

Political Contributions, Campaign Spending, and Redistricting

David Quigley

Abstract

The process of redrawing the geographic boundaries of U.S. Congressional Districts, known as redistricting, takes place every 10 years after the completion of the U.S. Census. This can have significant impacts on the political environment in which campaign contributors and campaigns for the U.S. House of Representatives find themselves. By using redistricting to effect changes in the partisan composition of Congressional Districts, how individual contributors and political campaigns respond to the political environment can be analyzed. The results show that individuals contribute more when districts become more competitive, but individuals contributing to challengers respond to less favorable political environments compared to individuals contributing to incumbents. Campaign spending on advertising is higher when a larger fraction of a Congressional District is redraw during redistricting while ZIP Codes that change Congressional Districts, on average, contribute slightly more. The results suggest that in analyzing contributions to political campaigns, the interaction between campaign spending and campaign contributions cannot be ignored.

1 Introduction

In the U.S., the process to redraw Congressional Districts for the U.S. House of Representatives takes place every 10 years after the U.S. Census. This redistricting process can be highly disruptive for political campaign contributors as well as the political candidates running for office. Potential campaign contributors may be placed in a Congressional District with a different incumbent compared to before, and political campaigns may decide they need

to respond to the changes to their constituents in order to win their race. Given the stakes involved with the control of the U.S. House of Representatives, understanding how campaign contributors and political campaigns respond to the redistricting process is critical to understanding U.S. politics.

The redistricting process in the U.S. is the response of the U.S. Constitution to changes in the population of the U.S. The decennial U.S. Census measures these changes. Some areas of the U.S. experience higher population growth rates compared to other areas with slower population growth rates or even negative population growth rates. As a result, states in the U.S. change with respect to the fraction of the U.S. population within their borders. This necessitates a reapportionment of the number of representatives from each state in the U.S. House of Representatives. States whose fraction of the U.S. population fall may lose Representatives in Congress while those states that increase their fraction of the U.S. population may gain representatives. Either way, states redraw the Congressional Districts within their boundaries in response to the number of Congressional Representatives assigned to them by the rules in the U.S. Constitution.

The importance of money in U.S. politics has been pontificated by academics and pundits alike. Contributions to political campaigns are tracked and analyzed to look for undue influence or for better understanding of the electorate. Spending by political campaigns is analyzed to understand the priorities of the candidates and to see if they are successful in persuading people to vote for them. This paper investigates the intersection between political contributions, campaign spending, and the redistricting process in order to provide insights into the U.S. political process. Using the redistricting process after the 2000 and 2010 U.S. Censuses, this paper analyzes how contribution patterns by individuals change as ZIP Codes are drawn into new Congressional Districts. Furthermore, this paper examines how campaign spending strategies change in response to new Congressional Districts analyzing campaign spending on fundraising activities and advertising.

The paper is organized as follows. Section 2 provides a review of the existing literature, and section 3 provides a description of the data. Section 4 presents the empirical specifications along with the results, and section 5 concludes.

2 Literature Review

Early research into campaign contributions focused on trying to link campaign contributions with votes on bills in Congress. However, the results have been mixed in terms of identifying a causal link between campaign contributions and votes. Ansolabehere et al. (2003) reviews this literature. Furthermore, the evidence suggests that individual contributions are primarily consumption motivated rather than investment motivated. Individual contributors make their contributions because they value civic involvement rather than specifically trying to influence the policies of the candidates or trying to increase the likelihood their preferred candidate wins the election.

The redistricting process changes the relationship between candidates for the U.S. House of Representatives and potential contributors. Various studies have examined how this relationship changes after redistricting and its effect on electoral outcomes. McKee (2008) finds that potential voters are less likely to be able to recall the incumbent representative in their district in the first election cycle after they have changed districts as a result of redistricting compared to those who stayed in the same district. Crespin and Edwards (2016) examines a similar research question to this paper and finds that candidates in districts that change more after the redistricting process receive less contributions from individuals within their district, but more contributions from individuals outside their district.

Theoretical treatments of redistricting have looked at how the political party in control of the redistricting process may draw districts to increase their representation in the legislature above their share of votes in elections. An early treatment of the subject, Owen and Grofman (1988), abstracted from geographical constraints, but found in their model that the party in control of the redistricting process did not significantly disadvantage the other party because of uncertainty about who the electorate in future elections would support. Sherstyuk (1998) examined the extent to which geographical constraints may prevent the party in control of redistricting from fully taking advantage of being in control of the process. She finds that the party in control can create a close to optimal district map even when the districts are required to be contiguous. Friedman and Holden (2008) reexamine how the party in control of the redistricting process should construct the optimal district map and find that the party in control should group extreme supporters from both parties in the same district while matching moderate supporters from both parties in the other districts. Gul and Pesendorfer (2010) differs

from Friedman and Holden (2008) by giving the party in control of the redistricting process less information about the preferences of voters who are to be assigned to districts. The result is that the party in control of the redistricting process uses the traditional strategies for redistricting of packing opposing voters in highly concentrated districts and cracking its own supporters over multiple districts to increase the number of seats the party is likely to win.

Empirical studies have attempted to determine if they can find the effects of party-controlled redistricting on electoral outcomes such as the level of electoral competition including the extent to which incumbents face quality challengers and polarization. Carson et al. (2014) and Henderson et al. (2018) are papers that examine how redistricting affects electoral competition. Carson et al. (2014) finds that Congressional districts drawn by partisan legislatures are less electorally competitive compared with maps drawn as a result of court cases or by independent commissions. On the other hand, Henderson et al. (2018) use alternative, but never implemented Congressional district maps compared to the actually implemented map and find that even independent commissions tend to develop maps that protect incumbent politicians. Hetherington et al. (2003) and Murphy and Yoshinaka (2009) investigate when quality challengers to incumbents emerge as a result of the redistricting process. They find that quality challengers to incumbents tend to emerge immediately after redistricting has taken place and fade over time the further the election is from the last redistricting cycle. Carson et al. (2007) attempt to measure the extent to which party-controlled redistricting has contributed to polarization in the U.S. House of Representatives. They find a positive, but small effect of redistricting contributing to the recent increase in polarization.

This paper contributes to the existing literature by not only incorporating analysis of how redistricting impacts campaign contributions, but also investigating how it effects campaign spending. Since campaign contributions and campaign spending are determined jointly, only by looking at both sides of a campaign's money flow can the effect of redistricting on the political process be properly examined.

