Dude, Where's My Incumbent?
Voter Rolloff and the Information Costs of Redistricting

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Abstract

We suggest a novel explanation for voter rolloff in some elections—redistricting. Drawing on research on information costs, incumbency, and redistricting, we hypothesize and confirm that voters who are redistricted into congressional districts with new incumbents—"redrawn voters"—are less likely to cast ballots in U.S. House races than are other citizens. We also find some evidence that the magnitude of the redistricting effect on rolloff is most pronounced among minorities and in less competitive elections. The findings suggest that state redistricting processes, which have garnered considerable attention in recent years, can significantly affect whether citizens exercise their political voice in choosing a member of Congress.

American democracy rests on the idea that citizens choose candidates to represent their interests in government. This principle is carried out in regularly scheduled elections, where voters act as a "rational god of vengeance and reward" (Key 1966), casting ballots in support of incumbents or replacing them with new representatives. The fact that this necessary feature of the democratic enterprise works less than perfectly in the United States, where roughly half the eligible population casts ballots in even the most participatory elections, has caused considerable concern among scholars (see Niemi and Weisberg 2001 for a review).

In tandem, a smaller body of research has probed a related concern—the tendency of voters to leave some questions unanswered on their ballots, a phenomenon known as rolloff. In the United States, an appreciable portion of the electorate casts a vote in top-ticket races, such as president or governor, but fails to do so in down-ballot contests, leaving their ballots partially completed. Articulating a common view, Wattenberg (2002, 122) argues that rolloff is troublesome because it "undermines the representativeness of an election and the legitimacy of the result."

This concern has prompted scholars to attempt to discern the causes of rolloff, and most accounts have emphasized the role of voter fatigue and information costs. In this paper, we suggest a novel explanation for rolloff in some elections—redistricting. Drawing on research on information costs, incumbency, and redistricting, we hypothesize and confirm that voters who are redistricted into congressional districts with new incumbents—"redrawn voters"—are less likely to cast ballots in U.S. House races than are other citizens. We also find some evidence that the magnitude of the redistricting effect on rolloff is most pronounced among minorities and in less competitive elections. The findings suggest that state redistricting processes, which have garnered considerable attention in recent years, can

significantly affect whether citizens exercise their political voice in choosing a member of Congress.

We begin by providing an overview of existing research on rolloff. We then lay out our argument for why redrawn voters might be more likely to abstain from voting in a congressional election, and how this effect could vary across racial groups and with the level of electoral competitiveness. We then discuss our unique data from the Texas congressional elections in 2002 and 2004—both of which followed the redrawing of congressional lines—and our method of testing the hypotheses. Finally, we present our findings and conclude with a brief discussion of the results.

The Causes of Rolloff

In all but the most unusual elections, voters are faced with multiple choices on a single ballot. Though presidential and other high-profile campaigns garner the most attention, the federal system of American government means that citizens are often asked to cast votes in dozens of contests each time they walk into their precinct. Given the multitude of choices, it is not surprising that many voters choose to skip some ballot questions rather than spending the time or effort to make a choice, a process political scientists describe as voter rolloff.

While rolloff has received less attention than overall levels of turnout, scholars have attempted to document its prevalence and causes. Explanations for rolloff have fallen into to two broad categories—voter confusion and fatigue, and information costs (Wattenberg, McAllister, and Salvanto 2000).

One source of rolloff could be the result of voters' being overwhelmed by the number of choices they face, or the product of confusion over ballot questions (*e.g.*, Darcy

and Schneider 1989; Walker 1966). According to this perspective, voters "fail to register preferences in contests at the bottom of the ballot because they grow tired of the process" (Bullock and Dunn 1996, 72) or because the organization, wording, or placement of ballot items makes the choice overly difficult. In both cases, rolloff is a reasonable way for voters to ease their burden.

These explanations have found less support than the argument that information costs drive rates of ballot rolloff. In this framework, rolloff is not a consequence of fatigue or bewilderment, but the result of rational abstention. Voters may choose to cast ballots in races they know something about, but refuse to do so in others where they have little or no information.

For example, rolloff rates are higher in U.S. House races when voters cannot recognize the name of either major-party candidate, or when they have not had contact with either congressional candidate (Wattenberg, McAllister, and Salvanto 2000). Contests that draw less public attention and news coverage, creating a more anemic information environment, have higher levels of rolloff, regardless of their position on the ballot (Bullock and Dunn 1996). Bowler, Donovan, and Happ (1992) show that rolloff on California ballot propositions are directly related to the information costs incurred in making a choice on those questions. When information costs are high, so is rolloff.

