

# Does TV Advertising Explain the Rise of Campaign Spending?

A Study of Campaign Spending and Broadcast Advertising Prices

in US House Elections the 1990s and the 1970s

Stephen Ansolabehere, MIT

Alan S. Gerber, Yale

James M. Snyder, Jr., MIT

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## Abstract

Over the past several decades the cost of television time has increased substantially and congressional campaign spending has increased as well. This paper considers whether there is a causal relationship between these trends. Using the dramatic variation in advertising rates across congressional districts and over time, we assess the effect of higher television advertising rates on campaign spending levels and resource allocations patterns. We find that: 1. Higher television advertising prices have no effect on total campaign spending levels. 2. Campaigns strongly substitute their spending away from broadcasting and into mail when television advertising prices are higher, and 3. Higher television advertising prices have no significant effect on incumbent vote margins or victory rates. The advent of television in campaigns has had little effect on spending levels or vote margins in congressional elections.

## 1. Introduction

Campaign spending in the United States has tripled over the last three decades. Total expenditures in the average contested House election were \$318,000 in 1972, \$735,000 in 1992, and \$973,000 in 2000 (all figures in 1990 dollars). Many factors have been blamed for the growth of campaign spending. The rising cost of media is one of the prime suspects. It is widely believed that candidates “must” campaign on television to win, so the rising price of television time drives up election spending. With increased campaign spending has reputedly come a host of ills: greater influence of interest groups over legislative outcomes, less electoral responsiveness due to higher incumbency advantages, and higher levels of public cynicism.<sup>1</sup> Seeking to stem these problems, political reforms frequently target media costs, including proposals for free airtime and regulation of the prices charged for political advertising.<sup>2</sup>

This paper provides a rigorous evaluation of the argument that the rising costs of television advertising have caused congressional campaign expenditures to soar. We examine two unique databases – one from the 1970s and one from the 1990s – on campaigns’ media use. If there is significant cost-push inflation, then we would expect that campaigns in expensive media markets would spend substantially more than campaigns in relatively inexpensive media markets. We find no such pattern. Total spending in districts with very expensive media markets – New York and

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<sup>1</sup> Sorauf (1988, pages 341-344) provides an excellent survey of the arguments about rising media costs and rising campaign costs. For a sampling of views on the effects of campaign finance on the democratic process see Jackson, 1988, Magleby and Nelson, 1990, Sorauf, 1992.

<sup>2</sup> Taylor (2001) advocates the need for the lowest unit charge rule. Sorauf (1992) discusses a range of proposals.

Los Angeles – is nearly identical to total spending in districts with very cheap media markets, even though the media prices in the House districts in New York and Los Angeles are 18 times higher than the media prices in the districts in the cheapest media markets.

Our analysis reveals an intuitive reason why media prices have no effect on total spending. In political campaigns, direct mail advertising serves as a close substitute for broadcasting. Campaigns’ use of broadcast advertising drops sharply with higher TV advertising prices. And, as broadcasting prices rise, campaigns spend substantially more on mail. The presence of close substitutes weakens the inflationary pressure of TV advertising prices. As a result, overall campaign expenditures do not change with media prices.

We further examine whether television costs affect electoral competition. One important conjecture in the congressional elections literature is that high television advertising prices act as a barrier to challengers gaining name recognition and winning votes because the cost of broadcasting is prohibitively expensive for challengers (Lawrence and Smith 1995, Prinz 1995, Prior 2001, Stewart and Reynolds 1990). We find no evidence for this argument: electoral competition is unrelated to a district’s advertising prices.

The paper proceeds as follows. In Section 2 we describe competing arguments about the effect of television costs on total campaign spending. In Section 3 we describe the data and our method of calculating media costs for congressional districts. In Section 4 we present our main statistical findings. In section 6 we discuss some of the implications of our findings.