3 Data

The Federal Election Commission (FEC) requires political campaigns to report information on campaign contributions and campaign spending. This paper uses information on contributions to political campaigns for the U.S. House of Representatives from 1999-2012. For contribution transactions \$200 and over by individuals, the FEC requires the campaign to report information on the contributor including the contribution amount for that transaction, the contributor's name, and the contributor's address. This allows for the identification of contributions at the ZIP Code level which can then be combined with data on the ZIP Code's Congressional District to investigate how redistricting affects campaign contributions. However, for contribution transactions less than \$200, campaigns are not required to report any transaction-specific information. Consequently, for contribution transactions less than \$200, the location from where they originate and analysis of individual transaction amounts cannot be conducted. Therefore, analysis of the effect of redistricting on campaign contributions at the ZIP Code level is limited to those where the transaction amount is \$200 and over.

Political campaigns are also required to report total campaign spending for an election cycle. Furthermore, data on individual campaign expenditures from the FEC is available starting with the 2003-2004 election cycle. Information on individual expenditures includes the amount, date, and purpose of the transaction as well as the name and address of the recipient. This paper categorizes those transactions into fundraising expenses, advertising costs, and other expenditures. Other expenditures includes administrative expenses like salaries and fee payments, travel reimbursements, and other miscellaneous expenses. This data allows for the analysis of how campaigns allocate their available resources across different campaign activities in response to changes to their Congressional District after redistricting.

In order to control for demographic characteristics of ZIP Codes and Congressional Districts since these may impact campaign contributions and spending, data from the decennial U.S. Census and the American Community Survey (ACS) are used. Demographic controls for the relevant level of geography include population, population density, education attainment, racial composition, and other information. In order to control for the effect of income on campaign contributions and campaign spending strategies, data from the IRS at the ZIP Code level is used to construct the ZIP Code's average income. Average income for Congressional Districts is also used as a

control.

Another important aspect of Congressional Districts is their partisan composition. The proportion of Republican Party leaning individuals compared to the proportion of Democratic Party individuals in the districts can significantly impact campaign contributions and the spending strategies campaigns use to win elections. This paper uses the Cook Partisan Voting Index (PVI) to measure the partisan composition of Congressional Districts. The Cook PVI of a Congressional District is defined as the difference between the average margin between the Republican Party and Democratic Party vote share in the last two U.S. Presidential elections within the Congressional District and the average margin between the parties at the national level. This paper uses the convention that positive margins indicate results in favor of the Republican party while negative margins indicate results in favor of the Democratic party. Therefore, a Congressional District with a Cook PVI of +5 had a margin 5 percentage points more in favor of the Republican Party compared to the party's performance at national level averaged over that last two Presidential elections. A Congressional District with a Cook PVI of -7 had a margin 7 percentage points more in favor of the Democratic Party compared to the party's performance at the national level averaged over the last two Presidential elections. The measure is used to determine the impact of redistricting on the Congressional District's partisan composition.

To allow for a flexible specification of the effect of partisan composition, a Congressional District's Cook PVI is placed in a category depending on the whether the partisan composition is favorable to the incumbent representative or not. For example, the category I[0 – 5] indicates that the Cook PVI favors the incumbent representative by 0 to 5 percentage points while the category O[5 – 10] indicates that the Cook PVI opposes the incumbent representative by 5 to 10 percentage points. In the case of O[5 – 10], a Congressional District would be in this category if an incumbent Republican representative was in a district where the Cook PVI was in favor of the Democratic Party by 5 to 10 percentage points. The categories used for the analysis are I[0 – 5], I[5 – 10], I[10 – 15], I[15+], O[0 – 5], O[5 – 10], and O[10+].

Redistricting then can induce a change in the Cook PVI category to which a Congressional District belongs. Tracking these changes allows for an analysis of how the political environment impacts political contributions. Changes to the Cook PVI category are organized into small changes which include shifts between consecutive categories such as I[15+] \leftrightarrow I[10 – 15], medium

changes which include larger shifts between categories such as I[15+] \leftrightarrow I[5 – 10], and large changes for any category changes like I[15+] \leftrightarrow I[0 – 5] and larger.

To measure the effect of redistricting on political outcomes, measuring the extent to which contributors and campaigns are exposed to redistricting is required. At the ZIP Code level, this paper assigns a number between 0 and 1 to each ZIP Code which is the fraction of the ZIP Code that is in a new Congressional District after redistricting has taken place. Using the new Congressional District maps implemented after the 2000 and 2010 U.S. Censuses gives two instances to measure this change and analyze its political effects. After each instance of redistricting, some ZIP Codes remain in the same Congressional Districts so these ZIP Codes are assigned 0 for redistricting. For other ZIP Codes, the entire ZIP Code is placed in new Congressional Districts so these ZIP Codes are assigned 1 for redistricting. In the last case, there are ZIP Codes that are split between Congressional Districts so that a fraction of the ZIP Code changes districts while the other fraction does not. For these ZIP Codes the fraction of the ZIP Code that changes districts is the measure used for redistricting. The average fraction of a ZIP Code that changes districts is 0.22 with a standard deviation of 0.38.

In order to measure redistricting at the Congressional Districts level, the measure is simply the fraction of overlap between the districts before and after redistricting takes place. This fraction is calculated as the fraction of the population in the new Congressional District that was in the previous Congressional District. As a result, the measure also takes values between 0 and 1 inclusively.

To analyze individual campaign contributions, individual campaign contributions are first limited to contributions to political campaigns for the U.S. House of Representatives. This is because these campaigns and contributions are the ones affected by redistricting. These transactions are then aggregated to the ZIP Code level. The periods of analysis are 1999-2010 for the redistricting process determined by the 2000 U.S. Census and 2009-2012 for the redistricting process determined by the 2010 U.S. Census. Using both periods allows for a comparison across two instances of redistricting to verify that the effects of redistricting found in one period hold across the other period as well.

Table 1 presents summary statistics for individual campaign contributions at the ZIP Code level for the 2000s period of analysis.

Table 1: Individual Contributions Summary Statistics 1999-2010

Variable	Number of Obs	Mean	Standard Deviation
Total ZIP Code Political Contributions	99,145	17,340	50,924.69
Number of ZIP Code Contributors	99,145	25.32	64.72
Mean ZIP Code Contribution	99,145	594.6	314.3243
Fraction ZIP Code Redistricted	99,145	0.2228	0.3815
No Incumbent	99,145	0.0405	0.1915
Average Income (2000 dollars)	99,145	46,159.7	36,482.18
Total ZIP Code Population	99,145	15,600	15,395.68
ZIP Code Population Density (per sq. mile)	99,145	1,929.19	5,847.033
Percent College Graduates	99,145	0.1562	0.0876
Percent Male	99,145	0.4946	0.0315
Percent White	99,145	0.814	0.2027
Percent Age 55 and Up	99,145	0.2558	0.0841
Percent Currently Married	99,145	0.5468	0.1074
Election Cycle 2000	15,791		
Election Cycle 2002	16,133		
Election Cycle 2004	16,656		
Election Cycle 2006	17,127		
Election Cycle 2008	16,783		
Election Cycle 2010	16,655		

Table 2 presents summary statistics for individual campaign contributions to campaigns for the U.S. House of Representatives at the ZIP Code level for the 2010s period of analysis.