The Information Costs of Redistricting

We suggest redistricting is another factor potentially affecting rolloff. When voting boundaries are redrawn, a portion of the electorate is faced with a different representative seeking reelection. Compared with voters who retain the same incumbent before and after redistricting—what we will refer to as "same-incumbent voters"—redrawn voters experience

an increase in their information costs because they are not familiar with their new representative.

It has long been known in the congressional elections literature that incumbents are more well-known than their challengers. Further, to be known usually translates into electoral support because the higher name recognition incumbents garner is associated with the positive things they have done for their constituents (Jacobson 2004). Thus, position taking, credit claiming, advertising (Mayhew 1974), and casework (Cain et al. 1987; Fiorina 1977), all serve the purpose of cultivating voter support on a nonpartisan basis. As a by-product, constituents are more familiar with their representative. The incumbency advantage, that portion of the vote that is secured on a nonpartisan basis (Petrocik and Desposato 2004), clearly manifests itself in the context of redistricting because incumbents receive more electoral support from same-incumbent voters as compared to redrawn voters (Ansolabehere et al. 2000; Desposato and Petrocik 2003).

From what we know about the incumbency advantage—that it affords representatives the opportunity to establish a relationship with voters, and that redistricting highlights the effects of the incumbency advantage by showing that same voters are more supportive of incumbents—it is a logical next step to consider whether redistricting affects voter rolloff. Because they lack familiarity with their incumbent compared to same-incumbent voters, candidate recognition costs for redrawn voters are higher. As a result, the burden of becoming informed enough to cast a vote in a House election is somewhat higher, and we expect redrawn voters to be less likely to cast a House vote. To be sure, many individuals can rely on the party cue, but it is also the case that some voters are not partisans or are weakly attached to a party, people for whom incumbency constitutes the primary shortcut for registering a choice. With the incumbency cue severely devalued, and probably

entirely removed for a large percentage of redrawn constituents, abstention in the House race is expected to be a likely alternative. Thus, our basic hypothesis is that in an election following a redistricting, redrawn voters will be more likely to rolloff in a U.S. House election than same-incumbent voters.

At the same time, the effect of redistricting on rolloff is likely to vary from voter to voter. Studies have shown that rolloff is more pronounced among individuals with lower levels of education or political knowledge, people for whom the costs of acquiring and using information are higher (Clubb and Traugott 1972; Wattenberg, McAllister, and Salvanto 2000). In particular, considerable work has found black voters more likely to rolloff than whites (*e.g.*, Darcy and Schneider 1989; Magelby 1984; though see Wattenberg 2002 for contrary findings), especially when few black candidates or incumbents populate the ballot (Vanderleeuw and Liu 2002). Thus, our second hypothesis is that the effects of redistricting will be most pronounced among minority voters, with redrawn minorities being more likely to abstain from a House election than other redrawn citizens.

Finally, we also expect the difference in rolloff between redrawn and same-incumbent voters to depend on the electoral environment. Competitive elections produce a more robust information environment for voters, as candidates seek to mobilize supporters and persuade skeptics through get-out-the-vote drives, television advertising, and other forms of campaign communication (*e.g.*, Shaw 1999). Less information is readily available to voters in landslide races, where candidates have no incentive to spend resources on communication. By the same token, the media are apt to pay attention to competitive legislative campaigns, which makes news coverage and candidate information more accessible (*e.g.* Gilliam 1985; Jackson 1996; Nicholson and Miller 1997). We expect this variation in the information environment to interact with the redistricting effect. Thus, we

hypothesize that citizens redrawn into districts with a less competitive congressional election will be more likely to rolloff than redrawn voters faced with a more hotly contested race. We turn now to describing the data we use to test these three hypotheses.

Data and Descriptive Results

This study uses data from the 2002 and 2004 elections in Texas. We use data from the Lone Star State because it was the only state that redrew its congressional boundaries in 2002 and 2004.[1] The occurrence of back-to-back redistrictings is just the kind of setting where information costs are expected to manifest themselves in higher rolloff rates among redrawn voters. Most of the data for this research were provided by the Texas Legislative Council (TLC). The TLC is the research arm of the Texas Legislature, providing legislative expertise and reapportionment services in particular.

