

Unintentional Gerrymandering: Why Location Matters in Politics

by

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Abstract

In the 2012 election for the United States House of Representatives, a plurality of voters voted for a Democratic candidate, but despite this, the Republican Party won a majority of the House races. There are several possible explanations for this discrepancy, most notably partisan gerrymandering. However, with this paper, I wanted to explore another explanation, one which has received little attention in comparison to partisan gerrymandering. I believe that “Unintentional Gerrymandering” is a key reason for the discrepancy between votes and seats in many elections, including in the 2012 House of Representatives election. Unintentional Gerrymandering occurs when the voters for each party are distributed in such a way as to give one side a structural advantage. Today, Democrats tend to either live in landslide Democratic districts, or they tend to live in small Democratic communities surrounded by Republican voters. This causes Republicans to be over-represented in comparison to Democrats. Because of the different choices Democratic and Republican voters make about where to live, even a truly non-partisan redistricting process would result in a district map that favors the Republican party. I decided to examine and summarize the literature concerning Unintentional Gerrymandering, as well as to discuss the factors that cause it. Finally, I’ve given several suggestions for how the effects of Unintentional Gerrymandering could be mitigated.

Introduction: 2012 in Context

2012 was a historic election, but not just for the reasons people normally cite (such as the first re-election of an African-American president, and the continuing demographic changes in the American electorate). Something strange happened on that election night, something that showed the limitations of a Single Member District and First Past the Post voting system, like ours. In the 2012 election for the House of Representatives, Democrats won 48.5% of the vote, while Republicans won 47.8% of the vote (Ornstein 2013 2-2). Despite the fact that the Republicans won fewer votes than Democrats, they were able to win a majority of seats (Republicans won 234 seats, while Democrats won 201 seats).

According to the July 2013 edition of *Vital Statistics on Congress* collaborated by the American Enterprise Institute and the Brookings Institution, it was the only House election since *Vital Statistics* began collecting data in 1946 that the party with a plurality of the votes failed to obtain the most seats. It's very common for our system of elections to give a disproportionate amount of seats to one party, but in the vast majority of cases this happens when the party with a plurality of the vote won a larger majority than their popular vote share would imply. Our system has a tendency to inflate majorities, but this was the first time in recorded history where the "losers" of the election actually "won" (Drutman 2013).

Two figures in the appendix (Ibid), put together by the Sunlight Foundation, illustrate the historical context of the 2012 House election results.

Figure 1 maps the share of the cumulative vote that Democrats received and compares it to the share of seats that they held as a result of the election. **Figure 2** compares the same

statistics, but using bar graphs makes it clearer how dramatic the electoral bias has been in certain years.

The figures clearly show that in most elections since 1946, there has been considerable electoral bias in favor of Democrats. Given how dramatic the bias was in certain years (1964 and 1976 in particular), one might wonder why we haven't had the "losers" of an election win majorities more often.

The question this paper seeks to address is what causes this bias, especially in 2012's election? Furthermore, I am interested in what can mitigate or eliminate this bias. Even though some explanations have already been proposed, I believe more research still needs to be done to examine this problem. Seeing if 2012's situation is repeated in 2014 or 2016 will prove especially illuminating, but until then there is still some data we can use to draw preliminary conclusions from.

This paper argues that two factors are the primary drivers of the discrepancy between seats and votes. The first factor is the often cited gerrymandering. Gerrymandering, which refers to manipulating district lines to influence elections. Gerrymandering is indeed responsible for some of the discrepancy, but it is not the only factor involved. The second factor is one which receives comparatively very little attention or research. This factor is often called "unintentional gerrymandering," although the term "self-gerrymandering" would be more descriptive. Unintentional gerrymandering is when the population distribution of a region is itself the problem with representation. Citizens decide of their own free will to live in areas which are electorally inefficient.

While both of these factors are significant, this paper focuses its attention on unintentional gerrymandering, because there has already been a large amount of research on standard partisan gerrymandering, while there has been very little on the subject of unintentional gerrymandering. Standard gerrymandering will be discussed, but it will be primarily to make it easier to understand the unintentional variety, since the two are fundamentally intertwined.

Understanding these twin forces behind the 2012 election is essential because when a party controls a chamber of Congress despite winning fewer votes than its opposition, it threatens the legitimacy of our democracy.

Gerrymandering

The important thing to remember in discussing gerrymandering is that there are two opposing types to choose from. The type of gerrymandering people are most aware of is gerrymandering with the purpose of guaranteeing safe seats. For the sake of clarity, this will be referred to as **safe gerrymandering**. This can be accomplished by attempting to move as many fellow partisans as possible into your district, while making sure that voters of the opposite party are outside of your district. There are two motives behind this type of gerrymandering. First, it can be done to benefit incumbent politicians, granting them job security and ensuring that they won't have to run serious campaigns to get reelected (Cooper 2010). Secondly, it can be done to boost representation of minorities in a legislature, since creating districts with large minority populations increases the odds that members of that minority group will be elected. This is often the reason for the creation of majority-minority districts. When gerrymandering is done for this second reason, it is known as racial gerrymandering (Lowenstein 1998, 780).

The second type will be referred to as **competitive gerrymandering**. This occurs when districts are drawn to create as many close wins as possible for a party. This is done using two main tactics, often referred to as "cracking" and "packing" Packing involves sticking voters of an opposing party into a small number of districts that will deliver landslides for the opposing party. This means that many voters will have their votes "wasted" by helping their preferred candidate gain a lopsided victory margin. By doing so, a partisan mapmaker can sacrifice a small number of districts so that their own party can obtain narrower (although still relatively safe) wins in the remaining districts. For example, if Republican mapmakers can stick most of the Democrats in a state into one or two districts, then they can make it easy for their party to win more seats.

“Cracking” involves surrounding small clusters of an opposing party with voters of one’s own party so that the strength of their votes is diluted. One common way of doing this is to put small predominately African-American communities (which are heavily Democratic) in districts that are overall Republican. By putting them in districts where they are outnumbered, mapmakers can minimize a community’s electoral power (Cooper 2010).

The important thing to notice is that competitive gerrymandering and safe gerrymandering are opposed to each other. The entire goal of competitive gerrymandering is to make a party’s districts *more* competitive, so that they can spread their victories over a large number of districts. A common mistake is to conflate the two, and to blame them for political polarization. Only safe gerrymandering could conceivably make a representative more polarized. It is difficult to argue that a representative with more moderates and partisans of the opposing party in their districts would have an incentive to become polarized that they would not otherwise have. Under competitive gerrymandering, a representative is by definition *less* isolated from contrary views. If competitive gerrymandering were to have any effect, it would be to make politicians more moderate and more supportive of bipartisanship.

The redistricting that occurred after 2010 likely had an impact on the discrepancy between seats and votes in 2012, but it is not sufficient to explain the entire phenomenon. Side and McGhee (2013) estimate that the maximum impact of gerrymandering in 2010 is to cost Democrats up to 7 seats in the 2012 election. If we eliminate this bias and imagine a scenario where Democrats won 208 seats to Republicans 227, Democrats would have won about 47.8% of the 435 seats, with Republicans winning about 52.1%. Given that Democrats won 48.9% of the

vote in the election (Drutman 2013), this is closer to an ideal vote to seat ratio. Unfortunately, it still features a pro-Republican bias, since Republicans won only 47.7% of the vote.

