

REVISITING REDISTRICTING IN TEXAS: A METHOD FOR PREDICTING ELECTION RESULTS

Maddalena Romano
Department of Geography
Pennsylvania State University
University Park, PA16802

ABSTRACT: This study explores the Modifiable Area Unit Problem as it pertains to the 2012 redistricting plans in Texas. It aims to predict the number of Congressional districts in Texas that will have Republican representation now that the state has been apportioned four additional seats in the US House of Representatives (House), bringing its total number of representatives to 36. Using a methodology established by O’Sullivan and Unwin (2010), this study creates raster layers that estimate likely voting behavior for 2012 based on election results from 2010 elections. This prediction is then compared to actual results for 2012. The results of the prediction, 27-9 in favor of Republicans, do not meet with reality. While the Republicans still claim the majority of seats, 24-12, there is a loss of three districts to the Democrats. Possible reasons for this discrepancy are presented.

Keywords: Texas, redistricting, gerrymandering, election, GIS

INTRODUCTION

After every decennial census, states embark on a redistricting process to account for the loss or addition of congressional seats. Given that current political climate impacts all bills up for vote, it would be worthwhile to study the effects redistricting has on the make-up of the House and how reapportionment influences the broader political landscape. For this study, I will investigate the Texas redistricting results for the 2010 election using the methodology established by O’Sullivan and Unwin (2010) and update the results based on the reapportionment from the 2012 Census. Using 2010 election data, I will predict the election results for 2012 for the Texas congressional districts based on the newly-proposed districts. I hypothesize that the redistricting effort will result in more wins for Republicans in the Texas Congressional Districts. I will then compare these results to the actual results from 2012 election data to determine how close my prediction was to reality.

I intend to determine the percentage of voters in the current districts that are registered Republican voters; to determine the Republican Majority in the new districts; and to predict the number of new districts that will elect a Republican to the House. I will demonstrate how redistricting is being used so that the party currently in power in Texas can remain in power, how the distinction between redistricting and gerrymandering are often difficult to determine, if gerrymandering alone is enough to explain the results of the 2012 election, and how decisions such as these made at the state level can have repercussions on a national level.

In order to understand the significance of reapportionment, I will include a short explanation of legislative committee membership and tenure. An example is the Standing Committee on Science, Space, and Technology.¹ Texas accounts for one-fifth of the representatives of this committee, which is responsible for areas such as energy research, aeronautical research, environmental research, the National Aeronautics and Space Administration, the National Science Foundation, science scholarships, and scientific research. Committee assignments are made after every election. The senior party member of the majority party make the committee assignments. The number of committee slots is proportional to the ratio of Republicans to Democrats, which means that, if the Republicans are the majority party, a greater number of committee members are comprised of Republicans. Incumbents may choose to stay with same committee to gain seniority. The longer the tenure of a Representative, the more likely that Representative is to chair that committee, or to have their pick of committees. If districts are drawn in such a way as to guarantee a win for the incumbent, not only does the incumbent’s tenure increase, but the influence of constituents is diminished, and special interest groups, or the incumbent’s personal desires, may take precedence (Clerk of the US House of Representatives, 2013; Independence Hall Association of America, 2013).

¹ For a complete list of Texas Representatives and their committee assignments, see www.house.gov/representatives/#state_tx.

THEORETICAL BACKGROUND

Texas had been a solidly Democratic state from 1848 until the 1990s (Texas Politics 2013). The strength of the Republican Party grew from the 1960s to the 1990s, but up until 1994, when Democratic Governor Ann Richards lost to George W. Bush, Democrats still controlled the State legislature, and thus had the most input over the redistricting process. In 2000, the State legislature was dominated by Republicans, and the districts were redrawn to encourage future Republican wins.

Reapportionment. The Founding Fathers deliberately created the Congress to reflect local concerns, thus rooting the concerns of the populace according to the geographic location of the constituents. To examine reapportionment accurately, it is useful to remember the spatial context. In recent years, states with warmer climates have increased in population, and states with more temperate climates, like New York, lose representation and thus see some erosion of the degree of influence they had wielded in Congress. Some explain this as a cost of living issue (Bureau of Labor Statistics 2013), others point to increases in external and internal migration (Jones and McCormick 2010), the relocation of firms to the southern and western United States (Haman 2009), and others on technological changes such as the invention of air conditioning (Haberman 2012). The shifting of Congressional seats away from states with Democratic leanings and towards states with Republican leanings has repercussions on policy for decades (Hamilton and Martin, 2012).

Reapportionment is the redistribution of the 435 US Congressional Districts such that equal portions of the US population are represented in each district, thus allowing each district equal weight in Congress as set forth in the Fourteenth Amendment. However, if malapportionment ensues, and districts are drawn in such a way as to disenfranchise key segments of the electoral demographic, this is considered a gerrymander. The Texas Congressional Redistricting Plan of 2003 remained under scrutiny until June 28, 2006, when a Supreme Court of the US (SCOTUS) ruling upheld the redistricting as constitutional, save for District 23—which was determined to be an attempt at gerrymandering and an attempt at disenfranchising Hispanics (District 23 is located along the Rio Grande River) and therefore was in violation of the Voting Rights Act (Associated Press 2006). SCOTUS then asked the lower court to pay closer attention to the current district boundaries, which favor the election of Republican representatives (Sacks 2012).