Table 2: Individual Contributions Summary Statistics 2009-2012

Variable	Number of Obs	Mean	Standard Deviation
Total ZIP Code Contributions	32,488	22,409	63,730.43
Number of ZIP Code Contributors	32,488	29.81	74.61
Mean ZIP Code Contribution	32,488	647.2	383.4173
Fraction ZIP Code Redistricted	32,488	0.2829	0.4165
No Incumbent	32,488	0.0559	0.2243
Average Income (2010 dollars)	32,488	23,272.8	31,989.2
Total ZIP Code Population	32,488	15,643.2	15,989.1
ZIP Code Population Density (per sq. mile)	32,488	1,804.07	6,001.809
Percent College Graduates	32,488	0.1603	0.0886
Percent Male	32,488	0.4965	0.0375
Percent White	32,488	0.8129	0.2013
Percent Age 55 and Up	32,488	0.2871	0.0935
Percent Currently Married	32,488	0.5202	0.1158
Election Cycle 2010	16,244		
Election Cycle 2012	16,244		

Table 3 present the number of ZIP Codes in each Cook PVI category for a Congressional District in the 2009-2012 period of analysis.

Table 3: Cook PVI Category Summary Statistics 2009-2012

Cook PVI Category	Number of Obs
I[0 – 5]	7,188
I[5 – 10]	9,145
I[10 – 15]	7,163
I[15+]	7,116
O[0 – 5]	735
O[5 – 10]	185
O[10+]	4

Table 4 presents the number of ZIP Codes for each Cook PVI category change for the 2009-2012 period of analysis.

Since data from the FEC on itemized campaign expenditures is limited to after the 2003-2004 election cycle, analysis of the effect of redistricting on campaign spending strategies only examines the redistricting process in accordance with the 2010 U.S. Census. In this analysis, the unit of analysis is a political campaign for the U.S. House of Representatives in a particular election cycle. The extent to which these political campaigns are exposed to redistricting is measured by the population overlap between the candidate's previous Congressional District and his or her new Congressional District. Data for this analysis is limited to data from the 2009-2010 and 2011-2012 election cycles. Table 5 presents summary statistics for this analysis.

Table 4: Cook PVI Category Change 2009-2012

Cook PVI Category Change	Number of Obs
I[0 – 5] → I[5 – 10]	1,833
I[0 – 5] → I[10 – 15]	461
I[0 – 5] → I[15+]	218
I[0 – 5] → O[0 – 5]	274
I[0 – 5] → O[10+]	8
I[5 – 10] → I[10 – 15]	1,425
I[5 – 10] → I[15+]	459
I[5 – 10] → I[0 – 5]	1,395
I[5 – 10] → O[0 – 5]	14
I[5 – 10] → O[5 – 10]	8
I[10 – 15] → I[15+]	1,035
I[10 – 15] → I[5 – 10]	875
I[10 – 15] → I[0 – 5]	433
I[15+] → I[10 – 15]	1,209
I[15+] → I[5 – 10]	406
I[15+] → I[0 – 5]	90
No Change	17,281
O[0 – 5] → I[0 – 5]	675
O[0 – 5] → I[5 – 10]	152
O[0 – 5] → I[10 – 15]	6
O[0 – 5] → I[15+]	12
O[5 – 10] → O[0 – 5]	4
O[5 – 10] → I[0 – 5]	90
O[5 – 10] → I[5 – 10]	138
O[5 – 10] → I[10 – 15]	85
O[5 – 10] → I[15+]	2

Table 5: Campaign Spending Summary Statistics

Variable	Number of Obs	Mean	Standard Deviation
Total Expenditures	1,034	1,300,434	1,565,662
Party Committee Contributions	1,034	2,357.94	5,388.431
General Election Expenditures	758	619,590	795,238
Primary Election Expenditures	840	524,664	648,946.9
Share General Election Expenditures	758	0.4354	0.2588
Fundraising Expenditures	912	164,473	343,164.6
Advertising Expenditures	942	397,948	610,239.3
Other Expenditures	912	721,732	764,788.6
Share Fundraising Expenditures	912	0.1449	0.1328
Share Advertising Expenditures	942	0.2622	0.2316
Share Other Expenditures	912	0.5986	0.2151
Candidate Redistricted	1,034	0.2994	0.2446
Signed Change Cook PVI	1,034	-0.1654	5.4158
Candidate Cook PVI	1,034	7.932	11.1868
Incumbents	691		
Challengers	271		
Open	72		
General Election Obs	860		
Primary Only Obs	174		

The data show that contributions to campaigns for the U.S. House of Representatives and spending by campaigns for the U.S. House of Representatives are significant. Given the fraction of the political process in the U.S. devoted to collecting contributions and then spending them and the large impact of redistricting on the U.S. House of Representatives, analyzing the effect of redistricting on these activities is important for expanding knowledge of U.S. politics.

4 Empirical Specifications and Results

4.1 Individual Contributions

Redistricting can first be used to see how individual contributors respond to changes in the partisan composition of their Congressional District. Because redistricting can result in significant changes to a Congressional District's geographic boundaries, large changes to a district's Cook PVI category can be observed. Otherwise, a district's Cook PVI category is likely to only change slowly over time as the electorate shifts. Therefore, redistricting can be used to analyze the effect of large changes in a district's partisan composition that are unlikely to occur outside of the redistricting process.

Since a district's Cook PVI measures its lean towards the Democratic Party or the Republican Party, the effects of the district's partisan composition are going to most relevant in the general election. Therefore, the analysis of how changes to the partisan composition of Congressional Districts impacts individual contributions is limited to contributions made for the general election campaign. Individual contributions made to a general election campaign are identified as all individual contributions made to a campaign for the U.S. House of Representatives after the date of the last primary election in the state. While some individual contributions made before these dates may be made with the general election in mind, it is difficult to separate out which contributions are intended for the general election and which contributions are intended for the primary election. Individual contributions made after the date of the primary election in the state are cleanly identified as contributions to a general election campaign. The model for this analysis is shown below.

$$y_{it} = \alpha_0 + \alpha_1 * DistrictCookPVICategoryChange * ElectionCycle_{it} + \alpha_2 * CookPVIDummies_{it} + X_{it}\beta + \mu_i + \delta_t + \epsilon_{it} \quad (1)$$

The dependent variable is calculated for each ZIP Code, i , in each election cycle, t . The coefficient α_1 measures the impact of the change in the district's partisan composition on individual contributions. The specification controls for demographic characteristics of the ZIP Codes, X_{it} , and contains ZIP Code fixed effects, μ_i , and election cycle fixed effects, δ_t . Standard errors are clustered at the ZIP Code level. The following tables present results on the effects of changes in a district's partisan composition on individual contributions.

