

Jillian Cuzzolino

Professor McCabe

Data Science for Political Science

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Final Project: Paper - “Which political party, and to what extent, is likely to support Government Healthcare?”

Introduction

Government healthcare is one of the most polarizing topics of political discussion; with this paper, I hope to use data science methods in RStudio to determine certain variables that decrease polarization and increase support for universal healthcare. My research question is as follows: “Which political party, and to what extent, is likely to support Government Healthcare?” In this analysis, I am limiting the variable of healthcare types to the Affordable Care Act (ACA) and Medicare-For-All (M4All). Limiting the analysis to two healthcare systems allows me to isolate the variables age, income, and health and the extent of their influence on a survey respondent’s support.

My initial hypotheses were built off of my own experience as a politically engaged citizen as well as by making inferences about the survey respondents. First, I predicted that the support from Democrats will be relatively high across all Democrat models. Second, I predicted that Republican support will never exceed Democrat support and remain comparatively low. I also predicted that negative versions of the factors such as “old”, “poor”, and “unhealthy” will influence Democrat support by a negligible amount and influence Republican support by a significant amount.

The approach I took in regards to the dataset “kff2019”, a poll by the Kaiser Family Foundation, was to split it into three sections. The first section consisted of defining the control group. The second section consisted of creating treatment groups of respondents who identified as Democrat or Republican and a positive or negative version of the factors “Age”, “Income”, and “Health”. The third part was the

most complicated section as it required that I take a difference in means between the treatment and control groups.

The key results of this project align accordingly with my original hypotheses. Democrat support remains consistently high while Republican support remains low. Notably, the variable “Income” is the most influential treatment for Republicans. Findings as such are valuable to policymakers and other designers of healthcare systems. Although there are many advantages in the Affordable Care Act and Medicare-for-All system foundations, there are certain areas to target that will satisfy more of the American public if improved upon.

Background

A perfect solution to providing Americans healthcare that satisfies everyone does not exist. There are many factors, such as public versus private programs and coverage for pre-existing conditions, that make it difficult to create a universal healthcare system that simultaneously functions efficiently and accommodates every American’s individualized needs. My research question hopes to distinguish Democrats and Republicans and certain conditions personal to them that affect their support of healthcare systems. I will explore special variables that may influence the probability that a Republican would increase their support for government welfare programs despite their party’s over-arching principles and conflicting ideologies of the authors of government healthcare programs. For example, a low income Republican may increase support for government healthcare if a plan allocated allowance towards medical and hygiene products. I will conduct this same process for Democrats.

Although this analysis may not encompass every prominent variable that constructs a person’s opinion on government healthcare, the key results of this analysis will determine which of the variables I have chosen are the most influential and should be further researched. Despite the fact that the Affordable Care Act has provided 19.5 million citizens healthcare insurance as of 2016, the number of people uninsured by healthcare currently increases by a factor of 500,000 each year (Tolbert, “Key facts”). The

current healthcare systems have increased the number of insured Americans, but certain factors are diluting its potential. It is important to recognize prominent barriers that prevent Americans from obtaining healthcare and the possible benefits from addressing them in developing healthcare programs, such as Medicare-for-All.

Since its introduction, support for the Affordable Care Act has been extremely divided among Democrats and Republicans. The average partisan gap in ACA favorability has increased from 48.9% in 2013 to 64.1% in 2019, meaning that the sum of Democrats with a favorable view minus Republicans with a favorable view has increased and there is a greater gap between the two parties average support (Brodie, “The Past, Present”). My initial theory was that the Democratic and Republican survey respondents will follow these trends due to evident increases in partisanship. I also hypothesized that none of the special variables will heavily affect Democrat support. Republicans support has the potential to increase but the respondent must identify with negative versions of the variables, such as “old”, “poor”, or “unhealthy”. I predicted that negative variables will increase support for government healthcare because they pertain to individual situations that are dependent on government welfare programs; for instance, they may be too poor to afford private insurance, have pre-existing health conditions only the ACA will cover, or are eligible for Medicare which is exclusive to the elderly.

Data and Approach

For this analysis, I used the "Kaiser Family Foundation Poll: April 2019 Kaiser Health Tracking Poll" created by the Henry J. Kaiser Family Foundation, conducted from April 11th to 16th of 2019. The data set contains 1,203 rows. Each individual row represents a survey respondent. In order to qualify for the survey, respondents were limited to be the youngest adult in their household and at least 18 years old. This dataset contains 154 columns, representing either special variables, such as education level, or their response to a survey question.