Integral to the understanding of redistricting is the current conservative movement within the Republican Party. Maintaining control when threats arise allows the party in power to remain in power. Sectionally-based parties (comprised of adjacent regions of similar economic, political, and cultural characteristics) have recurred regularly in US History (Martis 1998). The 1964 election of Lyndon Johnson initiated the last period of non-sectionalization, indicated by Democratic elections in the North and Republican elections in the South. Kevin Phillips suggested that political parties would again realign along ideological lines, with the West and South becoming more Republican and the Northeast becoming more Democratic in his book *Emerging Republican Majority*, published in 1969 (Martis 1998). The strident rhetoric that is currently rampant among both conservative pundits and elected officials depicts a party that is fighting for a particular vision of the social contract, as evidenced during the 2012 campaign when Republican candidates called for self-deportation and other harsh immigration policies (West 2012). As Jonah Chait pointed out, the Republican Party is dominated by white voters lacking a college degree as well as rural whites, while the Democratic Party is dominant among minorities and whites with higher degrees (2012). As the electorate grows less white and better educated, and as population increase and internal migration within the United States continues, it is likely that the Democratic base will expand in key Republican swing states (Berg 2012).

Adaptation within political parties allows for them to re-emerge years later as the party in power. One way this can be achieved is by trying to reach out to Hispanics to win their vote, as had been done with other immigrant groups. Another way that this can be achieved is by enacting impediments to voting (Chait 2012; Weiser and Norden 2011; National Conference of State Legislatures 2012), or by drawing districts in such a way as to dilute the influence of an increasing majority. Rumley and Yiftachel (1993) write about how the dominant community maintains political stability by allowing some democratic outlet for the minority group. The four additional districts were drawn such that “two new Republican and two new latino districts” were created (Huffington Post 2012). Rep. Henry Cuellar (D- Laredo, TX) was heavily criticized by a Democratic advocacy group, and members of the Congressional Black Caucus for his support of the now-adopted districts, but he countered the criticism by stating that 1.3 million Hispanics would have been left underrepresented otherwise. This technique ensures centralization of power through inappropriate districting practices, instilling electoral bias, limiting electoral participation, and unequal access to politically powerful positions.

Electoral Geography in the Media. It is this expanding Democratic base that inspired Jeremy Bird, former National Field Director for the 2012 Obama re-election campaign, to found the movement Battleground Texas (2013). His strong belief that Texas can become a swing state is supported by the fact that 56 percent of the state population is a member of a minority group, but that representation is not reflected in the makeup of the representatives in office, citing gerrymandering, low voter turnout, and voter suppression initiatives as the cause (Bird 2013; Colbert Report 2013).

Others, however, disagree with the level of certainty held by grass-roots movements regarding turning Republican strongholds like Texas into swing states. Micah Cohen, a writer for Nate Silver's Five Thirty-Eight blog at the *New York Times*, believes that, while there is some cause for optimism, it is unlikely that Texas can become a Democratic stronghold in the near future (2013). Cohen cites the study from the Center for American Progress which projects the growth in eligible voters by race to show that there is positive growth with minority populations and negative growth in Caucasian populations, but is quick to point out that eligible voters differ from likely voters, and cites the Pew Analysis which shows turnout as 50 percent for Hispanics, 65 for blacks, and 47 percent for Asians for the last election. This lower voter turnout, geographic dispersion, and racially-polarized voting on issues are reason why minorities are rarely elected from districts not heavily minority composition, and why it takes populations of greater than 300,000 to elect minority representatives to office that are not local (Grofman 1989).

Additionally, assuming that most Hispanics vote Democrat, while true on a national average, is not true in Texas, where they are more likely to vote Republican (23% in Texas to 21% in New York) (LatinoVoteMap.org 2013; Parker 2013). Voting trends may change if immigration reform allows many undocumented immigrants the ability to vote. Where Cohen and Bird agree is that increasing the number of minorities that go to the polls can have a significant impact.

Nate Silver believes that this Republican advantage is more complicated (2013b). Though he agrees that gerrymandering is part of the story, he attributes these losses to geography, pointing out that Democrats cluster in urban areas. In these smaller, highly concentrated districts, the impact of Democratic votes is diluted. Recently, he has performed an analysis (2013a) where he explores the impact on Presidential elections of increasing populations of Hispanics, Blacks and Asians-as well as the one-time increase in population that will occur once immigration reform creates a path to citizenship for all undocumented immigrants currently residing in the United States. His model uses exit poll data for 2012 for 31 states, and extrapolates from 2008 exit polls for the remaining 19 states for which data was not available. While this exercise does demonstrate that there will be increasing turnover in years to come, Texas, while becoming more diverse by 2048, does not turn into a predominantly Democratic-leaning state. A flaw in Nate Silver's model is that he does not, and cannot, account for the 2020, 2030, and 2040 redistricting efforts which will follow the future decennial censuses.

The Voting Rights Act of 1965. The Voting Rights Act of 1965 included, in Section 5, a mandate for preclearance, which states that for the nine states with a history of discrimination (like Texas), federal permission must be sought before any changes can be made to the shape of districts, as well as to election laws and polling places. In February 2013, SCOTUS began deliberations in *Shelby County v. Holder*, (Cecere 2013), which challenges Section 5 of the Voting Rights act as being an over-reach on Federal powers sanctioned by the Fourteenth and Fifteenth Amendments to the Constitution. SCOTUS found Section 5 to be unconstitutional, and as of June 25, 2013, preclearance was no longer a requirement (New York Times 2013).