Tables 6 and 7 show the results of the regression on individual contributions to the district's incumbent party and changes to the district's partisan composition. Statistical significance is difficult to find among small changes to the Cook PVI category likely due to the small impact it has on individual contributions. The results do suggest, though, that in districts in competitive ranges where the advantage or disadvantage to the incumbent is between 0 and 5 percentage points, small shifts towards the incumbent increase individual contributions to the incumbent. The estimates show that total contributions are 3 times larger when the district shifts slightly against the incumbent to slightly in favor of the incumbent compared to districts that do not change Cook PVI categories. This increase in the total amount of contributions is driven by both the extensive margin with about 1.6 times more contributors and the intensive margin with 2.8 times larger average contributions compared to districts that do not change Cook PVI categories.

The results for the impact of changes to a district's partisan composition on individual contributions are clearer for medium-sized changes. The effects of shifts in the district's partisan composition are largest when the district shifts into a competitive range or out of a competitive range. Shifts where the district remains in uncompetitive ranges result in smaller and statistically insignificant effects. A ZIP Code in a district that shifts into a competitive range where the incumbent only has a slight advantage of 0 to 5 percentage points from an uncompetitive range where the incumbent had an advantage of 10 to 15 percentage points increases its total contributions to the incumbent by 6 times compared to a district that does not change categories. Again this is driven by both the extensive margin where the number of contributors increases by 3 times and the intensive margin where the average contribution

Table 6: Individual Contributions Incumbent Party Results 2009-2012

	ln(Total Contributions)	ln(Count of Contribution)	ln(Mean Contribution)
CookPVI			
Category			
Change*2012			
Small changes			
I[15+] → I[10 – 15]	-1.8387 (1.183)	-1.2123 (0.5563)**	-2.0890 (1.0958)*
I[10 – 15] → I[15+]	-0.8072 (1.1988)	-0.0077 (0.5644)	-0.4068 (1.1087)
I[10 – 15] → I[5 – 10]	3.5021 (3.1727)	1.4473 (1.6327)	3.7421 (2.7771)
I[5 – 10] → I[10 – 15]	-3.852 (3.165)	-1.6083 (1.6293)	-4.0458 (2.7696)
I[5 – 10] → I[0 – 5]	3.1609 (2.9958)	1.7187 (1.5389)	2.4887 (2.5912)
I[0 – 5] → I[5 – 10]	-2.8518 (2.9936)	-1.5576 (1.5378)	-2.2745 (2.5891)
O[0 – 5] → I[0 – 5]	3.2225 (0.6540)***	1.6281 (0.3095)***	2.7733 (0.6119)***
Medium changes			
I[15+] → I[5 – 10]	4.0864 (2.9823)	1.4992 (1.5516)	3.7143 (2.5893)
I[5 – 10] → I[15+]	-4.3938 (2.9780)	-1.5843 (1.8529)	-4.0426 (2.5847)
I[10 – 15] → I[0 – 5]	6.2776 (1.3499)***	2.9817 (0.6801)***	5.8931 (1.2783)***
I[0 – 5] → I[10 – 15]	-5.8761 (1.3159)***	-2.718 (0.6631)***	-5.6332 (1.2511)***
O[0 – 5] → I[5 – 10]	2.6149 (3.0306)	1.2234 (1.5549)	2.4090 (2.6258)
O[5 – 10] → I[0 – 5]	1.0953 (1.0643)	0.6100 (0.5485)	1.0514 (1.0382)
Demogrpahic Controls	Yes	Yes	Yes
Election Cycle FE	Yes	Yes	Yes
ZIP Code FE	Yes	Yes	Yes
Number of Observations	32,995	32,995	32,995

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

Table 7: Individual Contributions Incumbent Party Results 2009-2012

	ln(Total Contributions)	ln(Count of Contributions)	ln(Mean Contribution)
CookPVIChange*2012			
Large changes			
I[15+] → I[0 – 5]	6.8464 (1.0117)***	2.7568 (0.5341)***	6.2935 (0.9869)***
I[0 – 5] → I[15+]	-6.7713 (0.7604)***	-2.8023 (0.4312)***	-6.0447 (0.7589)***
I[5 – 10] → O[5 – 10]	-1.4447 (1.1546)	-0.4009 (0.6117)	-1.9246 (1.1012)*
O[5 – 10] → I[10 – 15]	-3.4006 (3.7429)	-1.3462 (1.8529)	-3.8145 (3.4339)
I[0 – 5] → O[10+]	0.6712 (0.2996)**	0.3102 (0.1938)	0.6836 (0.2593)***
O[0 – 5] → I[15+]	-0.2782 (0.3770)	0.9253 (0.389)**	-1.0056 (0.3087)***
O[5 – 10] → I[5 – 10]	-0.7210 (3.1143)	-0.4009 (1.6092)	-0.2536 (2.7174)
DistrictCookPVI			
I[5 – 10]	3.0446 (2.985)	1.6105 (1.5339)	2.4988 (2.5807)
I[10 – 15]	6.6102 (1.2575)***	3.0658 (0.6377)***	6.3184 (1.1969)***
I[15+]	6.1756 (0.5345)***	2.5147 (0.3475)***	5.5278 (0.5650)***
O[0 – 5]	4.8778 (0.5216)***	2.3769 (0.246)***	4.3476 (0.4903)***
O[5 – 10]	4.2116 (0.5193)***	1.9983 (0.3419)***	4.0281 (0.5534)***
Demographic Controls	Yes	Yes	Yes
Election Cycle FE	Yes	Yes	Yes
ZIP Code FE	Yes	Yes	Yes
Number of Observations	32,995	32,995	32,995

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

increases by about 5.9 times. The effect has a similar magnitude in reverse where ZIP Codes in a district that shifts towards the incumbent from a competitive range to an uncompetitive range decrease total contributions, the number of contributors, and the average contribution. Shifts in categories from a disadvantage to the incumbent to an advantage to the incumbent still within competitive ranges are not statistically significant suggesting individuals continue to contribute similar amounts because the elections in these districts remain competitive.

Large shifts into and out of competitive ranges show similar effects to medium-sized shifts with shifts into competitive ranges significantly increasing individual contributions to the incumbent while shifts out of competitive ranges significantly decreasing individual contributions to the incumbent by similar magnitudes. Individual contributions to the challenging candidate are also important. Tables 8 and 9 show the results of the regression on individual contributions to the district's opposing party and changes to the district's partisan composition.