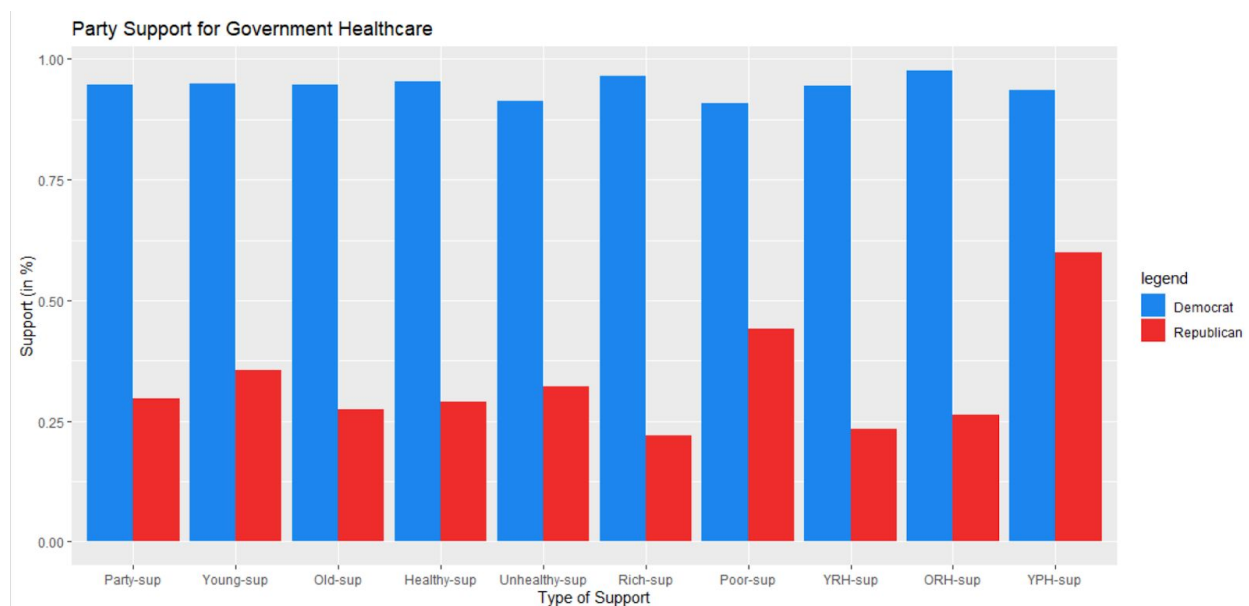
I first created a control group of survey respondents, consisting of individuals identified as either Democrat or Republican who also supported either the Affordable Care Act or Medicare-for-All. The variables “Age”, “Health”, and “Income” are used as treatment for the control group. Each variable had many different answers so I created two sections, positive or negative, that grouped together similar answers. These qualities exist independently from a person’s support, but their presence forces the person’s support for healthcare to become a dependent variable. Lastly, I tested random combinations of positive and negative versions of the three special variables.

Name	Description
demsup repsup	Percentage of Democrats Republicans who support the Affordable Care Act (“aca”) or Medicare for All (“m4all”) *control groups
youngdemsup youngrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of ages “18-29” or “30-49”
olddemsup oldrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of ages “50-64” or “65+”
healthdemsup healthrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of health “Excellent”, “VeryGood”, or “Good”
unhealthdemsup unhealthrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of health “Only Fair” or “Poor”
richdemsup richrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of income “\$90K+”
poordemsup poorrepsup	Percentage of Democrats Republicans who support “aca” or “m4all” of income “Less than \$40K”
yrhd yrhr	Percentage of Democrats Republicans who support “aca” or “m4all” of ages “18-29” or “30-49”, of income “\$90K+”, and of health “Excellent”, “VeryGood”, or “Good”
orhd orhr	Percentage of Democrats Republicans who support “aca” or “m4all” of ages “50-64” or “65+”, of income “\$90K+”, and of health “Excellent”, “VeryGood”, or “Good”
yphd yphr	Percentage of Democrats Republicans who support “aca” or “m4all” of ages “18-29” or “30-49”, of income “Less than \$40K”, and of health “Excellent”, “VeryGood”, or “Good”

Once finding the means of each set of Democrat and Republican models with variables, I created a loop that took the difference in means between the treatment group and control group. I believe this approach is the best method to answer my research question because it allows me to comprehensively look at the means of many treatment groups at the same time. Although I reduced the number of variables from 154 to 3, the positive and negative versions of each variable doubled the amount of treatment groups in this analysis. It is more efficient to analyze the special variables and their extent of influence by taking the difference in means between a single control group and many treatment groups.

