

Does Gerrymandering Affect the Political Ideology of House of Representatives Members?

Introduction

The political ideology among members of the House of Representatives (HOR) is becoming increasingly polarised. One roll-call study shows that polarisation in the HOR has been steadily increasing since the 1970s, with the average difference between the most conservative Democrat and the most liberal Republican shifting from 0.4 on a scale of 0-1 from 1970 to 0.77 by 2010 (Abramowitz and Webster, 2018). Extreme ideological polarisation could threaten the very foundations of democracy, causing a deficiency in the representation of more neutral and minority views. As well as the issue of under-representation, there is growing contempt amongst the parties and their members; one study shows that in 2014, 27% of Democrats saw the Republican Party as a threat to the nation's well-being, and 36% of Republicans viewed Democrats in the same way (Pew Research Centre 2014). To address this potential threat to democracy, it is imperative to analyse the causes of polarisation. There is extensive research centred around the potential causes of ideological polarisation both within the House of Representatives and beyond, broadly categorised as voting preferences, demographic changes, and the power of media (Galston 2009; Mann 2012).

I argue that gerrymandering - the re-drawing of district lines for the protection and unfair advantage of incumbents – is a catalyst for political polarisation in the HOR. I argue that these potential causes of polarisation are facilitated, at least in-part, by the strategic redrawing of district lines, which provides a platform for voting preferences to be grouped together and solidified, demographics to be shaped to the incumbent's advantage, and a clear direction for powerful media. In the remainder of this paper, I first note the inconsistencies in certain literature that have left gaps in our understanding of the relationship between gerrymandering and political polarisation in the HOR. Then, I review existing literature that guide me to my

claim that gerrymandering facilitates political polarisation of the HOR. I also expect that in gerrymandered districts, the polarisation of members of the HOR influence voting patterns in support of their views. This is because the undemocratic nature of gerrymandering incentivises incumbents to adjust their political ideology to protect their seats, leading to a more defined and polarised HOR. To support my claims, I implement a quantitative analysis on the combination of two data sets (Realtime Nominate Ideology and Related Data and Election Statistics). Using DW-NOMINATE score to indicate polarised ideology and the efficiency gap to indicate whether gerrymandering has taken place, I analyse the average voting percentages from every district in each state. In support of my theory, I find that in numerous states there is an increasing positive correlation between gerrymandering (efficiency gap) and political polarisation of the HOR (DW-NOMINATE) between 2010-2020. (Poole and Rosenthal 1985; Stephanopoulos 2014). I also find that the voting patterns in some states move to extremes as the efficiency gap and DW-NOMINATE score increase. I do find, however, that in some states there is no such evidence of a link, rendering my results mixed.

Literature Review

The causal link between gerrymandering and political polarisation of the HOR has been disregarded in the past due to a lack of outcome analysis. A common claim is that there are sufficient constraints which impede gerrymandering such as the requirement for equal population (McCarty 2009, 667), or that constraints are placed on gerrymanders by statute and Supreme Court Rulings (Friedman 2009, 595) so that a causal link cannot be identified between gerrymandering and political polarisation of the HOR. However, gerrymandering cannot be arbitrarily contained, as many actors have been able to “outmanoeuvre or manipulate state courts” (Stephanopoulos 2015, 8). An example of this is the 2016 congressional district map

that was in place for North Carolina drawn by Republican-controlled state legislature (deemed unconstitutional but still used in 2018), which resulted in Republicans winning 10 of 13 congressional seats despite Democrats winning over 50% of the overall vote in 2018 (Wines 2018). This forceful reduction in the representation of the HOR and the consequent polarisation highlights the difficulty of truly placing effective constraints on gerrymandering. In addition, although the Supreme Court deems gerrymandering to be undemocratic, in the *Rucho v. Common Cause* in 2019, the Supreme Court ruled that despite unconstitutional gerrymandering occurring in North Carolina, it was not its role to get involved (Stephanopoulos 2019). Thus, gerrymandering cannot be ruled out as a contributor to the polarisation of the HOR because the U.S. Supreme Court does not, as a matter of legal principle, automatically prevent the manipulation of the electoral process by politicians.