Again statistical significance is difficult to find among small changes to the Cook PVI category likely due to the small impact it has on individual contributions. However, there are some statistically significant effects when the district is shifting between relatively uncompetitive ranges. The results do suggest that in districts in uncompetitive ranges where the advantage to the incumbent shifts between an advantage greater than 15 percentage points to an advantage between 10 and 15 percentage points, small shifts towards the incumbent decrease individual contributions to the challenging candidate while small shifts away from the incumbent increase individual contributions to the challenging candidate. The estimates show that total contributions are about 5 times larger when the district has a small shift against the incumbent compared to districts that do not change Cook PVI categories. This increase in the total amount of contributions is driven by both the extensive margin with about 2 times more contributors and the intensive margin with 5 times larger average contributions compared to districts that do not change Cook PVI categories. The results are similar in magnitude going in to reverse direction when the district has small shift towards to incumbent. The estimates show that total contributions are about 4 times smaller when the district has a small shift toward the incumbent compared to districts that do not change Cook PVI categories. This increase in the total amount of contributions is driven by both the extensive margin with about 1.3 times fewer contributors and the intensive margin with about 4 times smaller average

Table 8: Individual Contributions Opposition Party Results 2009-2012

	ln(Total Contributions)	ln(Count of Contribution)	ln(Mean Contribution)
CookPVI			
Category			
Change*2012			
Small changes			
I[15+] → I[10 – 15]	5.1203 (1.045)***	1.963 (0.4973)***	4.994 (0.9798)***
I[10 – 15] → I[15+]	-3.8263 (1.0633)***	-1.292 (0.5077)**	-3.9788 (0.9935)***
I[10 – 15] → I[5 – 10]	-1.3142 (2.0302)	0.0297 (0.9447)	-2.0805 (1.8042)
I[5 – 10] → I[10 – 15]	1.8185 (2.0167)	0.2338 (0.9384)	2.4477 (1.7905)
I[5 – 10] → I[0 – 5]	-0.5394 (1.6776)	-0.0942 (0.8139)	-0.8355 (1.5177)
I[0 – 5] → I[5 – 10]	1.5299 (1.6734)	0.6649 (0.812)	1.563 (1.5136)
O[0 – 5] → I[0 – 5]	0.1592 (0.6748)	0.0601 (0.3207)	0.112 (0.6333)
Medium changes			
I[15+] → I[5 – 10]	4.1523 (1.788)**	2.2111 (0.8255)***	3.1748 (1.5625)**
I[5 – 10] → I[15+]	-5.0611 (1.7845)***	-2.6409 (0.8239)***	-3.9962 (2.5356)**
I[10 – 15] → I[0 – 5]	-2.5454 (1.4459)*	-0.4056 (0.6410)	-3.5205 (1.2757)***
I[0 – 5] → I[10 – 15]	4.3123 (1.4348)***	1.2372 (0.6337)*	5.0227 (1.2676)***
O[0 – 5] → I[5 – 10]	1.1811 (1.7420)	0.4007 (0.8467)	1.4178 (1.5705)
O[5 – 10] → I[0 – 5]	-3.5134 (1.3467)***	-1.2102 (0.5592)**	-3.8912 (1.2177)***
Demogrpahic Controls	Yes	Yes	Yes
Election Cycle FE	Yes	Yes	Yes
ZIP Code FE	Yes	Yes	Yes
Number of Observations	32,995	32,995	32,995

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

Table 9: Individual Contributions Opposition Party Results 2009-2012

	ln(Total Contributions)	ln(Count of Contribution)	ln(Mean Contribution)
CookPVIChange*2012			
Large changes			
I[15+] → I[0 – 5]	1.9635 (1.2554)	1.2535 (0.5437)**	0.9236 (1.0782)
I[0 – 5] → I[15+]	-2.2198 (1.1316)*	-1.4794 (0.4769)***	-1.0954 (0.9551)
I[5 – 10] → O[5 – 10]	-4.0262 (2.6460)	-2.3064 (1.2107)*	-3.2142 (2.5356)
O[5 – 10] → I[10 – 15]	-3.4006 (3.7429)	-1.3462 (1.8529)	-3.8145 (3.4339)
I[0 – 5] → O[10+]	-0.4692 (0.2694)*	-0.0022 (0.1817)	-0.5341 (0.2491)**
O[0 – 5] → I[15+]	-0.2782 (0.3770)	0.9253 (0.389)**	-1.0056 (0.3087)***
O[5 – 10] → I[5 – 10]	2.0160 (1.8913)	1.3406 (0.8739)	1.3069 (1.6663)
DistrictCookPVI			
I[5 – 10]	-2.5017 (1.6593)	-1.142 (0.8052)	-2.4018 (1.5004)
I[10 – 15]	-4.8651 (1.37)***	-1.6372 (0.6003)***	-5.3741 (1.2052)***
I[15+]	0.4429 (0.9368)	0.3986 (0.3651)	-0.1506 (0.758)
O[0 – 5]	-0.2510 (0.5587)	-0.1529 (0.2667)	-0.2193 (0.5244)
O[5 – 10]	-0.7802 (0.9279)	0.1189 (0.3599)	-1.4057 (0.7486)*
Demographic Controls	Yes	Yes	Yes
Election Cycle FE	Yes	Yes	Yes
ZIP Code FE	Yes	Yes	Yes
Number of Observations	32,995	32,995	32,995

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

contributions compared to districts that do not change Cook PVI categories.

Medium-sized changes show more statistically significant effects on individual contributions to candidates challenging the incumbent. For individuals contributing to candidates challenging the incumbent, the results suggest that these individuals view Cook PVI categories in favor of the incumbent by 5 to 10 and 10 to 15 percentage points as still competitive for the challenger. Individual contributions increase in terms of total, the number of contributors, and the average size of a contribution when the district shifts to these ranges toward or away from the incumbent. On the other hand, individual contributions tend to decrease when shifting away from these ranges either towards or away from the incumbent. The magnitude of the changes in individual contributions is similar to the previous results. Individual contributors to challengers may see their contributions as more critical to the challenging candidate when the district is within these ranges compared to other Cook PVI categories.

For large shifts in the Cook PVI category, the effect on individual contributions to challenging candidates is less statistically significant. This could potentially be due to shifts between categories where individual contributors to challengers see their contributions as not substantially changing in importance to the election. While these results provide evidence on how individuals respond to changes in the partisan composition of their district, the redistricting process allows further analysis of the impact of redistricting on both individual contributions to campaigns for the U.S. House of Representatives and campaign spending strategies utilized by these campaigns.

