Final Project Memo

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Introduction

Political polarization has become a salient issue in the United States, especially during and following the election of former President Trump. Not only is there discourse over what has been causing such polarization, but people also care greatly about how it will affect our legislative system and the nature of politics for the years to come. Considering the importance of this topic, I will focus my final project on investigating the extent to which polarization has grown in Congress, as well as if this magnitude of polarization is reflected in the American population.

Given the prevalence of political polarization in media and academics, there is a substantial collection of texts, research papers, and studies in the current literature. Some researchers indicate that member replacement drives the increased polarization of American politics, however others argue that ideological migration is instead truly behind it. I am interested in utilizing new ways to measure polarization among both the citizens and Congresspersons. This project intends to discover if the scale of polarization within Congress is the same as the polarization occurring among Americans.
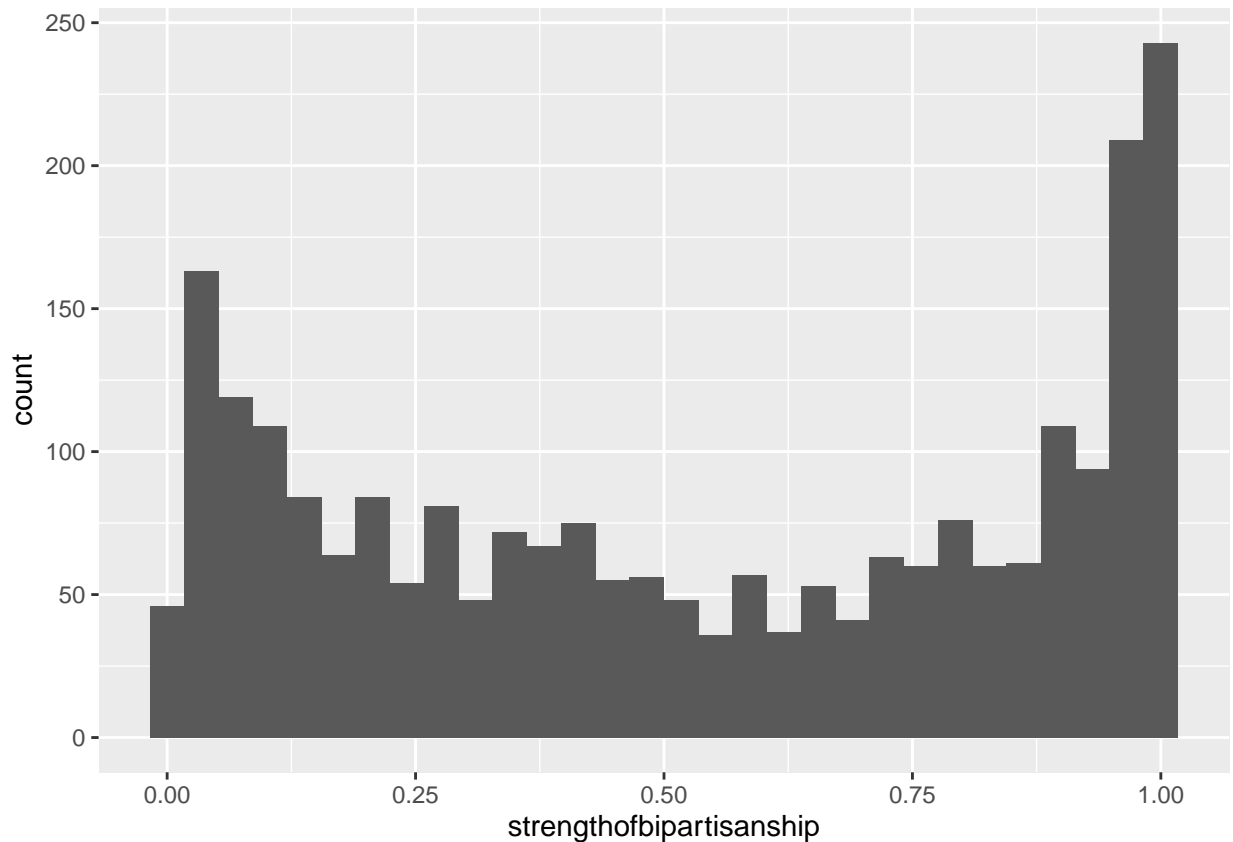
Data Exploration

For my initial data collection and summarization, I am utilizing the data set "Important Congressional Votes, 1991-2020." This data set was created by Jordan Tama based on information from the Congressional Quarterly Almanac regarding what