Instead, I argue that gerrymandering is a key facilitator of these three key causes of political polarisation: voting preferences, demographic changes, and the power of media. In a democracy, the voting preferences of the public should be represented fairly and freely (Dahl 2005, 86). One such claim, therefore, is that political polarisation is a natural and regular phenomenon, due to inherent differences in ideology which could stem, for example, from economic inequality or cultural divides (Dixit and Weibull 2007). However, although there is an element of natural inherent polarisation, gerrymandering facilitates the polarisation in voter preference, as there is an “increasing geographical segregation of voters” which significantly reduces the number of truly competitive seats in the HOR (Mann and Ornstein 2006). Thus, the strategically drawn district lines to gain political advantage exceeds the already existing state-wide trends in political opinion (Carlson and Crespino 2007, 883).

Deeply intertwined with voting rights is demographic changes. The U.S. is becoming increasingly ethnically diverse, which brings about the rise of identity politics. Seeking representation within the political system is causing a deep polarisation between the Democrats

who rely on minority voters, and Republicans who rely on White voters. (Hochschild 2017). Through packing and cracking, the strategic tactics of diluting and concentrating voting power, gerrymandering alters the demographic makeup of a district. This facilitates a platform through which HOR becomes polarised to please the average desires of that district.

Finally, the power of media cannot be overlooked as a cause for polarisation. Selective exposure is prevalent in the U.S – Americans increasingly solely rely on news sources that align with their political views. One study shows that in 2017, 75% of Democrats said they trusted CNN, while only 17% of Republicans did. Conversely, 72% of Republicans trusted Fox News, while only 15% of Democrats did (Holcomb and Mitchell 2017). Although gerrymandering does not directly facilitate the media, the grouping of voters with similar political ideals to strengthen the political advantage of a district is certainly enhanced by the media which has the power to further polarise opinions. Thus, I reach my first hypothesis:

Hypothesis 1: There is a positive correlation between gerrymandering and the political polarisation of the House of Representatives.

Gerrymandering is considered “a constitutional injury” by the U.S. Supreme Court (Stephanopoulos 2022, 3). The system of cracking and packing is just one example of gerrymandering which exemplifies the undermining of democracy through the reduction of competition and the creation of a less representative political system (Dahl 2005, 85). I argue that this reduction in competition and representation and therefore the provision of safe seats drives the political polarisation of HOR members, as incumbents’ focus shifts from appealing to new voters to aligning their views with that of their existing voters (Jacobson 1990). In fact, a study published in the Journal of Politics found that gerrymandering increased polarisation in the HOR by as much as 25% between 1972 and 2010 (Yiqing and Hall 2018).

The Federalist papers No. 52 and 53 argue in favour of biannual elections for the House of Representatives to increase accountability, competition, and minimise political corruption (Madison 1788). However, this has proved ineffective, with one study showing that 99% of incumbents standing for re-election were successful in 2002 and 2004 elections (McCarty 2009, 666). It is important to consider then that HOR members shift their political ideals because one of their primary motives is re-election (Altman and McDonald 2015). To adapt to the increasingly polarised political environment, HOR members shift their political ideology to represent the median voter of a district, which in gerrymandered districts is already more polarised. This is represented effectively through a statistical model analysis which found that from 1973 to 2006, the percentage of House members who classified from moderate decreased from 40% to 12%, while the percentage of members classified as extreme increased from 10% to 30% (Bafumi and Herron 2010). In this way, HOR members, driven by their desire to protect their seats, are willing to change their political ideology to please the district's existing voters. The subsequent votes they receive should thus become more extreme, aligning with their ideology.

Hypothesis 2: The movement of political ideology of HOR members to the extreme and the redrawing of district lines influences voting patterns in their favour.

It is crucial to also identify the characteristics of the HOR's existing voters after gerrymandering to provide the causal link with political polarisation. Achen and Bartels debunk folk theory of democracy by contending that due to the busyness of everyday life, many people do not engage in "thoughtful political deliberation" such as voting (Achen and Bartels 2017, 9). However, beyond the scope of this argument, there are citizens who are engaged with politics but do not vote due to misaligning ideals with representatives (Fiorina, Abrams, and

Pope 2005). Thus, the citizens who are most likely to vote are citizens with more polarised opinions (especially in a gerrymandered state), to which incumbents should align their views to protect their seat. This is supported by a quantitative study that found that gerrymandering is associated with higher levels of polarisation in voter-turnout in state legislative elections (Hajnal, Trounstein, and Weaver 2019). Therefore, I expect to find that voting patterns change alongside the polarisation of HOR members.