A strategy that can be used to estimate the causal effects of redistricting itself on individual contributions to campaigns for the U.S. House of Representatives is the difference-in-differences approach. ZIP Codes that largely remain in the same Congressional District provide a control group for ZIP Codes that largely change Congressional Districts. Comparisons of the 1999-2000 election cycle with the later election cycles provide before and after periods for the redistricting process. This approach is used to study how total contributions from a ZIP Code, the number of contributors from a ZIP Code, and the mean contribution in a ZIP Code change.

The model is shown below.

$$y_{it} = \alpha_0 + \alpha_1 * FractionRedistricted * ElectionCycle_{it} + X_{it}\beta + \mu_i + \delta_t + \epsilon_{it} \quad (2)$$

The dependent variable is calculated for each ZIP Code, i , in each elec-

tion cycle, t . The coefficient α_1 is the difference-in-differences coefficient corresponding to how much the dependent variable changes in ZIP Codes that change districts after redistricting. The specification controls for demographic characteristics of the ZIP Codes, X_{it} , and contains ZIP Code fixed effects, μ_i , and election cycle fixed effects, δ_t . Standard errors are clustered at the ZIP Code level. Table 10 presents results on the effects of redistricting on individual contributions.

The results show a temporary surge in political contributions in total amounts, number of contributors, and mean contribution that fades after the initial election cycle with new districts. Compared to the 2000 election cycle, ZIP Codes in completely new Congressional Districts showed an increase of 9.18% in total contributions for the 2002 election cycle. The number of contributors also increased by 4.19%, and the mean contribution increased by 4.98% for these ZIP Codes. For the election cycles 2004 and onward, these coefficients are typically statistically insignificant and consistently smaller.

To examine if these effects hold for the most recent redistricting cycle. The same regression is run on data for the election cycles 2009-2010 and 2011-2012 which take place before and after the 2010 U.S. Census resulted in new Congressional Districts. Table 11 presents the results from this redistricting cycle.

The results from the most recent redistricting cycle are broadly in line with the previous results. Political contributions in total amounts and number of contributors are higher in ZIP Codes the change Congressional Districts compared to ZIP Codes that do not. Compared to the 2010 election cycle, ZIP Codes in completely new Congressional Districts showed an increase of 6.47% in total contributions for the 2012 election cycle. The number of contributors also increased by 5.71%. There is no statistically significant change in the mean contribution suggesting that the increase in total contributions is almost entirely along the extensive margin.

These results confirm that redistricting has an important impact on political contributions. However, the results are surprising since ZIP Codes in new Congressional Districts may be reasonably expected to contribute less since the political candidates running in these elections may be unfamiliar to them. The results show, though, that the political process is complex and suggests that the actions of potential contributors interact with multiple elements of the political process. Not only does redistricting affect the candidates to whom an individual may consider contributing, but the campaign strategies pursued by these candidates may change in response to redistricting as well.

Table 10: Individual Contributions Results 1999-2010

	ln(Total Contributions)	ln(Count of Contributors)	ln(Mean Contribution)
Redistrict*Election Cycle 2002	0.0918 (0.0233)***	0.0419 (0.0197)**	0.0498 (0.0103)***
Redistrict*Election Cycle 2004	0.0393 (0.0255)	0.0143 (0.0212)	0.025 (0.0116)**
Redistrict*Election Cycle 2006	0.0603 (0.0265)**	0.0284 (0.0219)	0.0319 (0.0119)***
Redistrict*Election Cycle 2008	0.006 (0.0275)	-0.0174 (0.0225)	0.0234 (0.0124)*
Redistrict*Election Cycle 2010	0.0104 (0.0276)	-0.0159 (0.0225)	0.0265 (0.0125)**
No Incumbent	0.3732 (0.0164)***	0.343 (0.0137)***	0.0303 (0.0074)**
ln(Population)	0.5467 (0.0488)***	0.512 (0.0410)***	0.0347 (0.0191)*
ln(Population Density)	0.1222 (0.0309)***	0.0898 (0.0256)***	0.0324 (0.0142)**
ln(Average Income)	0.3311 (0.0384)***	0.2364 (0.0308)***	0.105 (0.0174)***
Percent College Graduates	1.0471 (0.2738)***	1.0638 (0.2226)***	-0.0165 (0.1235)
Percent Male	-0.0644 (0.3779)	0.0021 (0.3033)	-0.073 (0.1754)
Percent White	0.0401 (0.1354)	-0.093 (0.1110)	0.1287 (0.0617)**
Percent Age 55 and Up	1.504 (0.2022)***	1.489 (0.1629)***	0.0143 (0.0975)
Percent Married	0.3924 (0.1779)**	0.3499 (0.1393)**	0.0348 (0.0838)
Election Cycle 2002	0.0504 (0.0105)***	0.0344 (0.0088)***	0.029 (0.0048)***
Election Cycle 2004	0.2226 (0.0138)***	0.0979 (0.0106)***	0.1483 (0.0064)***
Election Cycle 2006	0.3016 (0.0179)***	0.159 (0.0128)***	0.1805 (0.0083)***
Election Cycle 2008	0.3686 (0.0208)***	0.2169 (0.0150)***	0.2047 (0.0096)***
Election Cycle 2010	0.555 (0.0239)***	0.4164 (0.0172)***	0.1942 (0.0110)***
ZIP Code FE	Yes	Yes	Yes
Number of Observations	99,146	99,146	99,146

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

Table 11: Individual Contributions Results 2009-2012

	ln(Total Contributions)	ln(Count of Contributions)	ln(Mean Contribution)
Redistrict*Election Cycle 2012	0.0647 (0.0210)***	0.0571 (0.0167)***	0.0076 (0.0108)
No Incumbent	0.337 (0.0284)***	0.339 (0.0236)***	-0.002 (0.0139)
ln(Population)	0.2238 (0.1112)**	0.2291 (0.0948)**	-0.0054 (0.0621)
ln(Population Density)	-0.0583 (0.0970)	-0.1059 (0.0836)	0.0476 (0.0640)
ln(Average Income)	-0.0743 (0.0159)***	-0.0435 (0.0127)***	-0.0308 (0.0085)***
Percent College Graduates	-2.4905 (1.1366)**	-1.7753 (0.9050)*	-0.7152 (0.6180)
Percent Male	-1.9341 (1.6847)	-1.2086 (1.3507)	-0.7255 (0.9082)
Percent White	2.2116 (0.6042)***	1.313 (0.4809)***	0.8989 (0.3382)***
Percent Age 55 and Up	-0.6913 (0.8952)	0.1035 (0.6903)	-0.7949 (0.5195)
Percent Married	1.2099 (0.8117)	1.3728 (0.6354)**	-0.1629 (0.4606)
Election Cycle 2012	-0.2875 (0.0574)***	-0.2158 (0.0463)***	-0.0739 (0.0311)**
ZIP Code FE	Yes	Yes	Yes
Number of Observations	32,940	32,940	32,940

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

Furthermore, the evidence here suggests that potential contributors adapt relatively quickly to the new political landscape created by redistricting by returning to typical contribution patterns in the subsequent election cycles.