Many find this logic to be problematic (Stewart 2013). They point out that the restriction was put in place to prevent the disenfranchisement of minorities in areas where there has been a history of discrimination, and not as a personal prejudice, and citing the election of a black president as proof that there is no longer need to ensure that voter suppression does not take place does not explain the myriad of voter suppression initiatives enacted since 2011, including HB 56 and HB 19 passed by the state of Alabama requiring proof of citizenship and photo-ID (ACLU 2013). Similar voter ID laws in Texas were blocked by the Justice Department (Yost 2012, ACLU 2013), and were subsequently put into place after the June 25, 2013, decision.

Ecological Fallacy. Dennis Rumley (1975) criticized studies for their tendency for ecological fallacy (also known as ecological inference), which treats the voter as isolated from "local effects" and assumes that individual characteristics (such as voter partisanship) can be inferred from aggregate data (such as past voter behavior). This is problematic, because cause and effect is measured for groups rather than individuals, causing aggregation bias. Freedman states "statistical procedures have been proposed for disentangling individual-level from group-level behavior, including "ecological regression" and "cross-level" or "hierarchical" regression models. However, each method makes its own rather strong behavioral assumptions, which seem implausible when stated explicitly. For instance, ecological regression makes the "constancy assumption." According to this assumption....individual

behavior cannot depend on geographical location (2002). Minghi and Rumley (2008) and Rumley and Minghi (1976) point out that electoral geography studies ignore political variables such as campaigning, migration effects, and areas of latent partisanship, and that the introduction of a new political party, evaluation of a candidates past performance, as well as “conversion theory” (the idea that physical proximity to ideological beliefs can change a person’s own ideology) are essential to understanding electoral patterns.

Researchers point out that the results of previous elections help devise strategies that encourages stability in electoral patterns, but that these strategies rely on this inference. Johnston points out that few geographers evaluate the likely electoral impact of redistricting for congressional representation (2005). He also points out the analyzing voting data by areal units opens the analysis to overgeneralization, and this ecological approach is quite common in the US. He backs this claim with evidence from other studies that demonstrate that similar people vote differently.

The Modifiable Area Unit Problem. Openshaw and Taylor (1979) first coined the term Modifiable Area Unit Problem (MAUP) when working with election data of the 99 counties in Iowa. Congressional districts are a great example of MAUP² (which usually manifests as either the scale effect or the zone effect). Districers are carefully crafted such that an equal percentage of the population is represented by every congressperson, and these assignments effect the outcome of any spatial analysis performed on the data (O’Sullivan and Unwin 2010). Yang (2013) defines scale effects as “the different statistical inferences and estimates generated by the same data set that is aggregated into different spatial resolutions, especially aggregating small areas into a larger unit” and zone effects as “the variation in analytic results due to alternative grouping of the areal units at the same spatial scale.”

During the spatial analysis of aggregated data, an analyst can obtain different results using the same analysis and the same data but a different aggregations scheme. One could use this to see if processes happen at different scales if the aggregation is non-arbitrary, as is the case with the reapportionment. For example, if we changed the aggregation units from Congressional districts to counties, we would see a scale effect. In both cases the results are valid, but only if we consider the scale at which it was analyzed in conjunction with the results. If we were to change the shape of the aggregation units (i.e. from grid squares to hexagons) but maintain the scale we would see the zone effect, which is problematic since this does not analyze the data so much as it analyzes the aggregation scheme (ESRI 2013). To mitigate the effects of MAUP, Waller and Gotway (2004) suggest not making individual-level inferences when analyzing data, to collect individual-level data, and to include geography as a latent variable. Politicians are aware of this phenomenon and use it to redesign districts to their political advantage.

RESEARCH DESIGN

Texas grew by 4.3 million people between 2000 and 2010. In 2010, Texas’ population was 25,268,418. The Hispanic population - which is about 34 percent of the total Texas population-accounts for 65 percent of the 25 million in population growth, and most of this growth (84 percent) was concentrated in the Dallas/Fort Worth, Houston/Galveston, San Antonio/Austin, and Rio Grande Valley regions (Jervis 2011). The population growth added four additional Congressional districts, bringing its total to 36.

I replicated the methodology applied by O’Sullivan and Unwin (2010)—creating new raster layers to determine the number of Republicans and Democrats in each district in square kilometers using the 2010 voter data and the proposed districts. Subsequent layers were created to determine the number of Republicans and Democrats in each district per square kilometer. Democratic Party voter density was subtracted from Republican Party voter density to determine a Republican majority (negative numbers would indicated a negative Republican majority, thus revealing a Democratic majority). I used the redistricting plans for the 2012 election districts (obtained from gis1.tlc.state.tx.us/), and registered voter distribution by district by party affiliation (obtained from elections.sos.state.tx.us/elchist.exe) to perform this analysis. To explore the data, I made a map of the Republican majority for the 32 election districts in 2010. I calculated this majority from the voter turnout data. I layered the new districting plan for 2012 atop the 2010 Republican majority map. To calculate the predicted outcome, I set the analysis extent and the analysis mask to the new districting plan. I set the cell size to 1000 to ensure a 1 kilometer resolution for the raster.

In order for me to determine the possible outcome of the 2012 Congressional race, I needed to know the 2010 number of voters per district, the 2010 political party with which they are registered and the 2010 Congressional election results for Texas. I performed calculations on these variables to arrive at two additional

² Waller and Gotway (2004) refer to the Modifiable Areal Unit Problem as the “geographic manifestation of the ecological fallacy in which conclusions based on data aggregated to a particular set of districts may change if one aggregates the same underlying data to a different set of districts.”

variables: Republican voters and Democratic Voters. To determine how close my predictions were to actual outcomes, I also needed the 2012 number of voters per district, the 2012 political party with which they are registered and the 2012 Congressional election results for Texas.