Granted, this does not reckon with the possibility that the districts prior to the 2010 census were also biased. If the districts created after 2000 were also biased in favor of Republicans, then 2010's new maps could have simply built upon the bias that was already present. The problem is that it is not certain if the post-2000 districts were biased, because we lack a baseline to compare them against. After all, what would be a useful comparison? Before we judge gerrymandering, we need to understand what a district map would look like if it were free from partisan bias. This leads us to our next topic, and the main focus of this paper.

Unintentional Gerrymandering

Upon learning of the fact that Democrats won a plurality of the vote in the 2012 House race while still only controlling a minority of the seats, it's common to attribute the discrepancy to unscrupulous and partisan mapmakers. And, certainly, the fact that this anomaly happened immediately after the redistricting following the 2010 midterms is not insignificant. However, is that really the only cause? What if some other factor is also distorting districts?

Political scientists Jowei Chen and Jonathan Rodden have argued that there is another phenomenon causing a discrepancy between votes and seats. Their argument is that even without any partisan bias, the maps themselves come with an inbuilt bias towards Republicans. To support this argument, they ran an experiment using Florida's election results from 2000. They picked this election because Florida in 2000 was essentially as close to a tie as possible in modern elections. With an election such as this, it's much easier to spot any underlying structural biases in our system (after all, both parties essentially had equal support) (Chen and Rodden 2013a).

Chen and Rodden ran computer simulations using Florida's presidential vote data. They decided to have the computers create randomized districts for these voters with no regard to partisanship. They ran two simulations, the first of which had the districts be contiguous and each district had roughly equal population. The second simulation had the additional objective of also creating compact districts (249-251). The simulations also measured what impact legislature size has, by running simulations for every legislature size from 2 districts in the state to 200. Each of these potential sizes was given at least 25 simulated compact and non-compact district maps (251).

Since these simulations are run by a computer, they show the kinds of results that hypothetical impartial mapmakers would draw up (248). They reasoned that in such a close election, if the map isn't inherently biased, then about half of the simulations should have a pro-Bush bias, while half should have a pro-Gore bias. Their results showed a significant pro-Bush bias. In fact, what is so striking is that, based on their results, it is immensely challenging to create district maps that both follow all the guidelines given, and that result in a pro-Democratic advantage (252).

One clear example from their results they cite of this bias is the simulation results for a map that divides Florida into 25 districts (the number of U.S. House Districts in Florida at the time), and which uses compact districts. In this case, the average seat share for Republicans across all hypothetical maps is 61%, a remarkably comfortable majority considering that the votes were nearly tied. The range for Republican seat share in this size of a legislature was 56-68% of seats (which means that not a single simulated map that followed these rules had anything less than a 56% Republican advantage) (253). As the district number in the compact simulations increases, Republican seat share also decreases (since some of the small to medium sized clusters of Democrats are able to win their own seats), but it's never enough to undo the Republican bias. "With only a few exceptions, the entire range of simulations produces a hypothetical legislature with a solid Republican majority in spite of the tied election." (253-254)

Next, they ran 250 non-compact simulations on the 25 district version of Florida. This batch of simulations also revealed striking amounts of pro-Bush bias. In this group of district maps, "all of the 250 simulated plans result in pro-Republican electoral bias: In each plan, at

least 14 of the 25 districts (56%), and as many as 19 of the 25 districts (76%), have a pro-Bush majority.” (254)

Other numbers in use in Florida (such as 40 districts for the Florida Senate, and 120 for the Florida House) still ran into the same problem of significant Republican bias. For both compact and non-compact plans with these numbers, “not a single simulated plan produces at least as many Gore-leaning districts as Bush-leaning districts.”

The obvious question to ask next is whether these Florida 2000 results are an anomaly, or if they’re something more significant. Even if one state naturally grants Republicans extra seats, perhaps other states do not share this quality. If this bias is unique to Florida, then the problem it poses to a democracy that covers 50 states is much less significant. Chen and Rodden addressed this by running similar simulations across other states (while also adjusting for the other states’ results not being quite as close as Florida’s), and they realized that Florida was not unique.

Republicans had over a 5% bias in about half of the states where they were able to run proper simulations. This effect was particularly pronounced in states with heavy urbanization (262). “It appears that in some of the largest and most urbanized U.S. states, even without overt racial or partisan gerrymandering, the Democrats are at a disadvantage in translating votes to seats simply because their voters are inefficiently clustered in urban areas,” although Western and Southern states tended to have a bias that was less severe (ibid).

The problem is that Republicans and Democrats tend to have different living habits, and Republicans’ choices are much more electorally efficient than the choices Democrats tend to make about where to live. Democrats generally live in dense cities, where they are surrounded by their ideological brethren. The less urban an area is, the more Democratic support tends to fade

(242). However, some Democrats also live in small strongly Democratic pockets in rural areas. These areas are “associated with nineteenth century industrial activity along railroad lines, canals, lakes, and rivers, as well as in college towns” (ibid).

This is why a basic understanding on gerrymandering is essential to understand this phenomenon. Voters clustering into a few areas overflowing with fellow partisans immediately brings to mind the “packing” gerrymandering tactic. Smaller groups of voters surrounded by large numbers of opposing partisans is in turn very similar to “cracking.” What is happening is that Democrats are *gerrymandering themselves*. To take the Florida 2000 presidential election as an example, Gore received 80% or more of the vote in almost 800 precincts in Florida, while Bush only drove up such high margins in 80 precincts (245).

Counterpoints

Chen and Rodden's research is often cited by proponents of the theory that Democrats live in incredibly electorally inefficient regions, but it is not without its critics. One of the most notable critiques came from Michael McDonald of George Mason University. McDonald (2013) finds that that several people have been able to create maps without a pro-Republican bias, citing the ability of average people to create their own district maps using computer software. He states that, "congressional districts are very large. In moderate- to large-sized states they consist of over 700,000 persons. It is easy in all but the most densely-urban areas to combine urban, suburban, and rural voters within a compact district."

In 2010, voters were able to create their own maps using online software and submitted their maps to the Florida legislature. Since Florida is a battleground state, McDonald points out that, "one might expect a fair plan in a battleground state to have 13.5 Democratic majority districts, or 13 or 14 such districts since it would be difficult to draw a district with an exact tie." According to McDonald, several citizens created plans with more than 13-14 Democratic leaning districts, which can be taken as evidence against Chen and Rodden's study. (ibid).

McDonald continues his argument by asserting that automated redistricting software is flawed. He states that, "As early as the 1960s, scholars who proposed automated redistricting algorithms found these programs did not live up to their expectations to create sensible redistricting plans; often they created nonsensical spaghetti-like districts. Redistricting in the United States context, as it turns out, is an exceedingly hard mathematical partitioning problem

that defies the application of automation to produce legal redistricting plans to optimize on multiple criteria such as equal population, contiguity, compactness, respect for political and community boundaries, and voting rights - among others.”