The unit of analysis is the voting tabulation district (VTD). The VTD is the equivalent of a precinct. Unlike a precinct, however, which provides only vote returns, the VTD fuses demographic data with election data at the precinct level. VTDs are rarely split between congressional districts and therefore we are able to distinguish between VTDs consisting entirely of same-incumbent voters or consisting entirely of redrawn voters. This is critical. Though we are not using individual-level data, our results are not susceptible to the ecological inference fallacy, since VTDs are categorized as made up of same-incumbent, redrawn, or open-seat voters.

[1] The political fight in 2003 over the redistricting proposal backed by Republican U.S. House Majority Leader Tom DeLay led to the well-publicized flight of Democratic members of the Texas Legislature to Oklahoma and New Mexico. The Democrats succeeded in stalling a vote on the new map, but eventually returned to Austin, where the Republican-controlled Legislature approved the plan. It was subsequently signed into law by Republican Gov. Rick Perry and used to redraw the congressional boundaries for the 2004 elections.

The congressional maps used in the 2002 and 2004 Texas U.S. House elections were vastly different. The 2002 plan made only minor adjustments to incumbents' districts, largely reflecting the map that had been in place since the 1996 elections.[2] Due to reapportionment, Texas added two new districts in 2002, but these districts had only small effects on the percentage of constituents incumbents retained from 2000 (see McKee and Shaw 2005). By contrast, the 2004 boundaries drastically altered the districts of numerous incumbents. Anglo Democratic incumbents in particular were endangered, because the map was drawn by a Republican-controlled legislature (see McKee, Teigen, and Turgeon 2006). Table 1 presents data on VTDs according to the three possible types: (1) redrawn: constituents with a new incumbent seeking reelection, (2) same-incumbent: constituents with the same incumbent who represented them before redistricting seeking reelection, and (3) open: constituents in districts without an incumbent seeking reelection.[3]

[Table 1 here]

Table 1 shows that the vast majority of VTDs in 2002 contained constituents with the same incumbent running for reelection. The story in 2004, however, is very different, as one-third of VTDs were redrawn, and the percentage of open-seat VTDs increased to 15%. Same-incumbent VTDs accounted for 52% of the total.

Figures 1 and 2 provide a spatial representation of redrawn VTDs, showing their locations in 2002 and 2004, respectively. In both figures, the redrawn VTDs are shaded gray. Same-incumbent and open-seat VTDs are not colored. In 2002, a large portion of the redrawn VTDs are located in the western part of the state where constituents were swapped among the incumbents representing the 13th, 17th, 19th, and 23rd U.S. House Districts. In

[2] In response to the Supreme Court ruling in *Bush v. Vera* (1996), Texas redrew its congressional boundaries for the 1996 U.S. House elections.

[3] The total number of VTDs is not equivalent in 2002 and 2004, because the TLC adjusted the VTD boundaries between these elections. This accounts for the higher total in 2004.

addition, large portions of Districts 6, 14, and 21 were redrawn in 2002. By contrast, the map displayed in Figure 2 shows that the bulk of redrawn VTDs in 2004 were located in the much more populous eastern half of the state. Figure 2 illustrates the vast increase in the number of redrawn VTDs in 2004. Compared with 2002, very few incumbents were spared the presence of a large population of constituents new to their districts in 2004.

[Figures 1 and 2 here]

Table 2 presents House rolloff rates at the VTD-level for each election. Measuring rolloff is an appropriate method to assess the information costs of redistricting. Top of the ballot contests such as president, governor, or U.S. Senate, all serve as controls because redistricting does not affect candidate information costs in statewide contests. In other words, *ceteris paribus*, redrawn and same voters should not vary in their likelihood of voting for a statewide election because the same candidates are placed on every voter's ballot. By contrast, redistricting exhibits localized effects—specifically with regard to which candidates are placed on which voters' ballots. In this case, rolloff can be assessed in terms of the difference between the number of votes cast for a statewide election and the votes cast for the House race.

[Table 2 here]

In 2002 we present rolloff rates for gubernatorial and Senate contests. In 2004 the rolloff rates are for the presidential election. Rolloff is presented as the percentage of voters in a VTD casting a ballot in one election—for instance, for governor—but not in the House contest.[4] Thus, a positive percentage indicates more votes were cast for the top of the ballot contest as compared to the number of votes cast for the House. In other words, the larger the percentage, the higher the rolloff.