4.2 Campaign Results

Given the interaction between campaign contributions from individuals and the campaign strategies candidates pursue, in order to fully analyze the effect of redistricting on the political process, an analysis of the effect of redistricting on political campaigns is necessary. To control for potential confounding variables due to unobservable characteristics of the political candidates, this analysis uses repeat candidates for office in the U.S. House of Representatives for the 2010 and 2012 elections. Using repeat candidates as an identification strategy has been utilized before in Levitt (1994). The advantage of this strategy is that it allows the analysis to control for time invariant differences between political candidates. While repeat candidates for office in the U.S. House of Representatives is a selected sample, given the high reelection rates for incumbents in the U.S. House of Representatives, it encompasses a large portion of the candidates running for office in the U.S. House of Representatives.

From the perspective of the candidates running for office in the U.S. House of Representatives, redistricting can impact their Congressional Districts with two related, but distinct effects. As noted by Yoshinaka and Murphy (2009), redistricting can change the population in a district even if the partisan make up of the district is not significantly affected. The change in the population of the district may affect the strategies the candidate's campaign pursues even if the Cook PVI of the district does not shift toward or away from the candidate in a meaningful way. Therefore, using both the change in the district's Cook PVI and the fraction of the district that has been redistricted are important for this analysis. The fraction of the district that has been redistricted in this analysis is measured by the fraction of a Congressional District that is new from the perspective of the candidate running after the redistricting process. The values range between 0 and 1 depending on how extensive the candidate's district has changed after redistricting. The change in the Cook PVI of the candidate's Congressional District for the 2010 and 2012 elections provides another effect of redistricting on political campaigns. The Cook PVI of the district provides information about the political environment in which the campaign is operating. This

analysis uses the convention that a positive number for the change in the Cook PVI indicates a more favorable environment for the candidate’s campaign after redistricting while a negative number indicates a less favorable environment after redistricting. The values of this measure are how many percentage points the district’s Cook PVI has changed toward or away from the candidate as a result of the redistricting process.

The model used for this analysis is shown below.

$$\begin{aligned}
 y_{it} = & \alpha_0 + \alpha_1 * FractionRedistricted * ElectionCycle_{it} \\
 & + \alpha_2 * ChangeInPVI * ElectionCycle_{it} \\
 & + X_{it}\beta + \mu_i + \delta_t + \epsilon_{it}
 \end{aligned}
 \tag{3}$$

This analysis uses repeat candidates i over the two election cycles t . The dependent variables, y_{it} , are various measures of the campaign’s strategy such as how much the campaign spends on the general election vs. the primary election and how the campaign’s expenditures on fundraising and advertising activities are affected. The interaction between the redistricting variable and the 2012 election cycle, α_1 , provides the effect of redistricting on political campaigns just due to new constituents. The interaction between the change in the Cook PVI and the 2012 election cycle, α_2 , is the effect of redistricting on political campaigns because the proportion of potential supporters to opposers has changed. Controls include demographic data for the Congressional District as well as whether the candidate is an incumbent, challenger, or open and if the candidate participated in the general election. Fixed effects for the candidates, μ_i and the election cycle, δ_t are included. Standard errors are clustered at the candidate level.

Table 12 presents the results on how party committees react to redistricting and how campaigns change their overall level of spending.

Table 12: Campaign Finance Results

	ln(Party Comm Contr)	ln(Total Expenditures)
Redistrict*Election Cycle 2012	2.7822 (1.0400)***	0.4109 (0.1937)**
PVI Change*Election Cycle 2012	-0.3098 (0.0892)***	-0.0656 (0.0374)*
Election Cycle 2012	-1.9734 (0.5150)***	-0.233 (0.0922)**
District Controls	Yes	Yes
Candidate FE	Yes	Yes
Number of Observations	1,034	1,034

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

The evidence suggests that candidates with more new constituents due to redistricting receive more contributions from party committees and also spend more in total campaign spending. The estimated effect for contributions from party committees implies that a candidate whose portion of new constituents is 50% receives 139% more contributions of party committees. The strategy of party committees appears to increase support to candidates that have more new constituents to which the candidate may need to reach out. Party committees also contribute more to candidates who are worse off after redistricting contributing 155% more to candidates who lose 5 percentage points as measured by the Cook PVI.

A campaign whose portion of new constituents is 50% responds by increasing total campaign spending by 21%. There is also some weak evidence that campaigns are also able to respond to losing support within the district. The estimates suggest that a campaign whose candidate is 5 percentage points worse off as measured by the Cook PVI increases spending by 33%.

Changes in the partisan composition of a Congressional District can also affect the level of competition a candidate faces in the general election compared to the primary election. Table 13 presents the results on how campaigns react in the general election and the primary election because of redistricting.

Table 13: Campaign Spending Results

	ln(General Elect Expend)	ln(Primary Elect Expend)	Share General Elect
Redistrict*Election Cycle 2012	0.6686 (0.5148)	0.4755 (0.3403)	-0.0123 (0.0642)
PVI Change*Election Cycle 2012	-0.1373 (0.0417)***	-0.0011 (0.0366)	-0.012 (0.0064)*
Election Cycle 2012	-0.8357 (0.2159)***	-0.3062 (0.1540)**	-0.0905 (0.0285)***
District Controls	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes
Number of Observations	758	838	758

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

The extent to which a candidate's district becomes less favorable to the candidate and perhaps more competitive as measured by the Cook PVI of the district affects the campaign's spending in the general election. The estimates suggest that a campaign whose candidate is 5 percentage points worse off as measured by the Cook PVI increases spending in the general election by 69%. This paper cannot find any statistically significant impact of redistricting on spending in the primary election. However, there is some weak evidence that campaigns shift spending from the primary election to the general election when losing partisan support in the district. A 5 percentage point loss of partisan support results in the campaign spending 6 percentage points more on the general election as a share of total spending.

Campaigns can also respond to redistricting by changing how much they spend on fundraising activities, advertising, and other campaign expenditures. Table 14 presents results on how campaigns change their spending in specific categories.

The evidence suggests that fundraising activities are crucial to candidates who lose partisan support, but candidates respond to new constituents through advertising regardless of the partisan composition of those new constituents. A 5 percentage point loss of partisan support results in the campaign spending 45% more on fundraising activities. This may be because

Table 14: Campaign Spending Categories Results

	ln(Fundraising Expend)	ln(Advertising Expend)	ln(Other Expend)
Redistrict*Election Cycle 2012	0.43 (0.2681)	0.9962 (0.5035)**	0.2945 (0.1724)*
PVI Change*Election Cycle 2012	-0.0891 (0.0183)***	-0.0183 (0.0594)	-0.0306 (0.0093)***
Election Cycle 2012	-0.1875 (0.1345)	-0.8675 (0.2434)***	-0.1233 (0.0852)
District Controls	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes
Number of Observations	912	942	912

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

campaigns have a harder time soliciting contributions from opposing constituents or realize that they will need to spend more to win the election and consequently spend more effort fundraising to obtain the necessary resources.