As political scientist Eric McGhee (2013) points out, however, McDonald’s criticism misunderstands the purpose of automated redistricting. The automated redistricting plans in Chen and Rodden’s simulations are not meant to address every single potential variable that might be deemed valuable. The point of such simulations is to see what unbiased plans only following a small number of simple rules would look like. By comparing these plans to actual proposed plans, we can see how human bias (including partisan bias) is impacting our mapmaking (McGhee 2013).

McDonald makes another point, one which on the surface is quite compelling. He points out that Chen and Rodden wrote a report for a court case over 2010’s round of redistricting (McGhee 2013). In this report, Chen and Rodden state that, “Our analysis concludes with 95 percent certainty that a non-partisan redistricting process produces a districting plan that contains between 12 and 16 districts in which McCain voters outnumber Obama voters” (Chen and Rodden 2013b, 9). However, there is a fatal flaw with this critique. In the expert report Chen and Rodden gave to the court, they specifically leave several districts alone, and only focus their analysis on the remaining districts. In their report, they state that their simulation “abide[s] by the Florida Constitution’s prohibitions against diminishing the opportunities of racial minorities to elect the representatives of their choice. The Florida Legislature interpreted this as requiring them to draw three districts with African-American majorities, which they ostensibly achieved by drawing districts 5, 20, and 24. The African-American populations of districts 5 and 24 appear

to fall slightly under 50% of the citizen, voting-age population. Nevertheless, we begin by considering these as fixed, and then generate valid districting plans for the rest of the state.” (6) Simply put, this means that some amount of “packing” is *already* a part of the data that Chen and Rodden gave the court. By creating several districts with nearly 50% African American populations, the Obama vote in other districts is drained. Comparing this to Chen and Rodden’s simulations which *do not account for race* is looking for a contradiction where none exists.

John Sides and Eric McGhee, writing for the Washington Post, cite several possibilities to explain the discrepancy between seats and votes in the 2012 election. One factor they mention is unintentional gerrymandering, but they also argue that an incumbency bias favored Republicans in 2012. They argue that after the 2010 elections, Republicans had more incumbents than Democrats, and incumbents tend to fare better than challengers in elections. Many Republicans who were first elected in the 2010 wave were able to benefit from incumbency for the first time in 2012. (Sides & McGhee 2013)

Sides and McGhee estimated the benefit of incumbency in the election and then subtracted it from the election results. By doing this, they hoped to get an idea of what 2012 might have looked like if the incumbency benefit did not exist. Their conclusion was provocative: “In this simulation, the Democrats won 219 seats—virtually eliminating the discrepancy between votes and seats in this election.” (ibid)

I believe this response is problematic, but I would first like to put their article in context. Their article does not argue against unintentional gerrymandering, rather, they argue that *intentional, partisan gerrymandering* is not sufficient to explain 2012’s election results. They argue that other factors (like unintentional gerrymandering and incumbency) are better

explanations. While they do not directly challenge unintentional gerrymandering, I believe it is important to explain why I do not agree with their alternative explanation of incumbency.

Incumbency is a powerful force, and it really can skew elections. It allows an incumbent to run with better margins than their presidential candidate, or better than their party as a whole. However, incumbency impacts votes directly, it does not impact the amount of seats a given party's vote amounts to. This explanation is sufficient to explain questions such as why Republicans can win the House if a Democratic presidential candidate won more votes than the Republican candidate. It does not explain why the Democrats won more votes *in House races* than Republicans despite not obtaining a majority in the chamber.

An incumbent's benefits (such as higher name recognition, more campaign funding, etc.) affect the voters themselves. An incumbent can either cause voters to vote a split ticket, or they can affect turnout. A strong incumbent could theoretically increase turnout among supporters or decrease turnout among voters of the other party. All of these impacts affect not just the seats won, but the vote totals themselves. If the incumbency advantage did not exist, it would change the total vote count. What happened in 2012 was not that Democratic candidates did much worse than their party, but that Democratic votes were distributed inefficiently.

Unintentional Gerrymandering in Other Contexts

While Chen and Rodden's research is the primary work on this topic, other political scientists have also done research into this phenomenon. Some research was done in the context of the US' system in previous decades, and there are a few sources that discuss this phenomenon occurring in other countries. For starters, R. J. Johnston from the University of Sheffield wrote a compelling article on unintentional gerrymandering in the context of New Zealand's elections from 1957 to 1972. The sample size of six elections was small, but what Johnston found was enlightening.

Johnston begins by describing three types of votes, and the framework Johnston uses is helpful for thinking about unintentional gerrymandering. The first type of votes are "wasted votes," which are votes that are given to a candidate who loses. Second are "excess votes," which are votes for a candidate who has won after they have already obtained enough votes to win. Finally there are "effective votes," which are votes that are actually needed in order to help a candidate win. Effective votes can be found by subtracting the wasted and excess votes from the total number of votes. (Johnston 1976, 311) Competitive partisan gerrymandering as well as unintentional gerrymandering happen when one party's voters have a higher chance of being among the effective voters than the other party.

Johnston also took note of two factors which have not been a large focus of this paper, but which have an impact on the relationship between votes and seats in a legislature. These generally aren't as relevant to elections for the United States House of Representatives, but they can be important in other contexts. The first of these factors is the possibility of malapportionment. If the difference between district populations is too large, it can cause certain

areas to be underrepresented or overrepresented. If a party's voters tend to live in smaller, overrepresented districts, then it gives that party an advantage. Johnston cites the United States Senate as an example. Since each state has equal representation, it would be possible to win a majority of the states "with only about eight per cent of the votes cast." (ibid). The second other factor Johnston noted was the distribution of third party and non-voters. If a party is able to win districts with large third party or non-voting populations, then they can win with a smaller number of effective voters, and as a result the party ends up being overrepresented.

New Zealand's system (at the time of Johnston's writing that is, since in the 1990's New Zealand switched to a Mixed Member Proportional system) involves a single-chamber parliament with a First Past the Post system. The country has two major parties: National (a right-wing party) and Labour (a left-wing party). The country also has smaller third parties, the largest of which being the Social Credit Party.

When analyzing the aforementioned elections in New Zealand, Johnston noticed that there was a difference between the percentage of seats a party obtained and the percentage of votes it had won. "In general, there is a magnification effect, with a greater percentage of seats than votes going to the party with the most votes." However, in the 1957 election, there was an anomaly. "...Labour won more votes than National but fewer seats" (that is, when talking only about the non-Maori seats). (313) In this way, New Zealand's election trends bear a striking similarity to those of the United States House of Representatives.