[4] We use a proportion rather than the difference in the raw number of votes to control for small differences in the voting-age population of the VTDs.

For example, the average U.S. House rolloff rate from the governor's election in 2002 in redrawn VTDs was 8%, compared to 6.9% in same-incumbent VTDs ($p<.01$, one-tailed). The same pattern occurs when we use the Senate race as the point of comparison, with rolloff in redrawn VTDs averaging about 2% more than in same-incumbent VTDs ($p<.01$, one-tailed). In 2004, the difference in rolloff from the presidential election between redrawn and same-incumbent VTDs is not significant ($p=0.22$, one-tailed), but the pattern is the same. The lack of statistical significance is not especially important, since our data comprise the entire population of Texas VTDs, not a sample. Although we are agnostic as to how the percentage of open VTD rolloff compares with rolloff in redrawn and same-incumbent VTDs[5], we see that open-seat VTD rolloff is the lowest in 2002 and the highest in 2004.

We should also note that among each type of VTD there is in fact a portion of VTDs where the number of House votes exceeded the number of votes for the top-ticket contest—VTDs in which the congressional election was of greater interest to voters than the gubernatorial race, for instance. Within the population of VTDs with higher House votes, we would expect a greater percentage among same-incumbent VTDs as compared to redrawn VTDs. This is the case in both 2002 and 2004. For example, with respect to the governor's contest in 2002, 30% of same-incumbent VTDs cast a higher number of House votes, whereas 18% of redrawn VTDs cast a higher number of House votes than votes for governor. Compared to 2002, rolloff in 2004 was higher overall and according to each type of VTD (see Table 2). Likewise, the percentage of VTDs with House votes exceeding the corresponding presidential vote was greatly reduced. Among same VTDs, 2.1% cast a higher number of House votes than presidential votes, and 1.7% of redrawn VTDs cast more votes

[5] Rolloff in open seat VTDs should be highly variable, depending upon the competitiveness of the two candidates running in the district.

for House than for president.[6] These descriptive data provide tentative support for our first hypothesis: redrawn voters are more likely to abstain from U.S. House voting than are same-incumbent voters.

Multivariate Models and Results

Thus far we have presented VTD-level descriptive statistics that align with our expectation that rolloff will be greater among redrawn voters as compared to same voters. In this section we build on those data, presenting multivariate regressions that lend further support to our claim that redistricting increases candidate information costs which manifest themselves in greater rolloff rates for redrawn voters. We also test our hypotheses about the interactive effects of redistricting on minority voters and according to the competitiveness of the election.

The dependent variable in each model is the percentage of rolloff for the U.S. House election. In 2002, we run models explaining rolloff from both the gubernatorial and Senate contests. In 2004, we model rolloff from the presidential race, since there were no prominent statewide contests on the ballot. Table 2 shows the means for the dependent variables.

To test whether rolloff is more likely among redrawn voters, we include a dummy variable, coded 1 if the VTD was drawn into a district with a new incumbent, 0 otherwise. We also include a dummy for open-seat races, since there are obvious differences in rolloff rates (see Table 2) in these districts compared to same-incumbent and redrawn voters. The models also include a dummy for whether a VTD was in a contested congressional district—where both a Republican and Democratic candidate was running. Our expectation is that

[6] More House votes were cast than governor votes in 10% of open VTDs in 2002, and more House votes were cast than presidential votes in 1.1% of open VTDs in 2004.

rolloff rates will be higher in uncontested races, since the utility of casting a ballot in a blowout is small, and because neither the news media nor candidates in a landslide are apt to spend much time informing voters about the election. The dummy is coded 1 if the race is contested, so we expect its sign to be negative.

To measure the competitiveness of a race, we calculate the margin of victory in a congressional district for the winning candidate. The specific calculation is the absolute value of the number of Republican votes in a district minus the Democratic candidate's votes, divided by the district's voting-age population (Cox 1988). Thus, the variable is scaled from 0 to 1, with higher values indicating a larger margin of victory, and thus a less competitive contest. This measure captures the closeness of the election, a good proxy for the amount of information available to voters.[7] As noted above, we expect rolloff to be higher as the margin increases.