they considered "important" votes in Congress since 1991. The data set has 59 variables measuring votes for each party, bipartisanship, what kind of vote it was, and other useful information. There are 3,445 observations, however they are not all complete cases. Below, I have summarized the variables that are most pertinent to my research project. Year describes the year that the vote happened. Democraticayes and Democraticnays represent the number of yes or no votes from democrats. Republicanayes and Republicannays represent the number of yes or no vote from republicans. Strengthofbipartisanship measures bipartisanship given the following equation: 1 - (the absolute value of (the share of Republicans voting in favor of the legislation - the share of Democrats voting in favor of the legislation). Strength of concensus is the total number of Congresspersons who voted yes divided by the total number who voted no. Introducedbydemocrat is a logical variable with 0 given that it was not a democrat who introduced the legislation and 1 if it was a democrat. Strongpolarization indicates that at least 90% of each party voted against 90% of the other party.

```
##       year       democraticayes   democraticnays   republicanayes
##  Min.   :1991   Min.   :  0.00   Min.   :  0.00   Min.   :  0.0
##  1st Qu.:1993   1st Qu.: 31.00   1st Qu.:  2.00   1st Qu.: 35.0
##  Median :1998   Median : 52.00   Median : 18.00   Median : 53.0
##  Mean   :2001   Mean   : 93.94   Mean   : 49.60   Mean   :102.3
##  3rd Qu.:2007   3rd Qu.:178.25   3rd Qu.: 65.25   3rd Qu.:200.0
##  Max.   :2020   Max.   :263.00   Max.   :257.00   Max.   :252.0
```