Johnston found a structural bias against Labour during the period he examined, noting, "other things being equal, therefore, the Labour party would have needed more votes than the National party to win the same number of seats..." In particular, he observed that Social Credit

tended to do better in districts in which National ended up winning. This lowered the number of votes between the two major parties, allowing National to win elections in these districts with fewer effective votes. He also found that (in all but the 1972 election) National's districts tended to be smaller in population than Labour's, which also allowed National to win seats with fewer effective votes. (315) He attributes these advantages to National's stronger support in rural areas, and Labour's support in urban areas (especially because Social Credit's supporters tend to live in rural parts of the country). (316)

Johnston noticed unintentional gerrymandering taking place, because Labour tended to end up with more wasted and excess votes than National. "The data suggest that [unintentional] gerrymander biases are probable, and that they will favour the National party. Labour will suffer from its greater concentration of strength in the large cities, where sizable majorities and numbers of excess votes are likely, and also from wasted votes over the large number of rural areas that National wins. [National], on the other hand, has a more even distribution of strength over the country." (317)

Using a mathematical simulation, Johnston investigated how strong of a bias the elections had in favor of National. His goal was to take given elections, and estimate how the votes and seats would have turned out if there was a uniform sway that gave the loser the percentage of votes that the winner obtained in real life. His calculations confirmed that Labour suffered overall from this bias, that non-voters didn't affect the bias to a large extent, and that size differences were more important to the bias. (319-321) On average, abstentions gave National about 0.5 more seats, while in most years the differing sizes of electorates cost Labour 1 seat.

Pure unintentional gerrymandering varied considerably from election to election. “At its strongest [unintentional gerrymandering] tended to favour National, with Labour piling up larger majorities in its safe seats and so, on average, capturing fewer National wasted votes.” However, “no apparent regularities occur in either the strength or direction of [unintentional gerrymandering]...” Johnston remarked that over a long period of time, unintentional gerrymandering could cancel itself out. (322) His final conclusion was that plurality systems (such as First Past The Post) have a natural tendency to inflate majorities, and that they can occasionally give a majority of the seats to a party with a minority of the votes. He also concluded that the inflation of a majority is not always the same size for each victor. It is common for some parties to enjoy larger seat inflation than others. (324)

Robert S. Erikson examined the relationship between votes and seats in the context of the US House of Representatives during the period of 1952 to 1970. (Erikson 1972) He pointed out that Democrats tended to benefit from this discrepancy most often over the period he surveyed, primarily because Southern Democrats were able to win many seats in areas with low rates of voter turnout. Democrats also often won districts that were uncontested by Republicans. (1234) However, northern districts tended to display a Republican bias, “for example, in 1960 the Democrats won a slight majority of the northern two-party vote yet obtained only a minority (45 per cent) of the northern seats.” He found that from 1952-1964, Northern Republicans were able to win about 10% more seats than Northern Democrats with approximately the same percentage of votes. (1234)

However, the final three elections that he was able to survey (1966, 1968, and 1970) began to display a different pattern. The discrepancy between the northern seat shares and vote

shares became much smaller. According to the data from those elections, in a hypothetical election where Democrats and Republicans each receive 50% of the Northern vote, Democrats would be expected to receive about 49.4% of the seats. Erikson wanted to find out why this bias occurred, and why it began to diminish. He had two competing hypotheses; that malapportionment was the cause, or that “gerrymandering” was the cause. Erikson defines gerrymandering as when a party has a tendency to have its votes be “wasted.” To use the terminology of this paper, Erikson’s definition of “gerrymandering” is composed of both intentional (i.e. partisan) and unintentional gerrymandering.

At first, Erikson finds the possibility of malapportionment likely, especially because the bias began to become smaller after the Supreme Court mandated that districts contain populations of around the same size. However, upon digging deeper into the data he was forced to reject this conclusion. He found that prior to mass reapportionment, the correlation between Democratic voting and district population were actually slightly negative (only to become almost non-existent after reapportionment). He also found that Democratic districts were correlated with lower voter turnout rates. These two factors mean that, in terms of both turnout and apportionment, *Democrats were overrepresented*. (1236) As a result, some other factor was turning Democratic overrepresentation into Republican overrepresentation. So Erikson turned to his other hypothesis, of gerrymandering being the cause.

One way to examine the possibility of gerrymandering is to compare median and mean vote percentages. Erikson explains this process, saying that in the case of a gerrymander, “...the distribution of the vote across districts would be heavily skewed in the direction of the disadvantaged Democratic party so that the *mean* district vote percentage for the Democratic

party is greater than its *median* vote percentage.” (1237) If the mean is greater than the median, then if the vote were 50% Democratic and 50% Republican, Democrats would win less than half of the seats. If there were a normal distribution and the median and the mean were the same, then in the case of a 50/50 vote percentage, both parties would win half the seats.

He finds that, indeed, “from 1952 through 1964, the distribution is skewed in the predicted pattern of a Republican gerrymander—with the greatest density of districts in the range about 10 per cent more Republican than the average, or with just enough Republican votes to be normally safe for the Republican party.” And of course, he finds that in the 1966, 1968, and 1970 elections a bimodal distribution appeared, dramatically reducing the bias. (1237)

The question then became what was the cause of this gerrymandering. Erikson eliminated the possibility that the new districts created during reapportionment were the cause. It could have been argued that, when districts were redrawn as a result of reapportionment, the new districts were less gerrymandered. However, Erikson did not find a relationship between whether an area had its districts redrawn, and how much the Republican bias vanished. There was no significant difference decrease in bias between 1964 and 1966 in areas that had their maps redrawn and in areas that were left alone. (1238) He also eliminated the possibility of the partisan voting habits of districts changing. Such a realignment should have showed up in presidential election results. If this was the case, then the distribution of the presidential vote should be reflected in the distribution of votes for House representatives. However, in terms of the presidential vote, Republican voters for president were still overrepresented. And yet, this bias was not present among voters for the House. (1239)

He concludes that the cause of this decrease in bias was the incumbency advantage. Notably, the decrease in bias occurred after the 1964 election, which featured a pro-Democratic wave. Once these Democrats were elected and benefitted from the incumbency advantage, they were able to hold on in the following elections, which were more friendly to Republicans. While Republicans improved their performance in 1966, these gains were not evenly distributed among the districts. “It follows that relatively weak Republican gains against Democratic incumbents were made up by unusually strong gains in 1966 by Republican Congressmen”. (1239) The increased support for Republican candidates tended to be simply larger margins in Republican districts, rather than enough of an increase in Democratic districts to unseat incumbents. The incumbency advantage also became stronger during the 1966 election. “In each election from 1960 through 1970, first-term incumbents tended to win more votes, and replacements for retiring incumbents tended to lose more votes, than would have happened with a uniform swing of the vote from the prior election.”

This advantage to incumbents also grew faster after 1966. Erikson believes that this incumbency advantage was possibly caused by a decrease in partisan loyalty during the late 1960's. “As voters display greater partisan ambivalence, a factor such as the incumbent's visibility is likely to tip the balance in a greater number of elections.” (1240) Democrats would obviously benefit the most from an incumbency advantage here, since they had more incumbents after 1964. This boost to the Democrats seems to have been enough to counter the structural Republican bias. “The net effect of the relative gains by each party's incumbents in 1966 combined with the Democratic tide in 1964 was the near destruction of the Republican gerrymander.” (1241)

Finally, Erikson reviews intentional gerrymandering, and finds that it is generally less effective than commonly portrayed. This leads him to the conclusion that pro-Republican biases tend to be a result of geography rather than intentional gerrymandering. What is most interesting is that Erikson finds a pro-Republican bias even in districts that were drawn up via a bipartisan process. Then as now, Republicans were better sorted geographically than Democrats, particularly because of the Democratic party's reliance on urban voters. (1243) Because the bias disappeared as a result of an incumbency advantage on the part of Democrats, Erikson speculates that the Republican advantage was still there, only temporarily balanced out by Democratic incumbents. He imagines that eventually (after the Democratic incumbency advantage vanishes) the Republican bias would return. He was, of course, right.