Three covariates account for the size of the minority population in a VTD, since rolloff rates typically are higher among minorities. These variables control for the percentage of the voting-age population (VAP) in a VTD that is black, Hispanic, and identified as other. The reference category is the percentage of the VAP comprised of Anglos.[8] We expect the coefficients for these measures to be signed positively.[9]

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[7] We measure the closeness of a race at the district level, rather than in each VTD, because campaign decisions about spending and mobilization, as well as journalists' interest in a race, are based on the candidate's chance of winning a district, not a specific precinct. Thus, a VTD-level measure has no conceptual value. In addition, we have experimented with other proxies for the information environment, such as candidate spending and the gap between two candidates' spending, but the margin variable ultimately performs best.

[8] The voting-eligible population data, a more precise measure of the size of an electorate (McDonald and Popkin 2001), is not available for Texas VTDs.

[9] In both 2002 and 2004, there are a relative handful of VTDs in which the number of votes cast exceeds the recorded voting-age population. In 2002, there are 229 (2.7%) such VTDs, and 253 (2.9%) in 2004. These are most likely the result of clerical errors by elections officials in reporting their data to the Texas Legislative Council. But because we do not know whether it is the number of votes cast or the VAP that is incorrect in each case, we exclude these VTDs from our analysis. This is why the number of observations in the model does not match the total number of VTDs presented in Table 2.

Because the model includes measures at different levels of aggregation—both the VTD and the congressional district—it requires a slightly modified estimation technique. The data violate the OLS assumption of the independence of observations, since the rolloff rates in the VTDs within a single congressional district will certainly be correlated—that is, each VTD is affected by the same set of environmental variables (*e.g.*, contestedness and margin). One approach is to estimate a fixed-effects regression that accounts for the clustering of data on each of the congressional districts. In our case, however, this is not possible because of the perfect correlation between the congressional district of a VTD and the margin variable. Thus, such an approach cannot solve the problem.

Our solution is to estimate the model with robust standard errors clustered on the congressional district. This technique accounts for the "intra-class correlation" among the VTDs in each district by inflating the standard errors for the parameter estimates. It thus biases the model in favor of null results, but guards against the danger of a false positive. All of the models we present are estimated this way.[10]

The second column of Table 3 presents the results for a model of U.S. House rolloff from the 2002 gubernatorial contest. As expected, redrawn VTDs had slightly higher levels of rolloff—about 2 percent—than those not drawn into a district with a new incumbent, though the robust standard error renders the coefficient statistically insignificant.[11] VTDs in districts with open seats saw higher levels of rolloff. And not surprisingly, races that were uncontested exhibited greater rolloff. The estimates for the percentage of black, Hispanic, and other voters in a VTD are signed in the expected direction—a larger minority population means more rolloff—but only the Hispanic and other variables are significant.

[10] All are estimated in STATA 9.0.

[11] As noted above, this is less of a concern than when using other data, such as a nationally representative sample of voters, because we are generating estimates from the entire universe of Texas VTDs.

Interestingly, the margin of victory—the gap between the Republican and Democratic candidates—is not significant.

[Table 3 here]

The baseline model for rolloff from the Senate race is similar, though this is no surprise—the measures for gubernatorial and Senate rolloff are correlated at 0.96. In the Senate model, though, the redrawn dummy is significant, as is the percentage of black voters. The Hispanic variable, however, is not significant, and is not even in the expected direction.

The difference in the effects of the minority variables in the two models can probably be explained in part by the presence on the ballot of a Hispanic gubernatorial candidate, Tony Sanchez, and an African-American Senate candidate, Ron Kirk. Voting in the governor's race among Hispanics was probably somewhat higher than normal, which caused rolloff in the House races to be higher. The same dynamic likely played out for black voters in the Senate race, where Kirk mobilized the state's African Americans. As a result, rolloff from the governor's race was not significant for blacks, and rolloff from the Senate race was not significant for Hispanics. These findings fit with research that shows minority rolloff rates are lower when candidates from their own racial or ethnic group are on the ballot (Vanderleeuw and Liu 2002).

The third and sixth columns present a model that tests the hypothesis that being drawn into a new incumbent's district will affect rolloff most strongly for minority voters. The interactions between redrawn VTD and the percentage of black and Hispanic voters are statistically significant in both the gubernatorial and Senate models. This suggests that the information costs associated with being redrawn have the largest effects on minorities, who already demonstrate higher rates of rolloff overall. Redrawn VTDs with high minority populations exhibit greater rolloff in U.S. House contests.