To perform this analysis, I had to assume that voter population is evenly distributed. Assumptions of this kind can be problematic, since voters are rarely distributed evenly and tend to be concentrated in areas that are populated as opposed to farmland, parkland, or open spaces. However, since part of the purpose of this study was to determine voter density, and since doing so requires that we determine the number of registered voters per square kilometers, this assumption is viewed as the best way to achieve accurate results.

I also needed to assume that voter turnout is evenly distributed. There is no available data by district about registered voters and turnout, most likely due to the absence of exit polls for 2012 (New York Times, 2012). There is, however, overall turnout data. Interestingly enough, the reported turnout numbers are 7,993,851 (58.58%), but my calculations by district were 7,664,208 (56.16%). I used my calculations for this report.

The data obtained from the Secretary of State current election history (2012) tells us how many people voted in each district for the 2010 election, their affiliations, and the number of registered voters in each district. It does not tell us what percentage of the registered voters vote Republican or Democrat, however. By calculating the percentage of Republicans that voted, and comparing that percentage to voter turnout, I can then use that result to calculate how many of the voters in the district might be registered Republicans.

Since I am interested in voting patterns on the district level, I did not include a separate variable for population growth based on race or ethnicity. The reapportionment from the 2010 census for Texas already implies that there has been significant growth in all non-white populations in Texas, thus the allocation of four additional seats in the House.

RESULTS

Figure 1 shows the breakdown of election results from 2010. Twenty-two out of 32 districts possess a Republican majority. Note that the heavily Republican areas are located in mostly rural areas, with city centers and areas closest to the Mexican border retaining a Democratic stronghold. The 2012 proposed districts are superimposed on the 2010 election results. The differences are noted by the yellow lines.

In 2010, Republicans held a 22-10 majority. The predicted outcome shows Republicans gaining five Congressional seats from the Democrats as a result of this plan, giving the Republicans a 27-9 majority (Table 1 and Figure 2 below). This is corroborated by the historical data—in 2004 Republicans won six seats from the Democrats after redistricting, giving them the 21-11 majority (League of United Latin American Citizens et al v. Perry, Governor of Texas, et al 2006).

The actual outcome was notably different from the prediction. Republicans gained two Congressional seats, giving them a 24-12 majority in the House (Table 1 and Figure 3 below). Where the model failed was with districts 23 (which the Republicans lost by a slim margin), 33 and 34 (more decisive losses). The District 23 loss might be explained by the addition of the Libertarian and Green candidates, which removed 7,946 votes from the major parties.

What is most interesting about the results shown on these maps are the lightly-shaded districts—which are indicative of a more evenly-distributed electorate. When the districts are compared, the increasing inclusion of Republican voters in District 23 is seen as the chief cause of the slim margin in a district that was predominantly Democratic in 2010, making District 23 a swing district. However, there are additional differences that appear when comparing Figures 2 and 3. The new District 33 is comprised of a densely populated Hispanic region in the Dallas/Fort Worth area, and the new District 34 (comprised of pieces of former Districts 25, 14, and 10) very deliberately reaches into the Houston area to include parts of their Hispanic population. Other Republican won districts were done so on a much smaller margin than predicted using 2010 election results.

CONCLUSIONS

I approached this study with three goals in mind. In preparing my data for exploration and analysis, I was able to determine the percentage of Republican Voters per district. Upon completing my analysis, I was able to determine the Republican Majority in the new districts as well. I predicted that 27 of the 36 districts would elect a Republican to the US House of Representatives, but the actual results showed only 24 of the 36 districts had elected a Republican representative. Currently, many Democrats see the arbitrary assignment of Congressional districts as a direct attempt by Republican leadership to reorganize district boundaries in an attempt to increase the Republican

majority in Congress. As can be seen in the Figures 1 through 3, the redistricting plan for 2012 was constructed in such a way as to dilute the influence of voters in more heavily Democratic Congressional districts by redistributing them amongst more heavily Republican areas while simultaneously adhering to requirements creating districts of equal population size. As the *Huffington Post* article pointed out, the districts were drawn such that two would have boundaries drawn such that the electorate within the district was Republican leaning, and two of the districts would have strong Latino representation to reflect the growing numbers of Hispanic voters (2012). This analysis corroborates the article, as well as shows how the redistricting in Texas was deliberate not only in its mission to ensure equal population per district, but also to ensure that the party currently in power in Texas can remain in power. While this is not conclusive, it does demonstrate that using past behavior to predict future election behavior falls victim to ecological fallacy, and therefore the methodology presented here is an insufficient predictor of electoral outcome.

It is more difficult, however to demonstrate the distinction between redistricting and gerrymandering. Redistricting is necessary because electoral district boundaries must be drawn in such a way as to reflect equal populations within districts. However, when one party (Republicans and Democrats are both guilty) dominates a legislative body, these district boundaries can be redrawn in such a way that each district is dominated by one political party—eliminating competition in those districts.

