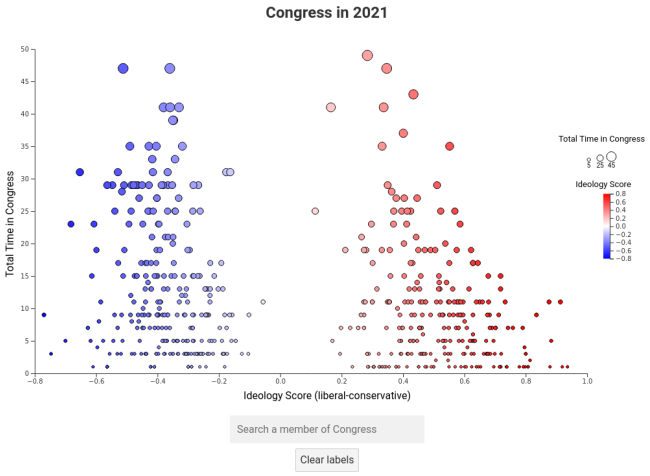

Fig. 3. Scatter plot comparing time in Congress with outcomes like ideology.

5 DISCUSSION

Hopefully the audience has learned that both age and time in Congress have increased and are at all time highs. The most interesting thing to me is how closely the increase in experience has tracked with life expectancy gains. There are members of Congress that basically stay in until they die, so one of the reasons for the increase in time in Congress is that people simply live longer these days.

The audience should also have learned that more time in Congress is correlated with more moderate.

6 FUTURE WORK

First, I think the aestethics of the website could be greatly improved. As a novice in web development, I had difficulty making it look good, but this is something that is important.

Second, I think it would be better to integrate more rigorous reporting and academic work on this topic with the article. It would be nice to have more resources for a reader to consult.

Finally, I would like to add more data on members of Congress. I started to integrate a dataset on misconduct by members of Congress. It would be nice to include all the available information in one place.

ACKNOWLEDGMENTS

Thank you to my classmates, who gave me valuable suggestions for this project.