Thus, through my hypotheses I seek to further understand the relationship between gerrymandering and political polarisation of the HOR. I contend that gerrymandering in the least serves as a catalyst for political polarisation of the HOR, and that HOR members polarise their political ideology in gerrymandered districts to please their voters, thus leading to a change in voting patterns.

Data and Methods

I will be using two data sets to evaluate my hypotheses, combining them in my analysis to perform a correlation study. I will use Python for all analyses.

Data Set 1: Realtime Nominate Ideology and Related Data

This data set quantifies the political ideology of the House of Representative member for every district in every state every year, using Poole's DW-NOMINATE method. It is a mathematical study which comes from an academic study conducted in UCLA by Professor Jeffrey M. Lewis. This mathematical approach deems it credible because it is a well-defined and reproducible method. I will be using data from 2010 – 2020 (111th Congress – 116th Congress).

Key variable: DW-NOMINATE: To assess whether the HOR member holds polarised political ideology, I use the DW-NOMINATE score, in which a score of 0.3 or above indicates polarised ideology (Poole and Rosenthal 1985).

Data Set 2: Election Statistics

This data set is raw election data which shows every House of Representative Election result (year, state, and district) through ballot counting from the years 2010-2020. The government is directly responsible for counting the ballots and ensuring accuracy of results.

Key variable: Voting count for each district, in each state, in every year. (Democrat / Republican).

Analysis

I approach this through a quantitative analysis of this nominal data for all states, which encapsulate the average voting percentages from every district in that state. I first merge the two data sets by their state, district, and year, creating a combined data set with a unique key for every data point (state, district, year) which corresponds to its DW-NOMINATE score and voting counts. To gauge whether a state has been gerrymandered, I generate an efficiency gap by applying the mathematical equation (Stephanopoulos 2014):

$$\frac{\text{Democratic Wasted Vote} - \text{Republican Wasted Vote}}{\text{Total Vote}}$$

I deem an efficiency gap of over 7% to indicate a gerrymandered state (Stephanopoulos 2014). The 0.3 DW-NOMINATE score and the 7% efficiency gap serve to convert the existing data into binary form, to simplify this correlation analysis. We take the sum of these binarised variables: every DW-NOMINATE score and Efficiency Gap. With only four possible outcomes (1, 0), (0,1), (0,0), (1,1), I hope to observe a positive correlation over time to provide evidence for the contention that gerrymandering leads to the political polarisation of House of Representative members. My results are shown in a biennial representation in the form of a

heat map, that show the proportion of positive and negative correlations along all districts in the US (Figure 1).

To prove my second hypothesis that voting patterns change because of political polarisation of the HOR members, I continue with a quantitative analysis approach, taking a subset of this combined data to observe the shift in voting patterns between 2010-2020. I also create a further subset displaying the changes in political ideology (DW-NOMINATE) and level of gerrymandering (efficiency gap) in each state. I hope to observe a generally increasing / decreasing voting percentage on a state-by-state basis. This will indicate a polarisation of voting patterns, which implies a shift in HOR members' political ideology to the extreme to please their voters. My findings are shown in a biennial representation in the form of a heat map, that show the trend in voting patterns in each state of the US (Figures 2a and 2b).

Limitations

There are several limitations to my method. The main difficulty is that only a descriptive, not a causal relationship can be observed, due to other factors that contribute to the political polarisation of the HOR. As I only analyse the changes in DW-NOMINATE score and voting patterns over a 10-year span, this shows merely a fraction of a potential trend, which further inhibits the claim of a causal relationship. The first part of my statistical analysis can only produce four outcomes because of its binary structure, and so will not elucidate the extent of the connection between gerrymandering and political polarisation of the HOR member. The reason why I use a binary system is to make the findings easy to interpret. Although this data is easy to interpret, it oversimplifies both the terms 'gerrymandering' and 'polarisation,' by using only one measure. The question at hand is multidimensional, in that there are numerous variables that can facilitate polarisation potentially independent of gerrymandering, for example, changing demographics due to the constant movement of people. Only considering two variables limits the results' generalisability. It is therefore important to distinguish

causation and correlation, as there are many other factors that I cannot consider that influence the voting patterns of citizens which are unrelated to polarisation. There are also internal validity issues, in that the results that are shown are an average of all the districts of a state, not considering voting patterns on a district-by-district case, which oversimplifies the results. In addition, my chosen thresholds are the governing factors of my results, but it is difficult to assess what these quantitative measures mean. If I were to change the threshold, the binary results would shift significantly.