Gerrymandering plays a large part in the outcome of current elections, but there is more to the story. The concentration of Democrats in urban areas dilutes their influence (84 percent of the Hispanic population resides in these areas). Texas is a complicated political landscape, however, particularly since the Hispanic population of Texas is slightly less Democratic-leaning than the national average. With 25 million Texans as of 2010, of which Hispanics comprise 65 percent, there is no indication that they will vote with the national average, or that voter eligibility can be an indicator of voter turnout. Even Nate Silver’s more recent model (2013a) demonstrates that Texas is still predominantly Republican by 2048, so the hopes of turning Texas into a swing state, by 2016 or 2020 are doubtful at best.

Decisions made at the state level can have repercussions on a national level. Though it is difficult determine voting habits without pairing the results of this study to a more qualitative analysis involving a disenfranchised group, we can still draw a few conclusions. The controversy over the newly proposed districts--brought to the attention of the SCOTUS by Hispanic voters that felt misrepresented yet again by these boundaries--indicates that the new district lines are again attempting to maximize the chances of Republicans being elected to office while minimizing the influence of Democratic voters (Burkhart 2013).

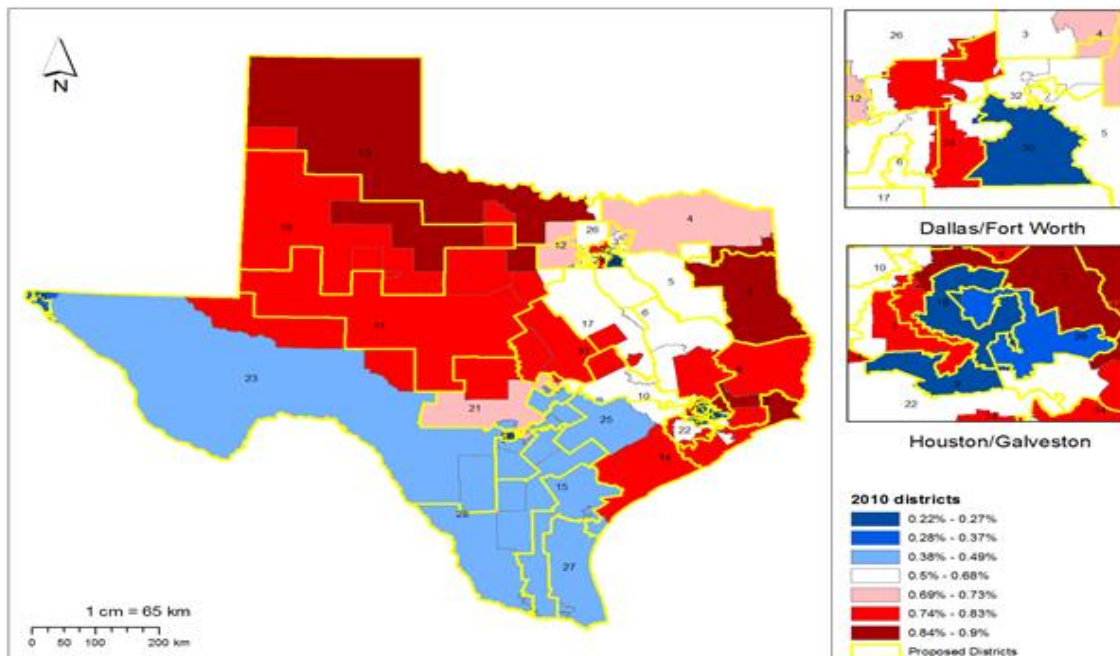


Figure 1. 2010 Districts with 2012 districts superimposed.

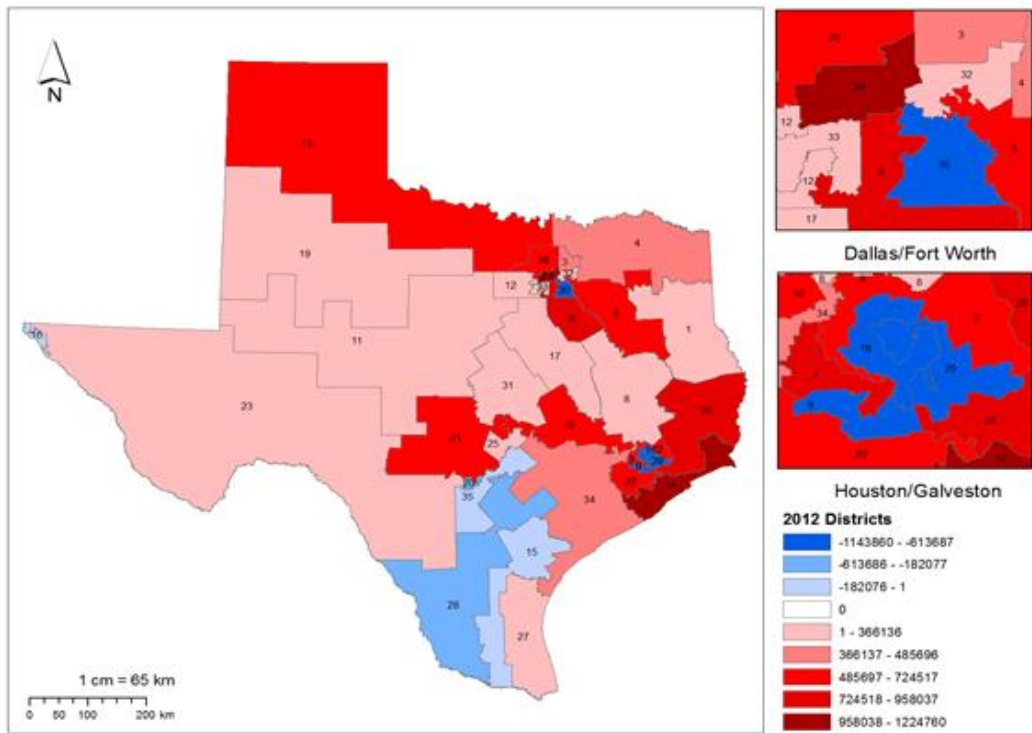


Figure 2. Predicted election results.