```
## NA's   :516    NA's   :1551    NA's   :1551    NA's   :1551
## republicannays    strengthofbipartisanship strengthofconsensus
## Min.   :  0.00   Min.   :0.0000        Min.   :0.0000
## 1st Qu.:  2.00   1st Qu.:0.2000        1st Qu.:0.5400
## Median :  11.00   Median :0.5200        Median :0.6600
## Mean   :  38.25   Mean   :0.5347        Mean   :0.6982
## 3rd Qu.:  43.00   3rd Qu.:0.8900        3rd Qu.:0.9000
## Max.   :251.00   Max.   :1.0000        Max.   :1.0000
## NA's   :1551    NA's   :1551        NA's   :1551
## introducedbydemocrat strongpolarization
## Min.   :0.0000       Min.   :0.0000
## 1st Qu.:0.0000       1st Qu.:0.0000
## Median :0.0000       Median :0.0000
## Mean   :0.4353       Mean   :0.1947
## 3rd Qu.:1.0000       3rd Qu.:0.0000
## Max.   :2.0000       Max.   :1.0000
## NA's   :529          NA's   :1551
```
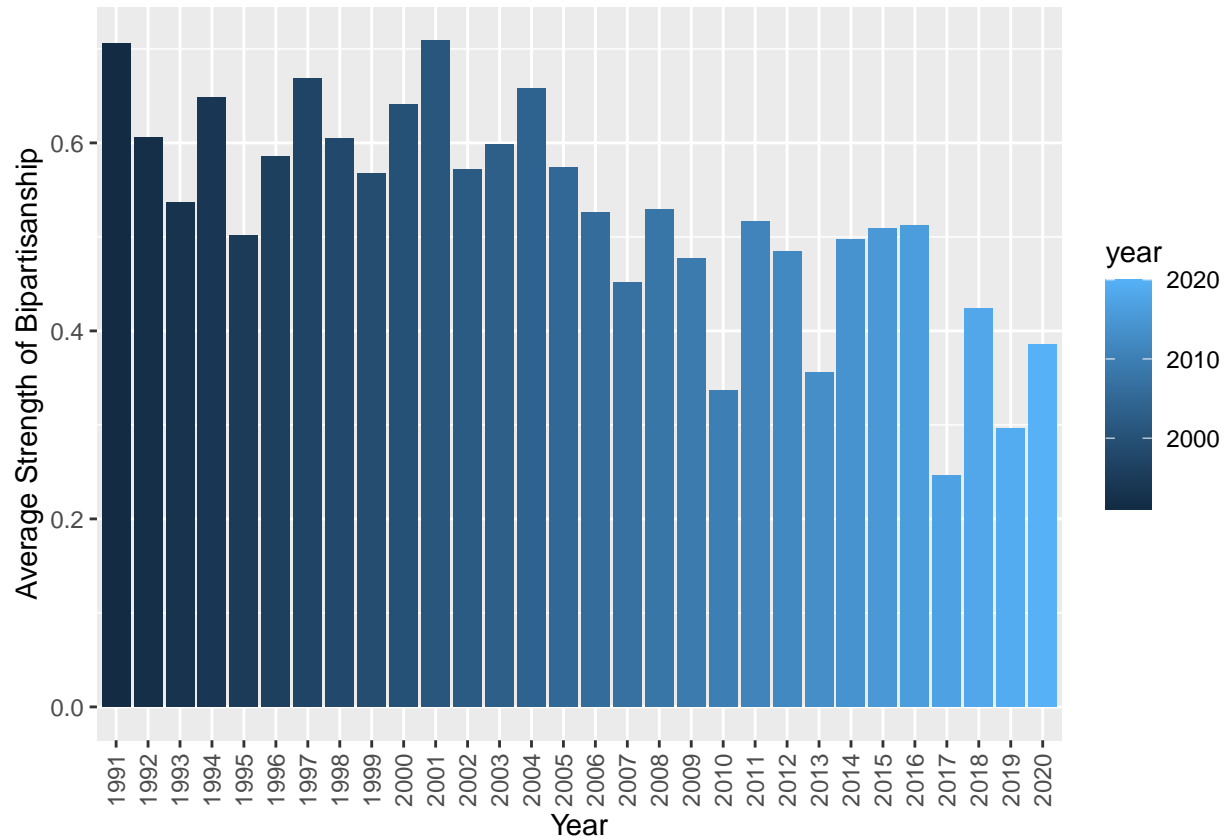
```
## 'stat_bin()' using 'bins = 30'. Pick better value with 'binwidth'.
```

```
## Warning: Removed 1551 rows containing non-finite values (stat_bin).
```


The strengthofbipartisanship variable is the most compelling to me, as it combines some of the other measures together and gives a clear representation of polarization or lack thereof. The numerical summary of strengthofbipartisanship is slightly misleading, as it seems to be a normal distribution. Though, when we view the histogram it becomes apparent that most of the observations are close to total or no bipartisanship.