Results

Appendix 1 displays a time series of positive / negative correlation between DW-NOMINATE score and efficiency gap of the US. The results show an increasing proportion of positive correlation over the past ten years, supporting my first hypothesis. However, on a state-by-state case, the results are mixed. Figure 1 (above) shows the percentage of positive /

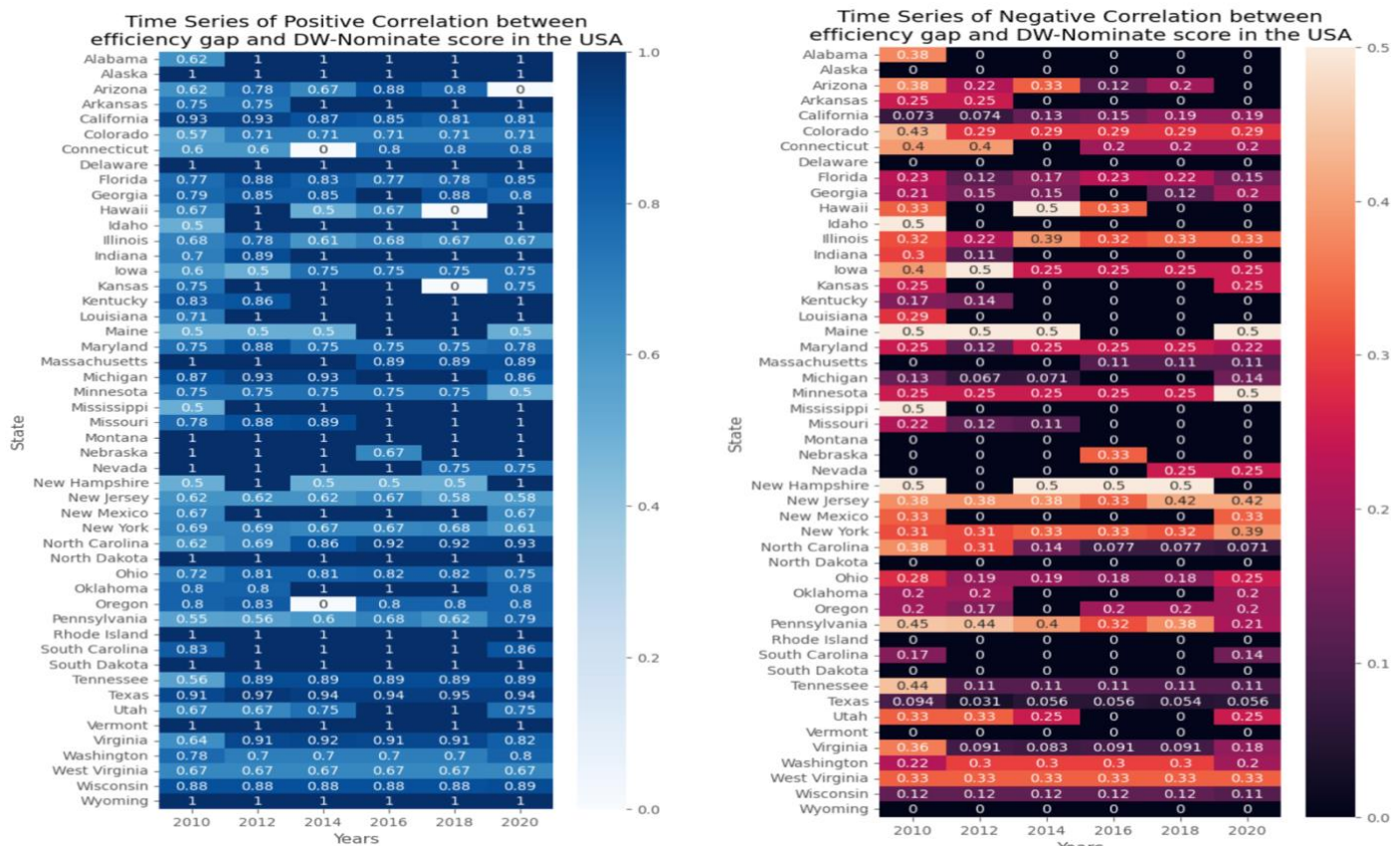


Figure 1: Time series of the proportion of positive and negative correlation between efficiency gap and DW-NOMINATE score at a state level