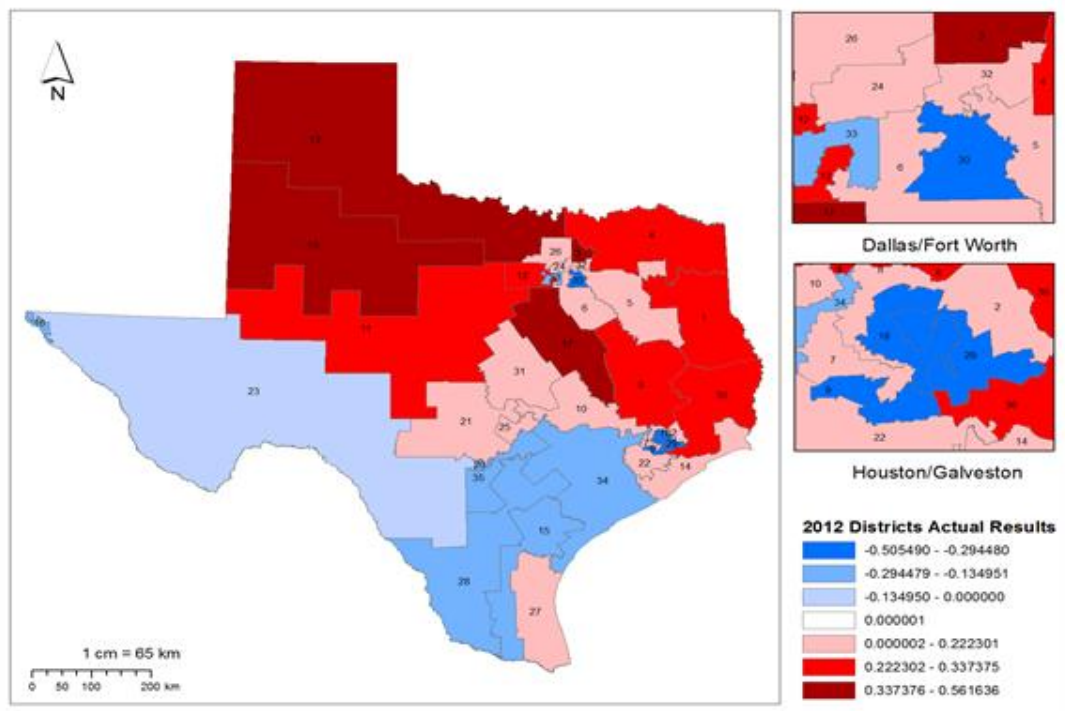


Figure 3: Actual Republican wins.

Redistricting in Texas

Table 1: Predicted and Actual Republican Majority for the 2012 districts

District	Proposed	Actual	District	Proposed	Actual	District	Proposed	Actual
1	366136	0.2499	13	665562	0.5110	25	1646.96	0.1179
2	711703	0.1805	14	1211050	0.0497	26	724517	0.2223
3	403353	0.5616	15	-48363.3	-0.1350	27	1807.66	0.0985
4	437238	0.2747	16	-49425.9	-0.1825	28	-183853	-0.2141
5	562875	0.1751	17	152679	0.4489	29	-616473	-0.5055
6	884033	0.1055	18	-805659	-0.2945	30	-613687	-0.3360
7	797404	0.1369	19	239719	0.4773	31	240049	0.1477
8	363006	0.3199	20	-182077	-0.1709	32	292401	0.1057
9	-1143860	-0.3302	21	674302	0.1413	33	157136	-0.2625
10	669904	0.1363	22	711572	0.1801	34	485696	-0.1441
11	273665	0.3374	23	10075.7	-0.0267	35	-47759.7	-0.1793
12	282951	0.2484	24	1224760	0.1406	36	958037	0.2480

It is important to note that many times, oddly-shaped districts are the result of gerrymandering, but sometimes these odd shapes are a necessary consequence of ensuring that underrepresented minorities are not subject to discrimination. While it is not illegal to redraw a district to ensure that the party in power remains in power, it is illegal to redraw a district in a way that disenfranchises minorities. However, since the Hispanic population of Texas is growing in the urban areas, the redistricting plans in Texas can indeed be seen as gerrymandering, and in such are in violation of the Voting Rights Act of 1965. Without representation that takes into account the best interests of all of their voters, this leaves Hispanics with a diminished voice in the political forum when it comes to many social issues—such as women’s rights, health care, social security, and immigration.