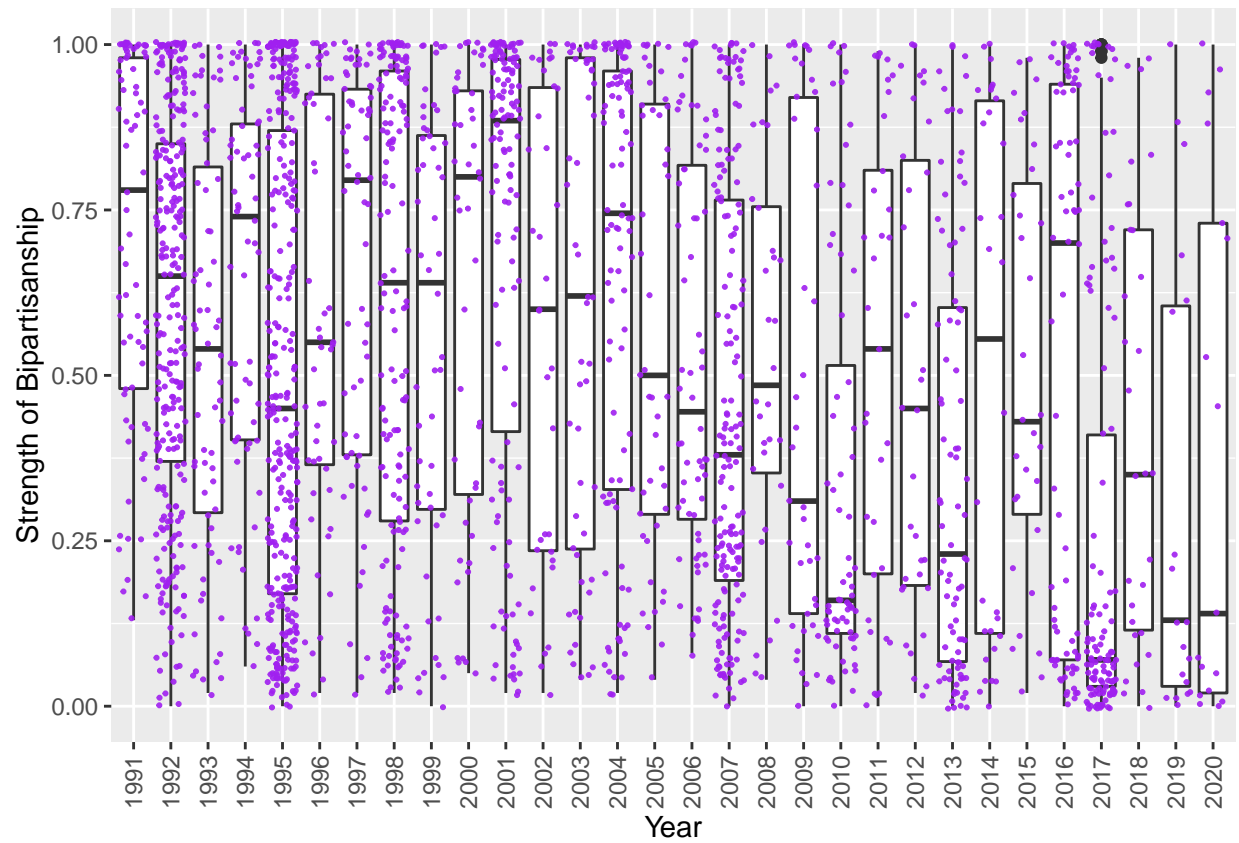
This graph is enlightening in terms of how often the parties agree or disagree. However, it represents all the years combined. Therefore, I also investigated the measure across each year.