negative correlations between the DW-NOMINATE score and efficiency gap in the years 2010-2020. Each plot represents the given state's proportion of positive / negative correlations for that election year. There are several cases where there is a clear increase in positive correlation between gerrymandering and polarisation. Michigan and North Carolina, for example, continually increase over time. However, there are also cases where there is no change in proportion, for example, Delaware, North Dakota, and South Dakota. This is because these three states (among others) only have one representative in the HOR. Florida is one example of a surprising result in that it fluctuates in proportion. This could be because of its history of redistricting reforms, as it has undergone a substantial number of legal challenges and initiatives to reduce gerrymandering.

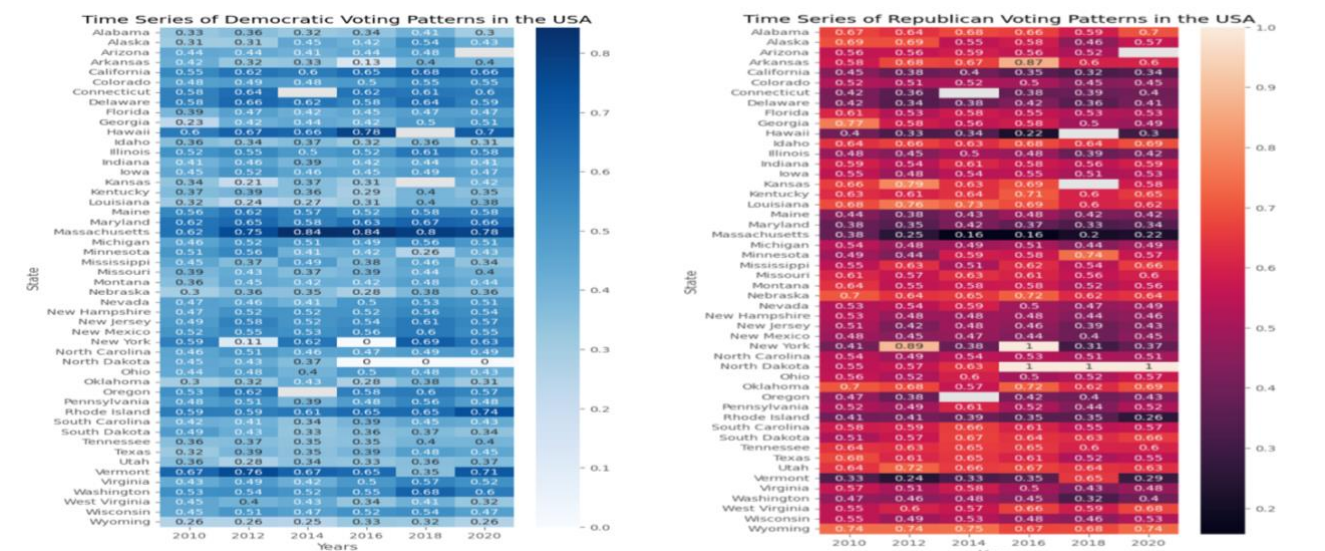


Figure 2a: Time series of the change in percentage of voters in democratic / republican in each state of the USA between 2010-2020



Figure 2b: Time series of efficiency gap and DW NOMINATE score in each state of the USA between 2010-2020

Figures 2a and b (above) show the change in percentage of voters in each state of the USA between 2010-2020 due to gerrymandering and polarised views of HOR members. The results are mixed, with a range of different trends in voting patterns. In support of my second hypothesis, some results indicate that the increasing / decreasing efficiency gap and DW-NOMINATE scores play a role in the voting patterns. An example of this is Arkansas, in which there is an increase in efficiency gap, an increase in DW-NOMINATE score, and a consequent increase in voting patterns towards Republicans. In contrast, while efficiency gap decreases in South Carolina and the DW-NOMINATE score increases, there appeared to be no change in voting patterns. This could be because South Carolina has experienced a significant shift in partisan alignment in recent decades, and there are also significant demographic disparities in voter turnout. Both sets of results underline the fact that the existing literature should not disregard gerrymandering as a cause of political polarisation in the HOR, but must also consider other variables such as voter turnout and media as other contributing factors.