Causes

There are several factors that have caused this asymmetric sorting of the electorate. At a basic level, there are two factors that are paramount. The first is the polarization of the electorate, and the second is the decision among partisans to migrate to areas where they are surrounded by their political brethren. Both of these factors are essential for unintentional gerrymandering to occur.

In much of the 20th century the parties were less organized along ideological lines than they are today. The relationship between a voter's ideology and their partisanship was much weaker; there were many conservative Democrats and liberal Republicans. This is no longer true. "Conservative voters are much more likely to identify as Republican and liberals as Democrats than two generations ago." (McCarty 2014)

As the parties have become more polarized, split-ticket voting has decreased (Kimball 2002, 2). Voters are much more likely to value a candidate's party above other factors. This is immensely important to unintentional gerrymandering. Unintentional gerrymandering can only truly exist if voters are primarily choosing candidates based upon their party. 2012's House election was only problematic if most of the people who voted for Democratic candidates actually supported having the Democratic Party in power over the Republican Party (and vice-versa). Split-ticket voting undermines this analysis. If a voter avoids voting a straight ticket for one party, then it becomes impossible to judge which party the voter prefers to have in power. When there is significant crossover between the parties, and when many voters vote a split ticket, the problem of unintentional gerrymandering is moot.

A polarized electorate also means that it is more difficult to persuade people to switch sides for a particular election. This means that subtle structural factors take on a greater prominence. Our nation is almost equally split between the parties, and most citizens are partisans who are unlikely to ever vote for the opposing party. According to Gallup, 41% of Americans are either Republicans or lean towards the Republican Party, while 43% of the population are either Democrats or lean towards the Democratic Party. (Jones 2014)

Even self-described Independent voters commonly support one party almost all the time. Despite constant talk among politicians and pundits of “swing-voters,” there are few voters who are truly up for grabs. In spite of the growing polarization of our politics, the percentage of Americans who identify as “Independent” is also rising. One Gallup poll from 2013 showed that 42% of Americans surveyed identified as Independents. (Gallup 2014) The important caveat to Gallup’s finding is that the vast majority of Independents lean towards one party or the other, and in practice they tend to vote similarly to how “weak” partisans do. Political Scientist John Sides, writing for the Washington Post commented that, “In actuality, real independents make up just over 10 percent of Americans, and a small fraction of Americans who actually vote.” (Sides 2014)

Voters who claim to be Independents artificially give credence to the idea that there is a large centrist middle, and that polarization is a myth. In America, there is significant social pressure to appear to be Independent. Most people don’t want others to think that they just automatically vote for a particular party the majority of the time, even when their actions say otherwise. “A key to understanding independents is media coverage of politics in Washington. When people see politics in the news and entertainment media, they see partisan gridlock and

disagreement. Partisans are portrayed as uncooperative, uncompromising and angry.” (Krupnikov & Klar 2014)

When the numbers are so close, and when conventional methods of persuasion are becoming less and less effective, something has to fill the void. Aspects of an election such as the distribution of each party’s voters can become deciding factors.

It’s important to note that polarization in American politics is not a new phenomenon. Based on roll call voting records in Congress, the parties began to polarize starting around 1978, and have continued to grow more and more polarized since then. (McCarty 2014) This means that we can conclude that the events in recent decades (such as the Gingrich Revolution of the 1990’s, the George W. Bush presidency, or the Tea Party movement) are not the original causes of our current polarization.

This indicates that something in the 1970’s, likely the realignment of the parties in terms of civil rights issues, may have caused our current polarization. (ibid) The key event that caused our current polarization was probably the fracturing of the New Deal coalition. President Franklin D. Roosevelt managed to use the New Deal to unite northern liberals with conservative southerners by appealing to their economic interests. This coalition pitted the working class against businesses, but Democrats of the time took great care not to alienate southerners who were conservative on racial issues. This changed during the Civil Rights Era of the 1960’s, when racial issues were brought to the forefront. This split the coalition the Democrats had built, and so southern conservatives and northern liberals were again on opposite sides of the partisan divide. (Noel 2012, 159)

What's important to realize is that polarization is the norm, both in American politics and in First Past the Post electoral systems generally. The period of bipartisanship the nation enjoyed during the middle of the 20th century was an abnormality. What's bizarre isn't that we are polarized now, it's that there was a period of time when we *weren't* polarized.

In the House from 1867 to 2003, there was little overlap between the parties save for one exception. Based on DW-NOMINATE scores (a common way of measuring the ideological distance between politicians), the overlap between the most conservative Democrats and the most liberal Republicans was near 0% for the entire time period except for an explosion of bipartisanship from the end of World War II until the early 1970's. After this period, the levels of bipartisanship began to fall incredibly fast, until falling all the way back down to 0% around the early 90's. (Brady & Han 2014)

However, the views of political scientists regarding polarization in the United States are not unanimous. Morris P. Fiorina is the most prolific dissenter to the view that polarization in America has increased dramatically. While Fiorina agrees that party elites have polarized, he argues that the public has not. He argues that polarization is a difficult concept to define. For example, he points out that a generation ago, about three quarters of Americans agreed that homosexuality was wrong. There was no polarization, a sizable majority opposed homosexuality. He commented that, "today [that is, in 2007] opinion of homosexuality appears considerably more polarized," and speculates that, "if current trends continue, in 20 years public opinion *circa* 2007 will appear as roughly the midpoint of a transitional period when American society moved from a position of consensual rejection of homosexuality to a position of consensual acceptance of homosexuality." (Fiorina et al. 2008, 567) Because of this, it's difficult to say if society was

truly “polarized” in 2007, or if public opinion was simply shifting from one point of agreement to another.

He also reviews public opinion surveys and draws attention to the fact that a plurality of voters identify as moderates. He also takes note of the finding that the self-identification of the American public has not changed drastically in recent years, “it seems reasonable to conclude that the distribution of ideology in the American public has not changed for more than three decades.” (571) He then uses survey data to show that when it comes to actual issues, Americans tend to support middle of the road options, even during “purportedly” polarized elections such as 2004. (573) He summarized the findings by saying that, “Rather, we see a largely centrist public drifting slightly rightward on some issues, slightly leftward on others, but with only very small declines (of 2–5 percentage points) in the number of moderates.” (574)

Increasing Polarization is important to my argument, so at first glance Fiorina’s position seems to challenge mine. However, I do not believe that his argument is really incompatible with mine, when properly understood. All that matters for unintentional gerrymandering to occur is for the parties to be distinct. Fiorina acknowledges that sorting has occurred between the parties (“A significant degree of sorting has occurred, however most clearly between members of the two parties, but also along lines of religion and possibly geographic location” (584)), and that certain factors such as presidential approval ratings are significantly impacted by partisanship (“evaluations of [President Bush] are far more divided than the underlying values and positions of Democratic and Republican partisans.”) (575) As long as Democratic voters prefer a Democratic Congress to a Republican Congress, the system features sufficient party sorting to allow unintentional gerrymandering to occur. Even if most voters are not truly far apart from

each other, as Fiorina argues, voters have a preference for one party over the other. Unintentional gerrymandering distorts that preference.