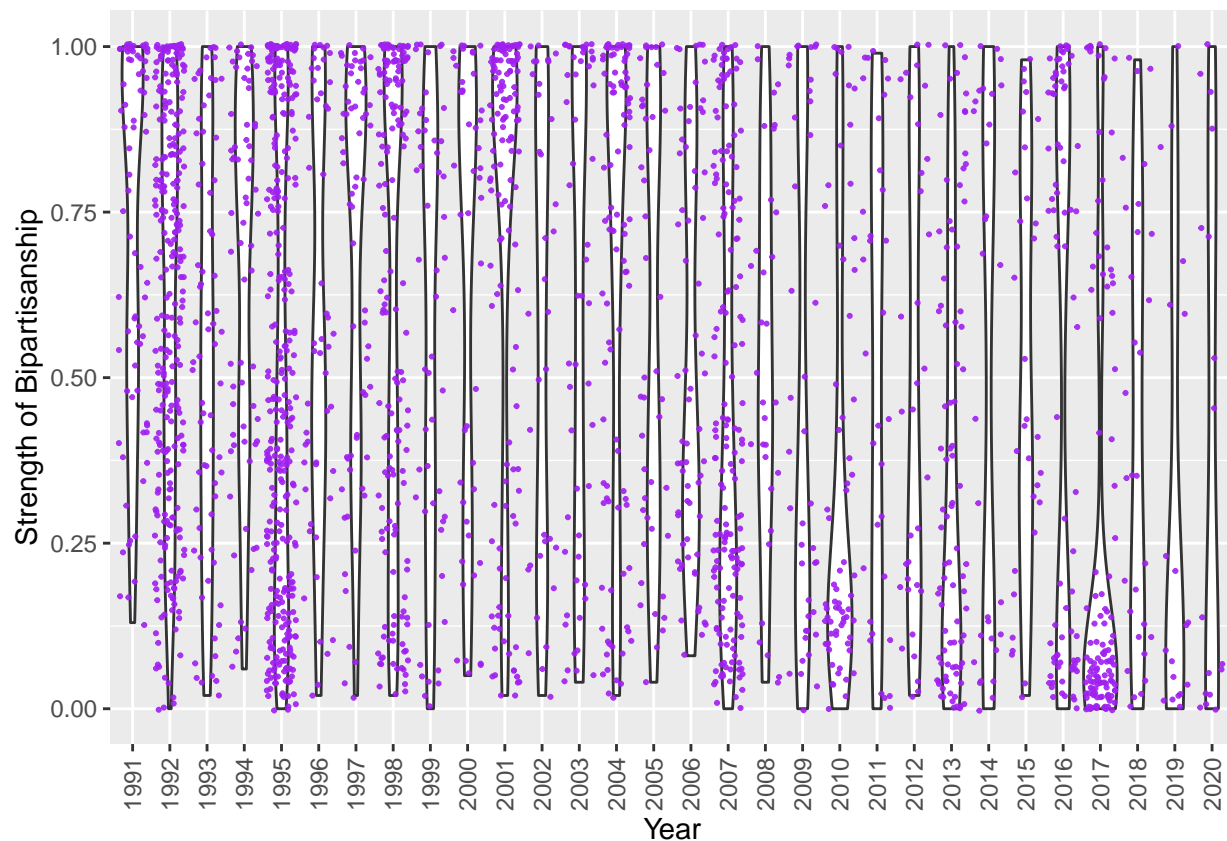

This bar plot indicates the average strength of bipartisanship in Congress for each year from 1991 to 2020. There is a clear downward trend as the years progress towards 2017, however it is not as dramatic as one might expect. I find this interesting, and I hope to use this as a foundation to investigate just how much more polarized we have become, as it may be less than I initially thought. This graph is very insightful, but I also think it is important to show the distributions for each year, not just means. Below, I include boxplots and violin plots of strength of bipartisanship for each year.

```
## Warning: Removed 1034 rows containing non-finite values (stat_boxplot).
```

```
## Warning: Removed 1034 rows containing missing values (geom_point).
```

```
## Warning: Removed 1034 rows containing non-finite values (stat_ydensity).
## Removed 1034 rows containing missing values (geom_point).
```

Next Steps

Tama utilized this dataset primarily to focus on whether bipartisanship was stronger for foreign policy votes than for domestic policy votes. I intend to apply the measures of bipartisanship and polarization given in this data to bipartisanship and polarization measures among the American population. To continue this project, I am planning on obtaining data measuring Americans' perceptions of the other party as well as their own over the same time frame (1991-2020) to attempt to compare their effect sizes. One such way I will explore this relationship is through multi-armed bandit experiments on political advertisements. The ultimate findings of my project will contribute to the literature on political polarization by uncovering possible driving forces of polarization as well as which groups of people to address in order to reverse it.