Conclusion

This paper explores the relationship between gerrymandering and political polarisation of HOR members through the analysis of Election statistics and Realtime Nominate Ideology and Related Data. Combining these data sets, one can observe the patterns between gerrymandering and political polarisation. The results showed mixed support for both hypothesis 1 and 2. My analysis of hypothesis 1 (there has been an increasing positive correlation between gerrymandering and the polarisation of the House of Representatives between 2010-2020) indicates that in many states there is an increasing positive correlation between gerrymandering (quantified through the efficiency gap) and political polarised (quantified by DW-NOMINATE score). However, there are also states where this was not the case, indicating that there are other significant factors that drive the political polarisation of

HOR. Similarly, my analysis of hypothesis 2 (The movement of political ideology of HOR members to the extreme and the redrawing of district lines influences voting patterns in their favour) led to a mix of results. Namely, there are many states with fluctuations in efficiency gap, DW-NOMINATE score, and voting patterns that do not follow the same trend, again underlining the fact that there are more factors than gerrymandering that lead to the political polarisation of the HOR.

Thus, further research should be conducted to expand on the themes explored in this paper. Additional variables must be considered in understanding why political polarisation is occurring, for example voting preferences, demographic changes, and the role of media. To explore this topic more deeply, one should analyse the trends of gerrymandering and political polarisation of the HOR members on a district level, which may shed more light on understanding why the USA is experiencing this dangerous trend of political polarisation.

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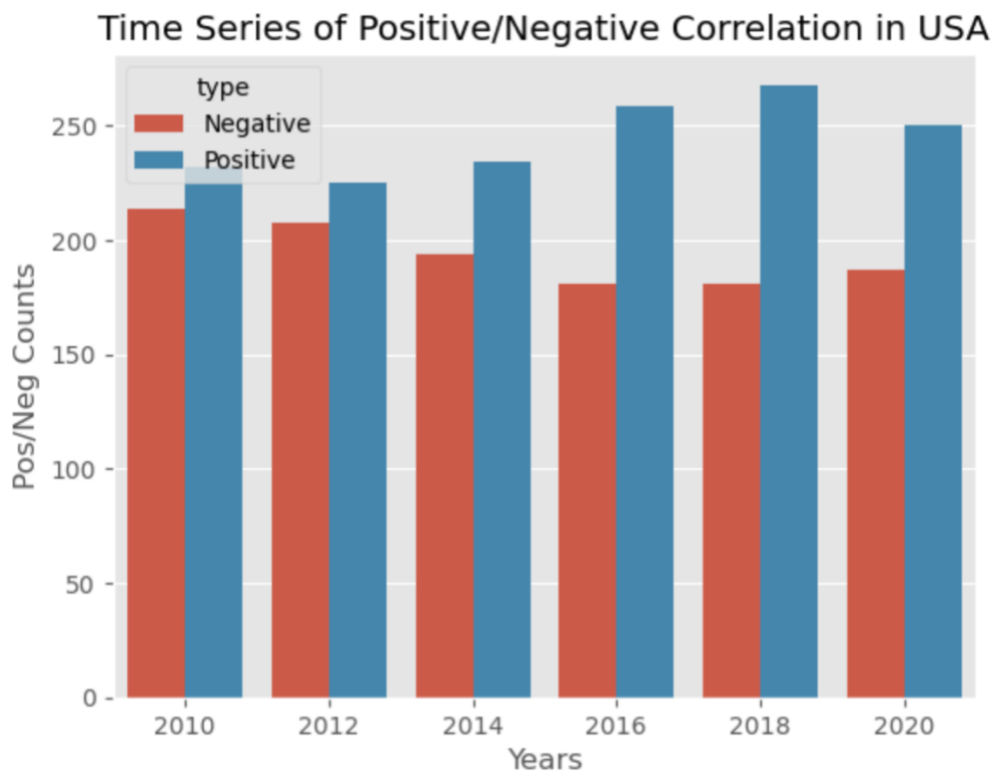
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Appendix



Appendix 1: Time series of positive / negative correlation in USA using DW-NOMIATE score and efficiency gap