In 2008, journalist Bill Bishop published a book titled “The Big Sort: Why the Clustering of Like Minded America is Tearing us Apart.” In the book, Bishop documented how for the past thirty years, Americans have sorted themselves into homogenous communities via migration. He argued that, while some of this may have been explicitly for the purpose of being near ideological brethren, it was also a result of the two parties becoming linked with competing lifestyles. For example, if being a hunter makes you statistically more likely to be a Republican, then parts of the country that are ideal for hunting will naturally end up with large numbers of Republicans. Conversely, if being involved in the tech industry makes you more likely to be a Democrat, then areas such as Silicon Valley will lean Democratic. This becomes especially apparent when one considers how a rural lifestyle has become associated with Republican politics, while an urban lifestyle has become associated with Democratic politics. Many people don’t migrate intentionally trying to hide from opposing partisans. A person may want to live in the city (or live in a rural area) for completely different reasons, but the end result is still a sort of self-segregation.

During his research, Bishop found that ‘between 1995 and 2000, 79 percent of the people who left Republican counties settled in counties that would vote Republican in 2004— and they were most likely to move to counties that would be Republican landslide counties.’ (Bishop 2008, 44)

Bishop found that Democratic and Republican counties were different in almost every conceivable category. In strongly Republican counties as compared to strongly Democratic ones,

more people were married, fewer earned at least \$75,000 per year, fewer people were non-white, church attendance was higher, there were more Christians who described themselves as Evangelical, and so on. (Bishop 47) However, even people who are in the minority in a district tend to either leave or begin to accept the majority's views. One example of this is the opinions held by Evangelical Christians regarding the Iraq War during the 2004 election. While as a whole, Evangelicals supported the Iraq War in 2004, there was a division among them based upon where they lived. *Where* an Evangelical lived was more important than the fact that they were an Evangelical in terms of their likelihood to support the Iraq War. According to data obtained by the Pew Research Center, "less than half of the weekly churchgoers and self-described Evangelicals in heavily Democratic counties supported the war in Iraq in 2004. In heavily Republican counties, however, this same demographic group supported the war three to one." (48) A majority of Evangelicals parroted the views of their district, regardless of how popular those views were within their religious subgroup as a whole.

The areas themselves have different cultures, even in minute ways. David Wasserman, a political analyst for the Cook Political Report, noticed how counties with a Whole Foods store (which sells organic groceries) compared with counties with a Cracker Barrel restaurant, a "homestyle restaurant featuring chicken n' dumplings." The differences in political views were striking. "In 1992, Bill Clinton won 60% of the Whole Foods counties and 40% of the Cracker Barrel counties, a 20-point difference. That gap that has widened every year since, and in 2012, Mr. Obama won 77% of Whole Foods counties and 29% of Cracker Barrel Counties, a 48-point difference." (Meckler and Chinni 2014) Wasserman commented that, "Politics hangs on culture

and lifestyle more than policy.” (ibid) Even a county’s eating preferences are linked to its political views today.

A study conducted by Wendy K. Tam Cho, James G. Gimpel, and Iris S. Hui attempted to quantify Bishop’s thesis. Bishop’s book was primarily directed towards consumption by the public, relying heavily on interviews and anecdotes. Cho, Gimpel, and Hui (2013) came at the same questions from a more quantitative perspective. In large part, their data confirmed Bishop’s suspicions. Whether consciously or not, politics affects where people decided to live.

Cho et al. analyzed voting records from 2004, 2006, and 2008 in seven states --New Jersey, Maryland, Delaware, Pennsylvania, California, Oregon, and Nevada. They looked at both a person’s first and last name, and their birthdate so that they could avoid accidentally confusing people with identical names. Using this, they were able to track where partisans moved. Their results showed that partisans tended to move to places where they were likely to be surrounded by people of the same party. Two phenomena were identified. Even when other factors were controlled for, partisanship had a relation to where voters ended up migrating. Secondly, there are several factors (such as race and average income) that, while not being explicitly partisan, are associated with partisanship. For example, a high income is correlated with support for the Republican Party, so if high income families decide to live near each other, it’s likely that more of them will be Republicans than Democrats. Cho et al. concluded that, “variables that are associated with partisanship are part of the decision process, bolstering partisan sorting even while partisan considerations are not explicit” (866). The end result was that partisans, both consciously and unconsciously, move towards people who agreed with them.

The most relevant finding for this paper, though, is that Democrats are more likely than Republicans to seek out communities that are inhabited by people who disagreed with them. “Like Republicans, Democrats move to destinations that are more Republican friendly than their origin,” (864) and even after they controlled for other factors they found that, “Republican migrants show a preference for moving to areas that are even more Republican, and this tendency increases monotonically as the distance of the move increases. Democrats display a similar preference for their own, although the tendency is not as strong as it is for Republicans” (866). This finding is immensely important for the study of unintentional gerrymandering. Unintentional gerrymandering only occurs when opposing partisan groups have *different* migratory patterns. If both sides are equally adept or inept at living in electorally efficient areas, then they would cancel each other out.

Democrats are *less efficient* than Republicans when it comes to geography. The entire phenomenon of unintentional gerrymandering is a result of Republican districts having substantial minorities of Democrats, while urban Democratic districts barely contain any Republicans at all. Because some Democrats decide to live in Republican districts as a minority, they allow Republicans to spread their vote thinner over a larger number of seats. In contrast, Republicans are more likely to avoid urban Democratic districts, leaving voters in these districts to “waste” their votes in elections with lopsided margins.

In short, unintentional gerrymandering is only possible if (1) the parties are distinct and polarized, so that partisans rarely defect, and (2) if partisans from opposing parties are not distributed in the same ways. Since the 1970s, the major parties are polarized, and Democrats and Republicans are not spread out in identical ways. Under a First Past the Post system then, it

is inevitable that one party will obtain a structural advantage based on geography alone. If we are to counter this imbalance, we logically have three options. Any potential solution would either have to change the polarization of the parties, change the geographical distribution of the electorate, or change the basic rules under which our electoral system functions.

Solutions

Unfortunately, there are few solutions to this problem that would both eliminate the problem and which are politically palatable. Unintentional gerrymandering is a natural result of First Past the Post voting systems. Truly undoing it requires looking at alternative electoral systems, although there are several things that could weaken the phenomenon.