REFERENCES

- Advancement Project 2011. "Democracy Under Assault: The Truth About Voter Disenfranchisement Laws." Retrieved on Mar. 10, 2013, from www.moveon.org/r?r=268596&id=34802-18329907-Wy3oHwx&t=5
- Aiken, Charles S. 1998 *The Cotton Plantation South since the Civil War*, Baltimore and London: Johns Hopkins University Press.
- American Civil Liberties Union 2013. "The Battle to Protect the Ballot: Voter Suppression Measures Passed Since 2011." Retrieved on Mar. 30, 2013, from www.aclu.org/maps/battle-protect-ballot-voter-suppression-measures-passed-2011
- Associated Press 2006. "Justices Back Most G.O.P. Changes to Texas Districts." Retrieved on Jan. 9, 2013, from www.nytimes.com/2006/06/28/washington/28cnd-scotus.html
- Battleground Texas 2013. "Battleground Texas". Retrieved on Mar. 16, 2013, from www.battlegroundtexas.org
- Berg, N. 2012. "Increasing Density and Diversity Likely to Make Western States More Blue." Retrieved Feb. 9, 2013, from www.theatlanticcities.com/politics/2012/02/increasing-density-diversity-western-states-more-blue/1108/
- Bird, J. 2013. "The Case for Battleground Texas". Retrieved on Mar. 16, 2013, from www.huffingtonpost.com/jeremy-bird/battleground-texas_b_2774557.html
- Bureau of Labor Statistics 2013. "Consumer Price Index, Northeast Region – February 2013." Retrieved on Apr. 8, 2013 from www.bls.gov/ro3/cpine.htm

Burkhart, K. 2013. "Greg Abbott, Texas AG, Acknowledges GOP Redistricting Decisions Made 'At The Expense Of The Democrats'." Retrieved on Aug. 15 from www.huffingtonpost.com/2013/08/14/greg-abbott-gerrymandering_n_3757385.html

Cecere, C. 2013. "Shelby County v. Holder: The original understanding of Congress's enforcement powers". Retrieved on Mar. 30, 2013, from www.scotusblog.com/?p=160452

Center for Range Voting, 2013. Examples of our unbiased district-drawing algorithm in action / comparisons with gerrymandered districts drawn by politicians. Retrieved on Nov. 7, 2013 from rangevoting.org/GerryExamples.html

Chait, J. 2012. "2012 or Never." Retrieved on Feb. 26, 2013, from nymag.com/news/features/gop-primary-chait-2012-3/

Clerk of the US House of Representatives, 2013. Committee FAQs. Retrieved on Nov. 6, 2013 from clerk.house.gov/committee_info/commfaq.aspx

Cohen, M. 2013. "Can Democrats Turn Texas and Arizona Blue by 2016?" Retrieved on Mar. 16, 2013 from fivethirtyeight.blogs.nytimes.com/2013/03/01/can-democrats-turn-texas-and-arizona-blue-by-2016/

Colbert Report 2013. "Battleground Texas, Jeremy Bird." February 26, 2013. Retrieved on Mar. 16th, 2013, from www.colbertnation.com/the-colbert-report-videos/424178/february-26-2013/battleground-texas---jeremy-bird

Dubose, L. 2012. "The Supreme Court and the Texas Gerrymander." Retrieved Jan. 23, 2013, from www.huffingtonpost.com/lou-dubose/texas-redistricting-gerrymandering_b_1223195.html

Ebersole, P. 2013. "How redistricting foils majority rule." Retrieved on Apr. 9, 2013 from philebersole.wordpress.com/tag/gerrymandering/

ESRI 2013. "GIS Dictionary, MAUP." Retrieved on Apr. 10, 2013 from support.esri.com/en/knowledgebase/GISDictionary/term/MAUP.

ESRI 2013. "Districting for ArcGIS". Retrieved on Nov. 7, 2013 from www.esri.com/software/arcgis/extensions/districting

Freedman, D. 2002. "The Ecological Fallacy." Retrieved on Nov. 15, 2013, from www.stat.berkeley.edu/~census/ecofall.txt

Grofman, B. and Handley, L. 1989. "Black Representation: Making Sense of Electoral Geography at Different Levels of Government." *Legislative Studies Quarterly*, 14: 2, 265-279.

Haberman, C. 2012. "For Albany's Latest Struggle, Blame Air Conditioning." Retrieved Mar. 16, 2013, from cityroom.blogs.nytimes.com/2012/03/13/the-political-effects-of-air-conditioning/

Haman, A. 2009. "Southern States Poach Businesses Amid Downturn." Retrieved on Apr. 8, 2013 from online.wsj.com/article/SB124485634480511841.html

Hamilton, T.I. and Martin, G. 2012. "New Redistricting Maps Shuffle South Texas Congressional Races." Retrieved on Mar. 30, 2013, from blog.chron.com/txpotomac/2012/03/new-redistricting-maps-shuffle-south-texas-congressional-races/

Huffington Post 2012. "Latinos Divided Over Texas Redistricting Agreement." Retrieved on Mar. 30, 2013, from www.huffingtonpost.com/2012/03/08/latinos-divided-over-texas_n_1332496.html

Independence Hall Association of America, 2013. Congress: The Peoples Branch. 6C: The Importance of Committees. Retrieved on Nov. 6, 2013 from www.ushistory.org/gov/6c.asp