A campaign's advertising strategy does not appear to respond to changes in the district's partisanship, but does respond to the introduction of new constituents. While the effect of a change in the Cook PVI of the district is not statistically significant, a campaign facing a constituency that is 50% new will increase spending on advertising by 50%.

Other campaign expenditures such as administrative expenses and travel reimbursement also increase with a loss of partisan support. The effect is smaller compared with fundraising, but a 5 percentage point loss of partisan support results in the campaign spending 15% more on other expenditures. Other expenditures may also increase in response to more new constituents independent of changes in partisan support. The estimated effect is a 50% new constituency results in an increase of 15% in other expenditures.

Table 15 presents results on how campaigns change the composition of their spending in response to redistricting.

Table 15: Campaign Spending Shares Results

	Share Fundraising	Share Advertising	Share Other
Redistrict*Election Cycle 2012	-0.0314 (0.0264)	0.1081 (0.0456)**	-0.113 (0.0378)***
PVI Change*Election Cycle 2012	-0.0038 (0.0029)	-0.0036 (0.0086)	0.013 (0.0023)***
Election Cycle 2012	0.0224 (0.0120)*	-0.0804 (0.0204)***	0.061 (0.0181)***
District Controls	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes
Number of Observations	912	942	912

*** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$

The evidence is broadly in line with the results from analyzing the total expenditure in each category. While no statistically significant effect can be found on the share of total campaign spending spent on fundraising activities, the share of total campaign spending spent on advertising increases in response to new constituents. As before, the increase in advertising spending does not appear to be related to a loss of partisan support. A campaign facing a constituency that is 50% new will increase its share of total spending on advertising by 5.4 percentage points. The evidence suggests this is being supported by a decrease in the share of other expenditures by 5.7 percentage points with no impact on the share spent on fundraising. An improvement in a campaign's partisan support as measured by the Cook PVI by 5 percentage points increases the share spent on other expenditures by 6.5 percentage points. This suggests that candidates who, because of redistricting end up in safer districts, shift spending away from fundraising and advertising toward other activities. Campaigns may view fundraising and advertising as more important in competitive elections compared to other campaign activities and so shift spending depending based on whether the election is expected to be competitive or not.

The results show how campaigns and party committees may shift their strategies as a result of the redistricting process. The redistricting process can

change both the proportion of new constituents in a Congressional District and the amount of partisan support a candidate can expect. The strategies of campaigns and party committees may react in different ways to the separate effects. The evidence shows that campaigns respond to more new constituents by increasing spending on advertising regardless of the partisan composition of the new constituents. Party committees also respond to candidates facing new constituents by contributing more to those candidates separate again from the partisan composition of those new constituents. Campaigns and party committees of course also react to the change in partisan support brought about by redistricting. Party committees contribute more to candidates who are made worse off in terms of partisan support after redistricting, and campaigns spend more on fundraising activities when made worse off. Campaigns will also spend more on other campaign activities, but as a share of total spending other expenditures increase when the candidate's district is more favorable as measured by its Cook PVI.

The increase in fundraising and advertising spending by campaigns as a consequence of the redistricting process may also help to explain the increase in individual campaign contributions after redistricting. The results on campaign spending suggest that campaigns respond by increasing outreach to potential contributors, and the increase in advertising may introduce the district's new constituents to the candidate. As a result, both types of spending may increase individual contributions by increasing solicitation of campaign contributions and by obtaining contributions from new constituents through increased awareness of the candidates from advertisements. The results on individual campaign contributions and campaign spending in response to the redistricting process show that in any analysis it is important to consider both aspects of campaign finance in order effectively understand the political process and how it is affected by changes in the political environment.

5 Conclusion

Redistricting has a major impact on the political process from both the perspective of individual contributors and political campaigns. It can change who the incumbent Representative is for individual contributors and who the constituents are for the candidate's campaign. Analyzing both contributions from individuals and campaign spending is necessary to fully understand how the political process is affected by redistricting. This paper finds that after

redistricting, districts that shift to more competitive Cook PVI categories see higher levels of individual contributions. This effect is both on the extensive margin with more contributors and on the intensive margin with a higher average contribution. How individuals view the extent to which a district becomes competitive does seem to differ on whether the individual is contributing to the incumbent representative or the challenger. Individuals contributing to the incumbent representative have larger responses to shifts where the incumbent's advantage is between 0 and 5 percentage points as measured by the district's Cook PVI. On the other hand, individuals contributing to the challenger respond when the incumbent's advantage is over a wider range between 5 and 15 percentage points as measured by the district's Cook PVI. This suggests that individuals contributing to the challenger are willing to contribute under a more adverse political environment.

Moreover, perhaps counter-intuitively, this paper also finds that ZIP Codes that move to new Congressional Districts contribute more. Given the effects of redistricting on campaign spending activities, the increase in contributions can in part be explained by campaigns spending more on fundraising activities and advertisements. The increase in spending on these activities can solicit more contributions from individuals with a potentially larger effect on new constituents. However, the increase in individual contributions is only significant in the election cycle immediately following the redistricting process. This suggests that both individual contributors and political campaigns adapt quickly to the changes in the political environment initiated by redistricting.

There is also evidence that party committees respond strategically to redistricting as well increasing their contributions to candidates who face more new constituents separate from the partisan composition of those new constituents. Campaigns, furthermore, adjust their spending patterns spending more on fundraising activities when after redistricting, the district is less favorable as measured by the district's Cook PVI. However, like party committees, campaigns also respond to the proportion of new constituents separate from partisan composition spending more on advertising when there are more new constituents. Campaigns may see a need to introduce their candidate to new potential voters whether or not those voters identify with the same party as the candidate or not.

The results show that the interaction between potential contributors and campaigns jointly determine the impact of redistricting on campaign finance. Focusing only on contributions or only on campaign spending ignores the

linkages between these two activities and prevents a fully comprehensive understanding on how factors in the political environment affect campaigns and campaign contributors. Redistricting has huge impacts on the political environment that campaigns operate within and within which individuals choose to make campaign contributions. However, other aspects of the political environment change from election to election such as the presence of U.S. Senate elections in particular states and the passage of new voter identification laws by some states. This paper shows to fully analyze the impact of these events on the political process requires analyzing both campaign contributions and campaign spending decisions collectively. The interactions between the two are what affect the results of the election.

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