## 2. Arguments

The argument that television costs are the key to rising campaign costs has many adherents and forms the conventional wisdom on the subject. Political operatives and advocacy groups often

argue that rising television ad costs drive up overall campaign spending, and, as a result, they favor broadcast price regulation or free media as means of containing costs.<sup>3</sup> The belief that television costs have driven up total spending enjoys broad academic support as well. Magleby and Nelson maintain that “much of the increase in (campaign) spending (over the past two decades) has been caused by the high cost of modern communications” (Magleby and Nelson, 1990). In his influential text on congressional elections, Gary Jacobson (1997) adds that “the feeling that television advertising is essential regardless of price is one important force driving up the cost of campaigning.” In his text on campaign finance, Sorauf (1988, p. 342) describes the conventional wisdom among campaign finance insiders as follows: “Costs have shot up because the costs of campaign technologies – especially the media and related costs – have shot up well beyond the climb of the CPI.”

Following Sorauf (1988), our interpretation of the conventional wisdom is that total campaign spending has risen due to cost-push inflation. In thinking about costs, it is important to distinguish price from spending. Spending equals price times quantity purchased. The cost-push argument holds that increases in the prices of basic inputs cause spending on basic inputs, and therefore total spending, to rise.

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<sup>3</sup> Magleby and Nelson (1990, page 27) quote Roger Craver, a prominent political fund raising consultant, as representative of the attitudes of consultants. He claims that there is a “direct correlation between the rise of television costs and campaign spending.” A good example of an advocacy group expressing a similar sentiment is the following comment from the Committee for Economic Development: “The primary factor driving higher campaign spending has been the cost of television and other forms of paid broadcast advertising” (CED, 1999, page 9)

A key factor determining whether higher advertising costs lead to higher total spending is whether there are cost effective substitutes for broadcast spending. The cost-push argument is built on a particular conception of how television fits into congressional campaigns. According to this perspective, television is an especially effective form of political communications for which there are no close substitutes. If this is correct, then increases in TV prices will cause higher total campaign spending and little or no change in spending on other forms of political communication.<sup>4</sup>

It is conjectured that expensive TV prices will hurt electoral competition, by limiting the amount of communication that challengers can afford. In U.S. House races, challengers are thought to have higher marginal benefits from additional campaign spending generally and from additional television broadcasting in particular. Increased television prices, therefore, are thought to affect challengers' vote-production much more than they affect output of incumbents' campaigns. The net result is to increase the incumbents' electoral margins (Lawrence and Smith, 1995). Alternatively, if there are very good substitutes for television, then higher TV costs will lead to an increase in spending on other forms of campaign communication and little or no change in total campaign spending. As the price of TV advertising rises, candidates will shift readily into other campaign activities such as direct mail and grassroots organization. As a result, no additional fund raising is needed to run an effective campaign, and there is no loss in the efficiency with which candidates produce votes.

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<sup>4</sup> For an example of this perspective, see Adamany (1972), who argues that higher levels of television spending translate directly into higher levels of total spending: "the most significant recent advance in campaign technology has been the use of television" and that "advances in technology increase costs because new expenses do not displace expenditures for established campaign activities" (page 63).

The degree to which these alternative possibilities capture the place of broadcasting in campaign communication is an empirical matter. And the purpose of this paper is to subject these conjectures to careful empirical tests.

### 3. Data and Measures

Our analysis relates media prices to total campaign spending, to the mix of media used in campaigns, and to electoral outcomes. We focus on U.S. House elections because of the tremendous variability in media prices and other factors across districts.

We examine the effects of media costs on campaign spending in two different eras, twenty years apart. One period covers the 1970 and 1972 elections and predates the regulatory regime established by the Federal Elections Campaign Act (FECA). The other covers the 1990 and 1992 elections, when the FECA was in full force. These two cross sections provide highly informative pictures of the use of television in congressional campaigns. A complete time series would be ideal, but we are constrained by the availability of data on campaign spending on broadcasting.

#### 3.1. Campaign Spending Data

Data on total campaign expenditures for 1990 and 1992 come from the Reports on Financial Activity filed by candidates with the Federal Election Commission. Data on total campaign spending for the 1972 election were collected by Common Cause. We are grateful to Gary Jacobson who provided us with the Common Cause data (see, Jacobson 1978).

Data on candidate media usage come from two exhaustive and unique studies. In 1970 and 1972, the Federal Communication Commission (FCC) conducted audits of nearly all television and radio stations in the country to gauge the amount charged to candidates for airtime (FCC,

Survey of Political Broadcasting, 1971 and 1973). These audits were discontinued after the 1972 election. For the 1990 and 1992 congressional elections, a team of investigative reporters led by Dwight Morris sifted through the voluminous campaign expenditure reports filed with the Federal Elections Commission (FEC) and classified all expenditures into several categories, one of which is spending on electronic media (Fritz and Morris, 1992; Morris and Gamache, 1994). We will refer to these data as the Morris data.