Redistricting in Texas

- Jervis, R. 2011. "Hispanics guide huge growth in Texas." Retrieved on Mar. 30, 2013, from usatoday30.usatoday.com/news/nation/census/2011-02-17-texas-census_N.htm
- Jones, T and McCormick, J. 2010. "U.S. Population Shift Accelerates to South, West States, 2010 Census Shows." Retrieved on Apr. 8, 2013 from www.bloomberg.com/news/2010-12-22/u-s-population-shift-accelerates-to-south-west-states-2010-census-shows.html
- Latino Vote Map 2013. "Latino Influence on the 2012 Election." Retrieved on April 8, 2013 from www.latinovotemap.org/map/
- League of United Latin American Citizens et al v. Perry, Governor of Texas, et al. 2006. "Appeal from the United States District court for the eastern district of Texas. Argued March 1, 2006--Decided June 28, 2006. Docket No. 05-204." Retrieved Jan. 16, 2013, from caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=000&invol=05-204
- Martis, K., Kovacs, Z., Kovacs, D., and Peter, S. 1992. "The Geography of the 1990 Hungarian Parliamentary Elections." *Political Geography*, Vol. 11, No. 3, May 1992, 283-305.
- Martis, K. 1988. "Sectionalism and the United States Congress." *Political Geography Quarterly*, Vol. 7, No. 2, April 1988, 99-109.
- Martis, K., and Rowles, R.A. 1984. "Mapping Congress: Developing a Geographic Understanding of American Political History." *Prologue – Journal of the National Archives*, Vol. 16, No. 1, Spring 1984, 4-21.
- National Conference of State Legislatures 2012. "Voter Identification Requirements," January 9, 2012. Retrieved on Mar. 10, 2013, from www.ncsl.org/default.aspx?tabid=16602
- New York Times 2012. "Presidential Exit Polls." Retrieved on May 1, 2013 from elections.nytimes.com/2012/results/president/exit-polls
- New York Times 2013. "Supreme Court Invalidates Key Part of Voting Rights Act." Retrieved on Jun 25, 2013, from www.nytimes.com/2013/06/26/us/supreme-court-ruling.html
- Office of the Secretary of State 2012. "1992-current election history." Retrieved on Feb. 26, 2013, from elections.sos.state.tx.us/elchist.exe
- Openshaw S. and Taylor P. 1979. "A million or so correlation coefficients: three experiments on the modifiable area unit problem." In N Wrigley ed. *Statistical Applications in the Spatial Sciences*. pp. 127-144 , London. Pion.
- O'Sullivan, D. and Unwin, D. J., 2010, *Geographic Information Analysis*, 2nd edition Wiley, Hoboken, NJ
- Parker, R. 2013. "Lone Star Blues." Retrieved on Apr. 8, 2013 from www.nytimes.com/2013/02/20/opinion/getting-texas-to-go-democratic.html?_r=2&
- Rumley, D. and Minghi, J. V. 1977. A Geography Framework for the Study of the Stability and Change of Urban Electoral Patterns. *Tijdschrift voor economische en sociale geografie*, 68: 177–182.
- Rumley, D. and Yiftachel, O. 1993. "The Political Geography of the Control of Minorities." *Tijdschrift voor economische en sociale geografie*, 84: 51-64.
- Rumley, D. and Minghi, J. V. 1977. "A Geographic Framework for the Study of the Stability and Change of Urban Electoral Patterns." *Tijdschrift voor economische en sociale geografie*, 68: 177-182.
- Rumley, D. 1975, Whither electoral geography? *Annals of the Association of American Geographers*, 65: 342–343.

Sacks, M. 2012. "Texas Redistricting: Supreme Court Throws Out Judge-Drawn Electoral Maps. The Huffington Post, 20 January 2012." Retrieved on Jan. 22, 2013, from www.huffingtonpost.com/2012/01/20/texas-redistricting-supreme-court_n_1218855.html

Silver, N. 2013a. "How Immigration Reform and Demographics Could Change Presidential Math." Retrieved on May 1, 2013 from fivethirtyeight.blogs.nytimes.com/2013/04/30/how-immigration-reform-and-demographics-could-change-presidential-math/

Silver, N. 2013b. "Did Democrats Get Lucky in the Electoral College?" Retrieved on Mar. 16, 2013, from fivethirtyeight.blogs.nytimes.com/2013/02/26/did-democrats-get-lucky-in-the-electoral-college/

Stewart, J. 2013. "Jon Stewart vs. Shelby County: 'Voting Rights Act Should Be Expanding Not Contracting' VIDEO". Retrieved on Mar. 30, 2013, from www.huffingtonpost.com/2013/03/06/jon-stewart-vs-shelby-county-voting-rights_n_2818302.html

Texas Legislative Council 2012. "District Viewer." Retrieved on Feb. 26, 2013, from gis1.tlc.state.tx.us/

Texas Politics 2013. "Contemporary Party Politics: The One-Party State of Texas?" Retrieved on May 6, 2013 from texaspolitics.laits.utexas.edu/index.html

The Texas Tribune 2012. Census 2010 Interactive Map: Texas Population By Race, Hispanic Origin. Retrieved on Apr. 9, 2013 from www.texastribune.org/library/data/census-2010/.

Waller, L. and Gotway, C. 2004. *Applied Spatial Statistics for Public Health Data*. New York: John Wiley & Sons.

Weiser, W. R. and Norden, L. 2011. "Voting Law Changes in 2012," Brennan Center for Justice, October 3, 2011. Retrieved on Mar. 10, 2013, from www.moveon.org/r?r=268598&id=34802-18329907-Wy3oHwx&t=4

West, G. 2012. "Rhetoric in GOP Primary Harmful to Hispanics." Retrieved on Mar. 30, 2013, from www.huffingtonpost.com/gus-west/hispanic-voters-gop-primary_b_1340163.html

Yang, T. C. 2013. "Modifiable Areal Unit Problem." Retrieved on Nov. 15, 2013, from help.pop.psu.edu/gia-resources/giatips/MAUP.pdf

Yost, P. 2012. "Texas Voter ID Law Blocked By Justice Department." Retrieved on Mar. 30, 2013, from www.huffingtonpost.com/2012/03/12/texas-voter-id-justice-department_n_1339004.html