Finally, the fourth and seventh columns of Table 3 present a model that includes the redrawn and minority interactions, as well as an interaction between redrawn VTD and the margin of victory in the House race. Again, the interactions between redrawn and percent black and percent Hispanic are positive and statistically significant. But the hypothesis about the increase in information costs in less competitive elections is not borne out—redrawn voters are no more likely to rolloff as the race gets less competitive.

We run the same set of models with the 2004 data, this time using presidential rolloff as our dependent variable. Though rolloff rates are obviously higher in presidential years (see Table 2), this nonetheless provides a comparable test to the 2002 analysis. Since we are primarily interested in the levels of rolloff across redrawn and same-incumbent VTDs, rather than across years, the change in the dependent variable should not be a major concern.

Table 4 presents the results of the same models shown in Table 3. In general, the 2004 data provide stronger support for the information costs hypotheses. Rolloff rates in redrawn VTDs are higher than same-incumbent VTDs, when the House race is not contested, when the House races is less competitive, and when the proportion of Hispanic and other voters is higher. In the base model, however, VTDs with high black populations are not less likely to rolloff, contrary to the 2002 findings.

[Table 4 here]

When we examine the interactive effects of redrawn and the percentage of minorities in a VTD, the same effect for black voters emerges as we found in 2002. In redrawn VTDs with a higher percentage of blacks, voters are less likely to cast a vote in their congressional race. The interactions with Hispanic and other voters are not, however, significant. The same basic patterns appear in the final column, where the interaction between redrawn and margin

is positive and significant—redrawn voters are especially more likely to rolloff when the House race is a blowout.

Conclusion

The lion's share of research on redistricting in the American setting focuses on its partisan effects, primarily regarding election outcomes and secondarily in terms of legislative responsiveness. We have taken a new direction, considering the participatory effects of redistricting. Specifically, we argue that the dislocating effects of redistricting increase voters' information costs, which in turn increases the probability of abstaining from a House vote. Consistent with this theory, our findings show that redistricting reduces the likelihood that redrawn voters will cast a ballot in their House race as measured by their higher rolloff rates.

Further, in line with the broader participation literature, the interactive effect of redistricting with race and ethnicity generally exhibits an increase in voter rolloff. We also found evidence that more competitive elections reduced information costs. It follows that redrawn voters in competitive districts are less inclined to skip a House vote. Though the results are stronger in 2004, the same basic patterns of results are present in both elections.

Texas proved a useful setting to test our hypotheses because it held consecutive redistrictings, which were drastically different from each other (see Figures 1 and 2). With two new congressional maps in the span of two years, we would expect that voters drawn into districts with a different incumbent to have substantially higher candidate information costs and that this would manifest itself in greater rolloff. And since Texas is a tri-ethnic state, with large populations of Anglos, Blacks, and Hispanics, we have been able to estimate the differential effects of redistricting according to the racial/ethnic makeup of VTDs.

Though our findings remain to be replicated elsewhere, these data may inform the debate over state redistricting processes, which have garnered considerable attention in recent years. Scholars and others have typically focused on the effects on electoral outcomes, party competition, and legislative responsiveness (*e.g.*, Mann and Cain 2005), often arguing for turning the process over to non-partisan commissions. Our analyses show that redistricting also prompts higher rates of "partial participation" (Vanderleeuw and Liu 2002) by voters whose congressional districts are changed. While such effects are likely unavoidable when lines are redrawn, whether by legislators or commissioners, they should at least be acknowledged. More disruptive plans are likely to cause more abstention, and thus more slack in the connection between the people's voice and the candidates who represent them in government.

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Table 1. The Distribution of Redrawn, Same-incumbent, and Open-seat Voter Tabulation Districts, 2002-2004 Texas Elections

	2002	**2004**
Redrawn VTDs	1,314	2,868
	(15.6%)	(33.2%)
Same-incumbent VTDS	6,161	4,466
	(73.1%)	(51.7%)
Open seat VTDs	953	1,300
	(11.3%)	(15.1%)
Total	8,428	8,634
	(100%)	(100%)

Table 2. U.S. House Rolloff Rates in Texas VTDs, 2002-2004

	2002		2004
	From Governor's Race	From Senate Race	From Presidential Race
Redrawn VTDs	8.0%	8.2%	8.6%
Same-incumbent VTDS	6.9%	6.2%	8.3%
Open seat VTDs	2.3%	2.5%	11.7%