These two data sources differ in several important respects, so we are cautious about pooling the data from the two time periods. The 1970s FCC audits provide a very accurate picture of expenditures on television and radio advertising time. The reports separate radio and television charges. They do not include fees charged by consultants or production costs, and the FCC did not gather data on total campaign spending.

The Morris data on media expenditures in 1990 and 1992 capture campaigns' total broadcast expenditures. The Morris data do not distinguish airtime from consultant fees, nor do they separate radio and television expenses. Fritz and Morris (1992) and Morris and Gamache (1994) report that fees and production costs average about 30 percent broadcast expenditures, a figure we confirmed independently.<sup>5</sup> The Morris data measure total expenditures as well as expenditures on various other campaign activities, including direct mail, overhead, and other campaign inputs. The data are, thus, very revealing about the substitution among different modes of communication.

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<sup>5</sup> We asked Richard Schwartz, principal of Brand Leadership, what fraction of advertising budgets are fees and production costs and what fraction are buys. He reported 30 percent.

### 3.2. Measuring Media Cost by Congressional District

No advertising industry estimates of the cost of reaching the voters in each congressional district are publicly available. We construct a district-level television cost (or price) index using data from the *Broadcast and Cable Yearbook* (for 1970 and 1972) and the *Media Market Guide* (for 1990 and 1992). These sources publish the average prices charged per rating point for spot advertising in different time slots in each media market.

We construct each district's television cost index in three steps. First, we measure spot prices in each media market. Each media market consists of the counties (and, in a handful of cases, parts of counties) in which a majority of viewers watch the stations of a given city. In the 1990s, the Los Angeles market encompasses the counties of Los Angeles, Orange, San Luis Obispo, Inyo, and Ventura and parts of Kern, Riverside, and San Bernardino. The counties in northern New Jersey and in southeastern Connecticut are in the New York City media market. Spot advertising prices are set according to audiences reached and, thus, market size. We use the prime-time price per rating point (CPP) to calculate market costs.<sup>6</sup> The markets with the highest cost per rating point are Los Angeles and New York, which had prime-time CPP's of \$1,166 and \$1,126 in 1994. The next tier of markets, which consists of San Francisco, Philadelphia, Boston, and Chicago, have much lower prime-time CPPs, in the neighborhood of \$500. Prices decline as you move into smaller markets. The median price among all markets is \$32, with the cheapest markets at \$10.

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<sup>6</sup> While the absolute cost of advertising varies across "day parts" (evening news, prime time, late news, etc.), the relative advertising cost across media markets – which is what matters for our analysis – is very similar regardless of which day part is used.

Second, we map congressional districts into media markets. Many districts (just under 50 percent in 1992) lie entirely within one media market. For example, 24 districts in California in 1992 lie entirely within the Los Angeles market. Any candidate advertising in one of these races must advertise on Los Angeles television in order to reach the district's voters. The mapping becomes more complicated when districts span several counties in different media markets. The New Jersey 5th district consists of four counties, one in the Philadelphia and three in the New York City media market. For districts that span multiple media markets we also calculated the fraction of each district's population that is in each media market.<sup>7</sup> For the 1990-92 period, we were able to fully partition all congressional districts into media markets. For the 1970-72 period, we were able to partition 97% of the districts completely.

Third, we calculate the price of reaching the voters in the congressional district as the price of reaching the voters in all media markets contained in a district. In order to reach 100% of the district, a candidate would have to buy time in every market that contains any part of the district, so the cost is the sum of the cost of advertising in all of the relevant media markets. For example, in central New Jersey, where the districts tend to be split evenly between New York and Philadelphia markets, the cost of reaching the entire district equals the cost of advertising in New York plus the cost of advertising in Philadelphia. We also considered measures of cost based on reaching only fractions of the district. These alternative price indices did not produce appreciably different results in the regressions below, so in our analysis we use the price of reaching 100 percent of the

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<sup>7</sup> In these calculations we used census data on the populations in districts and counties, and data on media market geography from *Congressional Districts in the 1980s*, and *Congressional Districts in the 1990s*.

voters in each congressional district.<sup>8</sup> Table 1 shows descriptive statistics on district media cost and campaign media usage.