Results

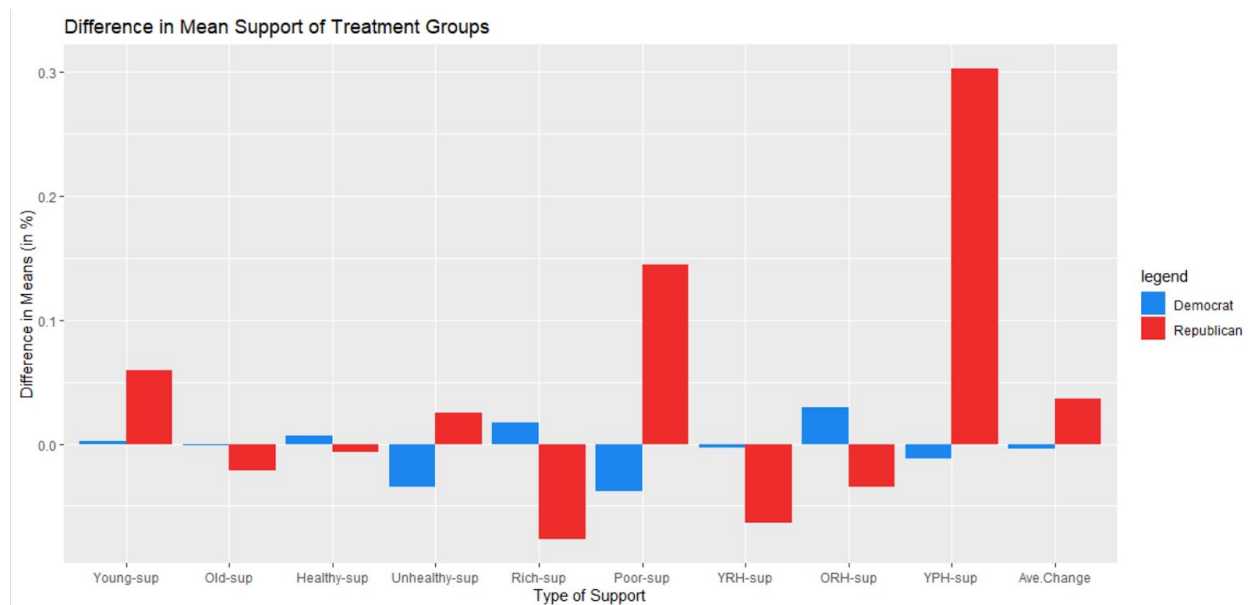
Each special variable required that I calculate the mean of Democrats or Republicans with that variable condition who supported government healthcare; this was achieved by finding the ratio of the number of respondents with the condition who supported government healthcare and the number of respondents without the condition who supported government healthcare.



The blue bars represent the mean support of Democrats. They are consistent with one another despite the presence of special variables, remaining between 90% and 98%. The red bars represent the mean support of Republicans. They remain low between 21% and 60%. The Republican bars are confined

to a small range but are less consistent in height along the graph. The Democrat bars are all higher than the Republican bars, which indicates that Democrats are more supportive of government healthcare than Republicans.

The difference in means analysis required that I subtract the mean support of the control groups from the mean support of the treatment groups for both sets of Democrats and Republicans. Each difference in means is represented by a bar on the following graph.



The raw results reveal that the average change in support due to special variables is very low. The average difference in means between the Democrat control group and treatment groups is -.3%. The average difference in means between the Republican control group and treatment groups is 3%. Although both averages are minute, it can be determined that Democrats with variables become somewhat less supportive while Republicans with variables become somewhat more supportive of government healthcare. Additionally, every treatment causes some fluctuation in support in either direction, though some greater than others. Both parties have a mix of variables that create upwards and downwards bars, indicating an increase or decrease in support.

These results are generally aligned with my original hypotheses. Democrat support for healthcare is consistent and high, regardless of the treatment variables, while Republican support never exceeds Democrats. This data supports the fact that Democrats with or without the presence of special conditions are more likely to support government healthcare than Republicans. While I predicted that each negative version of the variable treatments would significantly increase Republican support, the only variable that makes a distinct change in the data was “Income”. This negative variable significantly increases support among "Poor Republicans" and "Young, Poor, Healthy Republicans" by 14.4% and 30% respectively. Although Democrats with variables are more supportive, Republicans who identify as “Poor” see the greatest increase in support of government healthcare, more than any other Republican treatment group.

Conclusion

Although there are many answers to the question “Which political party, and to what extent, is likely to support Government Healthcare?”, my research reveals that Democrats with and without variable treatment are the most supportive; Democrat support is consistently and substantially higher than Republicans. Both of these findings follow my initial hypothesis. Republicans with the variable “Poor” such as “Poor Republicans” and "Young, Poor, Healthy Republicans" are the only groups that see a noteworthy increase in support, opposing my hypothesis that all negative variables would have this effect.

I hope to encourage healthcare makers to create more inclusive and accommodating healthcare that appeals to populations separate from political parties. This research highlights individual perspectives which can contribute to improving government healthcare infrastructure. Future research should also explore other variables that may greatly impact an individual’s opinion of healthcare. The Kaiser dataset analyzed many other conditions like education, employment status, and pre-existing medical conditions. These are all equally important factors that should be addressed when creating and reforming healthcare systems and programs.

Finally, I have uploaded this paper to GitHub for future reference.

Works Cited

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