Table 3. Model for U.S. House Rolloff, 2002

	Rolloff from Governor's Contest			Rolloff from U.S. Senate Contest		
Redrawn VTD	0.019	-0.024	-0.053	0.024	-0.018	-0.035
	(0.016)	(0.015)*	(0.038)*	(0.016)*	(0.017)	(0.037)
Open seat	0.021	0.019	0.018	0.025	0.023	0.023
	(0.010)**	(0.009)**	(0.010)**	(0.009)***	(0.008)***	(0.009)***
Contested	-0.241	-0.241	-0.240	-0.246	-0.246	-0.245
	(0.023)***	(0.023)***	(0.024)***	(0.024)***	(0.024)***	(0.025)***
% black VAP	0.024	0.010	0.009	0.033	0.019	0.019
	(0.024)	(0.018)	(0.017)	(0.024)*	(0.018)	(0.018)
% Hispanic VAP	0.046	0.030	0.031	0.000	-0.016	-0.016
	(0.030)*	(0.025)	(0.025)	(0.032)	(0.027)	(0.027)
% other VAP	0.139	0.105	0.113	0.219	0.199	0.203
	(0.097)*	(0.074)*	(0.080)*	(0.087)*	(0.076)***	(0.081)***
Margin of victory	-0.088	-0.083	-0.108	-0.043	-0.039	-0.055
	(0.077)	(0.078)	(0.093)	(0.085)	(0.086)	(0.100)
Redrawn*% black		0.096	0.107		0.091	0.098
		(0.055)*	(0.064)*		(0.056)*	(0.063)*
Redrawn*% Hispanic		0.131	0.132		0.136	0.136
		(0.071)*	(0.067)**		(0.069)**	(0.067)**
Redrawn*% other		0.134	0.113		0.081	0.068
		(0.201)	(0.189)		(0.181)	(0.176)
Redrawn*Margin			0.195			0.117
			(0.246)			(0.242)
Constant	0.238	0.244	0.246	0.239	0.245	0.246
	(0.034)**	(0.033)**	(0.033)**	(0.035)**	(0.034)**	(0.034)**
Observations	8,199	8,199	8,199	8,199	8,199	8,199
Adjusted R^2	0.59	0.59	0.60	0.60	0.61	0.61

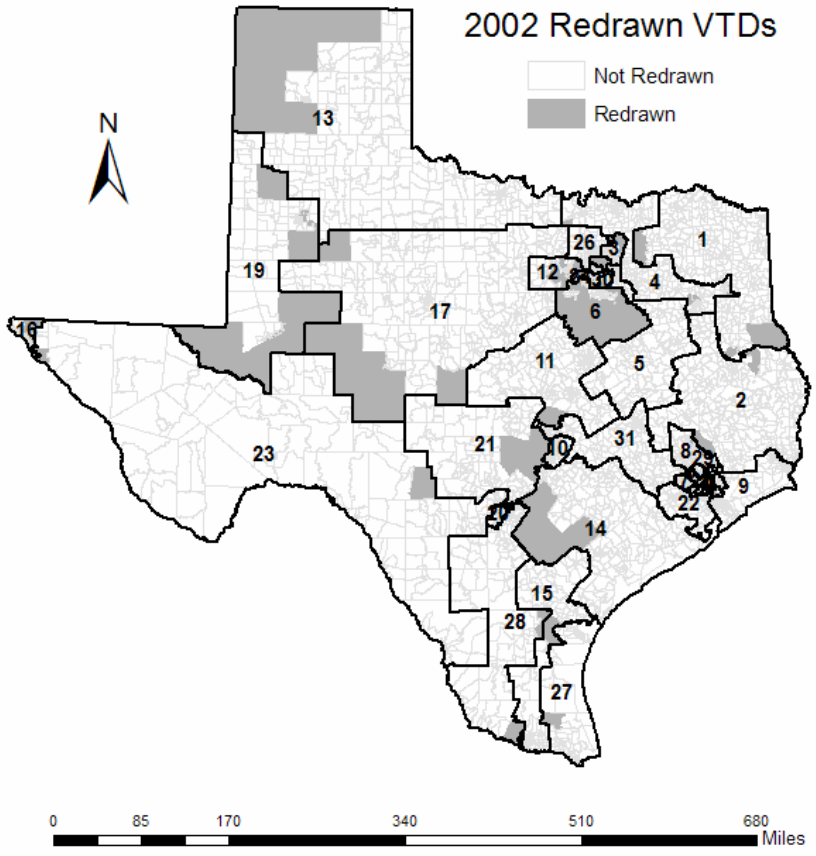
Robust standard errors in parentheses
Significant at ***1%, **5%, *10% (one-tailed tests)