There is one way to truly end the problem of unintentional gerrymandering, and that is by switching to an electoral system that does not have the problem, such as some sort of Proportional Representation. Unfortunately, I do not believe that the United States has enough political will to switch voting systems any time soon. Such a change would be dramatic, and making major structural reforms to an electoral system requires a large push from the public. If it were possible, though, I believe that the problem would be eliminated to the point where it would only exist on the margins. Under Proportional Representation, a district elects multiple representatives to Congress, and each party receives a number of seats that is proportional to how many votes they had received in the election (Mtholyoke).

Proportional Representation is far from perfect, though. It would indeed create a much closer relationship between seats and votes (since that is the entire purpose of the system), but there would be tradeoffs. Proportional Representation lowers the importance of candidates, and puts more emphasis on party. While Americans are becoming increasingly partisan, the public may be unwilling to have the law outright admit that parties are more important than candidates. There's also a problem of accountability and constituent services. Proportional Representation means that a district has multiple representatives, which could make it harder to hold a representative accountable for the fate of the district. Local concerns would also be sidelined,

since national parties would have increased power. In addition voters could be confused about where to go to for help with government services. One benefit of having a single representative is that a voter can contact them for help about routine issues such as getting through government bureaucracy, or finding a missing social security check.

There are several systems that attempt to balance these concerns (personally, I'm partial to Mixed-Member Proportional Representation, at least on paper), but any change in voting requires tradeoffs. First Past the Post has significant problems with accurately representing the political and partisan views of the electorate, but it also has benefits. While this paper focuses on some of the glaring flaws of FPTP, this should not be taken as a condemnation of the voting system. Rather, choosing an ideal voting system is filled with pros and cons, and in the end a nation's choice in voting system represents where its priorities lie, just as in any other policy choice.

Ironically, the most practical antidote to this problem may be further polarization and sorting among the American electorate, the same things that have exacerbated unintentional gerrymandering. At its heart, the reason the United States has to deal with unintentional gerrymandering is because the parties are not equally well-sorted. There are clusters of Democrats in majority-Republican districts, but few clusters of Republicans in majority-Democratic districts. If the "Big Sort" that Bishop described continues, then perhaps those Democrats will migrate over time to majority-Democratic districts. If this happened, then both parties would have similar living patterns (both Republican and Democratic partisans would live in politically homogenous communities). If both parties' voters had similar living patterns, then

neither party would have a strong advantage over the other in terms of unintentional gerrymandering.

Finally, measures could be taken to reduce partisan gerrymandering. It is true partisan gerrymandering is distinct from unintentional gerrymandering, and minimizing partisan gerrymandering will not actually affect the unintentional variety. However, unintentional and partisan gerrymandering often reinforce each other. So while reducing partisan gerrymandering won't actually solve unintentional gerrymandering, it would at least make our elections more democratic and more representative.

Of course, one possibility would be to use intentional gerrymandering to work *against* partisan gerrymandering. Eric McGhee notes that, "a neutral process will always carry the risk of a biased outcome, so we should either require plans to eliminate bias or accept that sometimes bias will happen without intent." (McGhee 2013) This idea is certainly provocative, and merits consideration. However, using districts to try to artificially make the results of an election more "representative" is itself arguably problematic. Not to mention that predicting unintentional gerrymandering over the course of the decade between redistricting cycles is fraught with uncertainty. I believe that experiments with intentionally gerrymandering elections in this way might be worthwhile, but my suspicion is that it would cause more problems than it would solve (not to mention that it would be a hard sell to make politically).

Conclusion

Unintentional gerrymandering is a natural result of First Past the Post electoral systems. There is no guarantee that such a system will produce an acceptable relationship between seats and votes. Sometimes it produces a relatively equitable result, other times it inflates or deflates majorities, and in the most troublesome cases, it grants majority status to a party with a minority of the vote.

The natural imbalances in First Past the Post are exacerbated when the parties are well sorted and swing voters are rare. Our modern parties try to attach themselves to certain lifestyles, and people of different life styles have different places where they prefer to live. This means that, by targeting the right types of people, a party can benefit by having voters that are distributed in ways that skew an election.

Currently, Democrats are strong among minority populations and among the young. These groups are highly likely to live in one of two places: in urban districts surrounded by other Democrats, or in small communities surrounded by Republicans. This means that Democrats have a high chance of making either a wasted or an excess vote. Republicans, by living in rural districts and avoiding cities, live in areas that are more electorally efficient. Several factors, such as malapportionment, intentional gerrymandering, and unintentional gerrymandering currently benefit the Republican party. The Republicans also currently possess a majority in the House of Representatives, meaning that the incumbency advantage benefits them more than it does Democrats.

Johnston and Erikson's research shows that this is not a unique situation. This distortion in the relationship between seats and votes has happened before in the United States, and it

happens in other countries. The exact circumstances can vary by time and place, but First Past the Post inevitably benefits parties that gain support from well-sorted voters. The reason this is is because First Past the Post only gives a binary result; once a candidate reaches 51% of the vote, they win the seat. There is a huge difference between a 51% victory and an 80% victory, but First Past the Post has nothing to reflect this difference.

I offered suggestions to how to counter this phenomenon, but solving it is not the real thrust of this paper. For such a fundamental fact of First Past the Post voting, unintentional gerrymandering has received scant research. I hope that this paper, along with the 2012 election results and Chen and Rodden's research, will spur more research and discussion on unintentional gerrymandering. I am particularly curious as to what will happen the next time that the Democrats receive a majority of the popular vote. Perhaps comparing that future election to 2012 will shed further light on this topic.

A secondary objective of this paper was to demonstrate how electoral systems are fundamentally difficult. Slightly different rules, or slightly different districts, can change the winner of an election. When we discuss election rules, we should be aware that there is no easy answer. There is no "true" democratic system, or a perfect way to draw districts. Even districts drawn with pure intentions can end up skewing an election. Electoral policy and redistricting reform need to be carried out with an awareness of the necessary trade-offs.

In the coming years, I expect to see increased research on gerrymandering. Hopefully if more research is conducted, we can get a better idea of what our options are, and what trade-offs we would have to make. Managing our electoral system is not simply an academic concern; because politicians create policy, it affects every other aspect of our society. With more research,

perhaps we can better manage redistricting, and by doing so make our system more representative and democratic. By making sure that location doesn't matter in politics above other factors, we can pursue better policy in every other area.