Table 4. Model for U.S. House Rolloff, 2004

	Rolloff from Presidential Contest		
Redrawn VTD	0.035 (0.010)**	0.032 (0.016)**	-0.013 (0.019)
Open seat	0.046 (0.018)***	0.047 (0.017)***	0.050 (0.019)***
Contested	-0.230 (0.016)***	-0.237 (0.017)***	-0.241 (0.016)***
% black VAP	-0.081 (0.061)	-0.115 (0.071)*	-0.116 (0.068)**
% Hispanic VAP	0.036 (0.017)*	0.041 (0.020)**	0.033 (0.018)**
% other VAP	0.173 (0.073)*	0.210 (0.088)**	0.197 (0.089)**
Margin of victory	0.109 (0.054)**	0.092 (0.052)**	0.008 (0.074)
Redrawn*% black		0.111 (0.067)*	0.108 (0.060)**
Redrawn*% Hispanic		-0.025 (0.023)	-0.009 (0.020)
Redrawn*% other		-0.130 (0.109)	-0.137 (0.098)*
Redrawn*Margin			0.241 (0.094)***
Constant	0.227 (0.022)**	0.236 (0.026)**	0.258 (0.023)**
Observations	8,381	8,381	8,381
Adjusted R^2	0.63	0.64	0.64

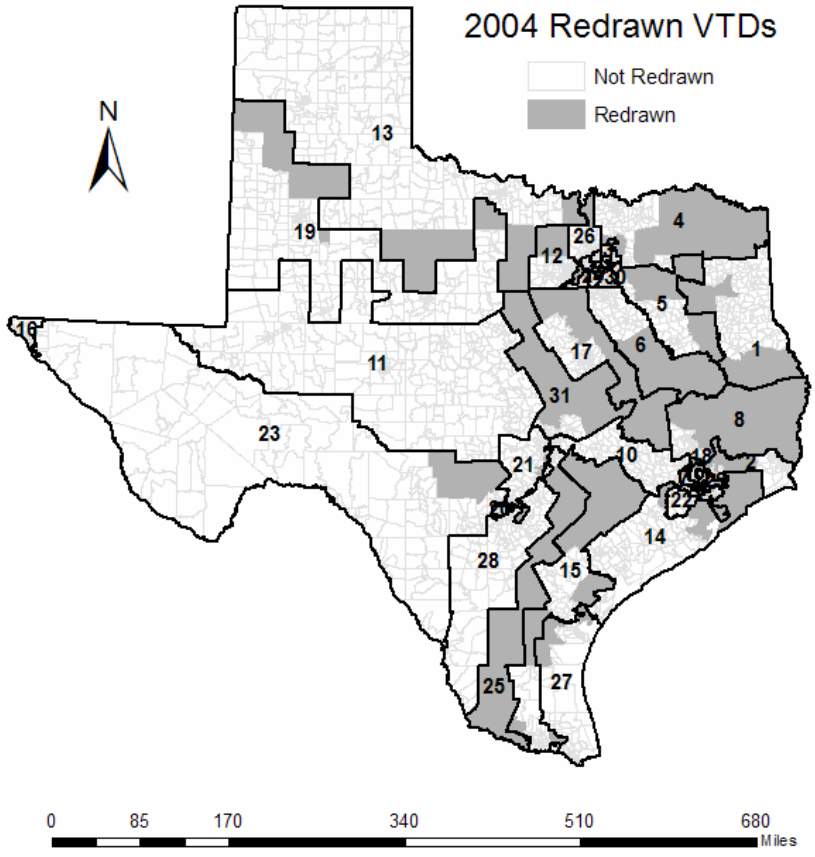
Robust standard errors in parentheses
Significant at ***1%, **5%, *10% (one-tailed tests)

Figure 1. Redrawn Voting Tabulation Districts (VTDs) for the 2002 Texas U.S. House Elections



Source: Figure produced by the authors with data provided by the Texas Legislative Council.

Figure 2. Redrawn Voting Tabulation Districts (VTDs) for the 2004 Texas U.S. House Elections



Source: Figure produced by the authors with data provided by the Texas Legislative Council.