Appendix

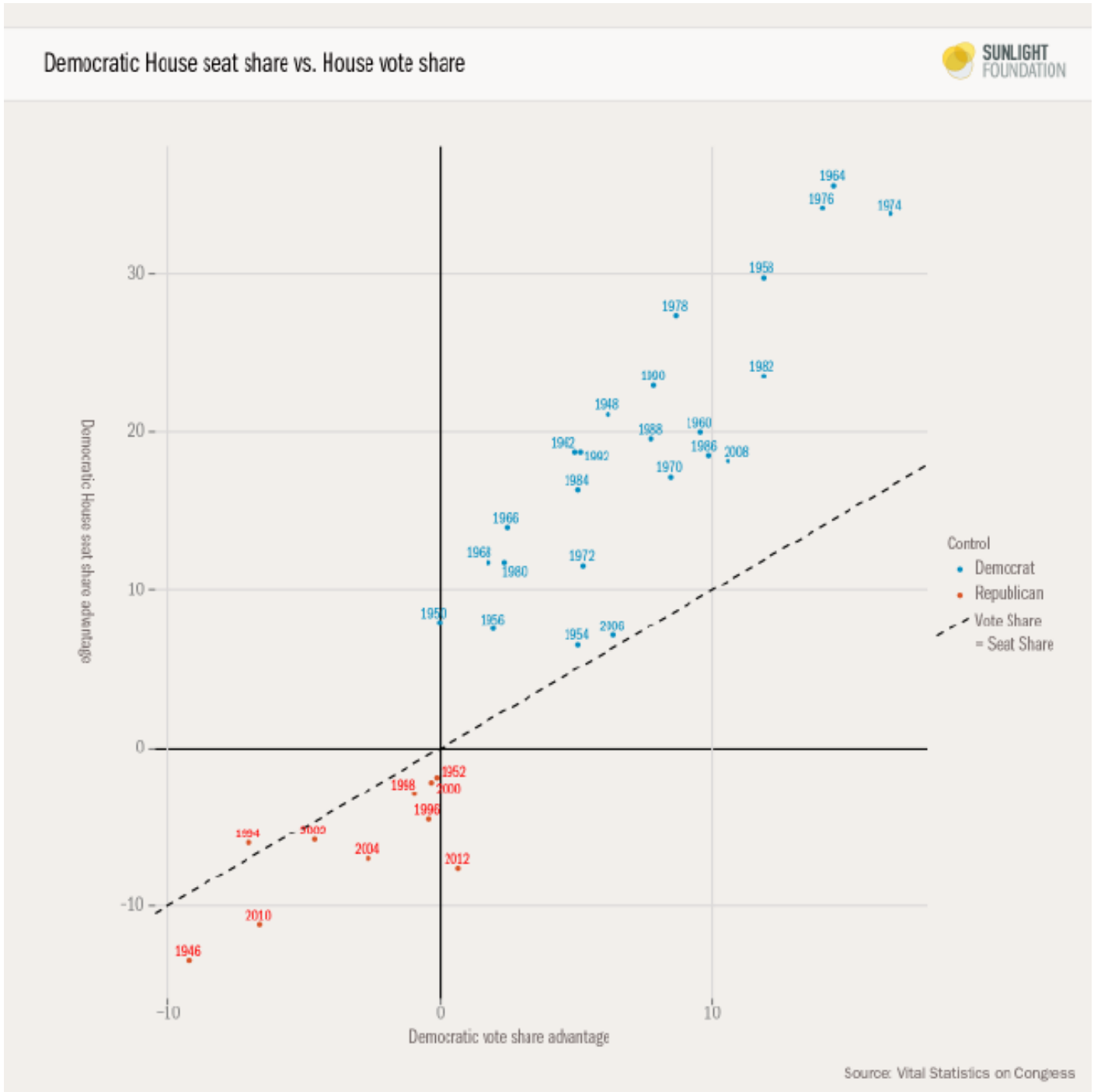


Figure 1
(Drutman 2013)

Democratic seat advantage minus Democratic vote advantage, 1946–2012

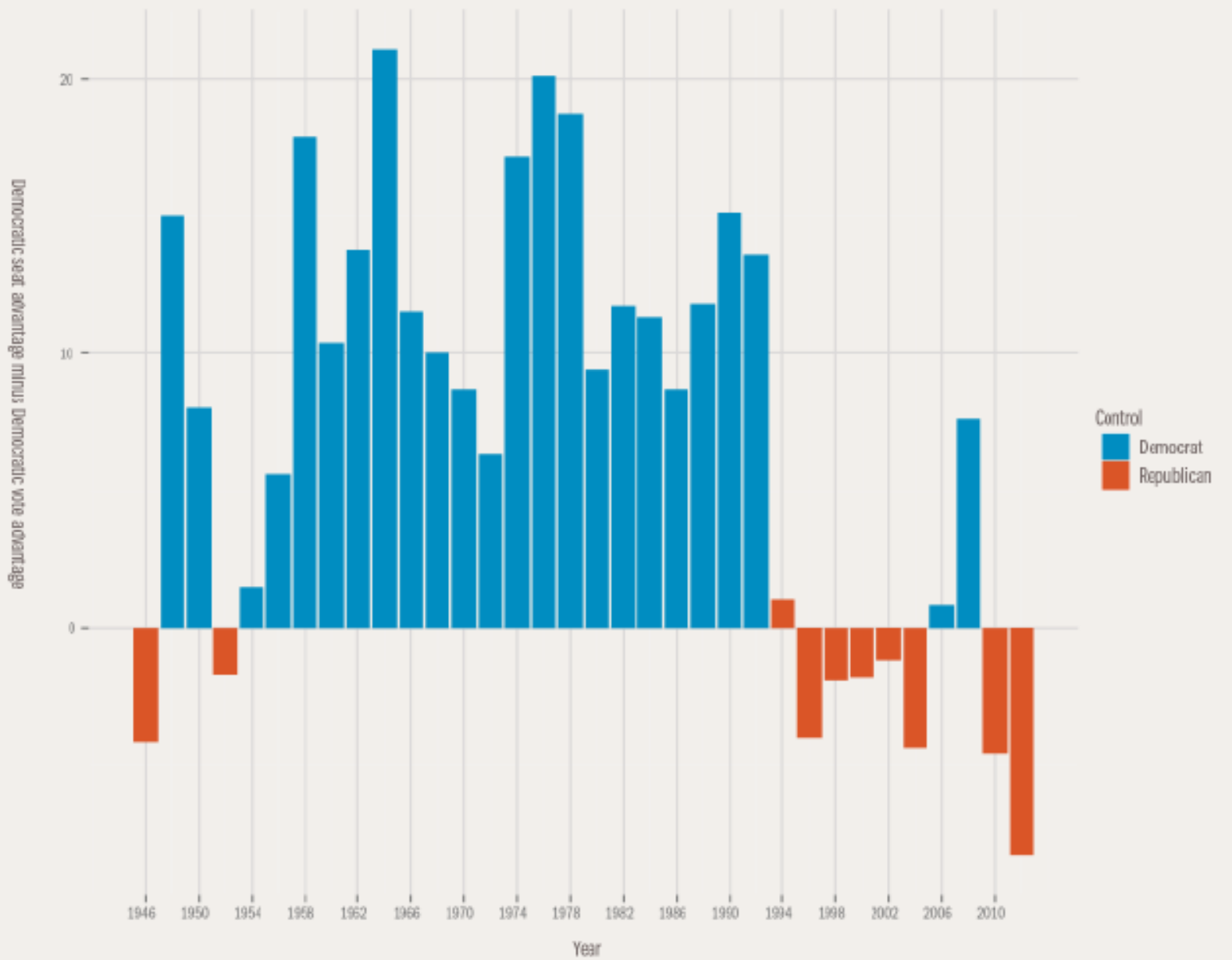


Figure 2

(Drutman 2013)

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