[Table 1 here]

Past studies have used surrogates for actual costs, most commonly measures of market overlap and fragmentation (e.g., Campbell, et al., 1984; Stewart and Reynolds, 1990, Prinz, 1995).<sup>9</sup> Overlap corresponds to the extent to which a district matches a market's boundaries. Close overlap is thought to be least costly (Prinz 1995). Districts that comprise a fraction of the market, such as in New York City or Los Angeles, indeed have very high television costs. Fragmentation is the extent to which the district is divided between different media markets. To reach all the voters in a fragmented district requires spending in more than one media market. Fragmentation is thought to increase media prices facing campaigns (see Ansolabehere, Behr, and Iyengar, 1993, Chapter 2).

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<sup>8</sup>The other cost indices are the price of reaching 1% of the district, 50% of the district, and 66% of the district. For each of these cost measures we calculated the cheapest price of reaching a given fraction of the voters in the district. In order to reach half of the district, the cost would equal the sum of the costs of the cheapest markets until half of the district population is covered. Continuing with the central New Jersey case, the cost of reaching 50% of the market equals the cost of advertising in Philadelphia, because the Philadelphia market equals half of the district and it is the cheaper of the two markets. These different cost measures are highly correlated: the correlation between the cost of reaching 66% and the cost of reaching 100% is .94 in 1990-92 and .91 in 1970-72).

<sup>9</sup> In their study of Senate elections, Stewart and Reynolds (1990) also use actual price data.

Neither overlap nor fragmentation measure actual correlate strongly with district media prices. The correlation between district CPP and fragmentation is +.14 and between district CPP and overlap is +.43. We tested whether market fragmentation affects spending and competition independently of the CPP. It does not. Also, we contrasted the regression analyses for those districts contained entirely within a media market and for all districts. The estimated effects of media prices on spending and competition are the same in the subsample of non-fragmented districts and in the complete sample.

#### 4. Results

The claim that rising broadcast costs have led to higher campaign spending overall stems from a simple observation. The increase in campaign spending since the 1970s has coincided with a significant increase in the cost of television advertising.<sup>10</sup> Between 1972 and 1992, total real campaign spending roughly doubled, growing from \$331,271 in the typical House race in 1972 to \$706,646 in the typical House race in 1992 (both figures in 1990 dollars). Over that same period of time, the cost per rating point (cost of reaching approximately one percent of the TV households) for a 30-second spot in the median media market also doubled, rising from \$13 per point in 1972 to \$28 in 1992, both figures in 1990 dollars.<sup>11</sup>

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<sup>10</sup> Sorauf (1988, page 342) questions the plausibility of this claim, observing that from 1976 to 1982 media prices grew only 10 percent faster than the CPI. However, over a longer period it is evident that media prices have grown much faster inflation; in fact, their growth mirrors the overall increase in campaign spending.

<sup>11</sup> The growth in the price paid index for political advertising over time is even less. To compare rating

The data from 1972 and 1992 place an upper bound on how much TV advertising costs could have contributed to the rise of total spending. Average total (real) campaign spending grew by \$417,000 (i.e., \$735,000 minus \$318,000), but average expenditures on broadcast advertising grew by approximately \$117,000 (i.e., \$166,000 minus \$49,000).<sup>12</sup> This means that TV advertising expenditures account for less than one-third of the total growth in campaign spending in US House elections. As we will show the true inflationary effect of broadcast prices on total spending is nearly zero.

Comparison of the early 1970s and the early 1990s do not allow us to accept or reject the notion of media cost-push inflation as a significant driver of campaign expenditures, overall or on broadcasting in particular. With just two data points, it is impossible to hold constant other factors, such as technology, prices of other campaign inputs, or electoral circumstances. For example, the price of direct mail, a potential substitute for TV advertising, also doubled over this time period.

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points, which are costs per household reached, we have to adjust these numbers for the population of the United States, which increased by 27 percent from 1972 to 1992. The cost of reaching the typical voter via television, then, increased 167 percent between 1970 and 1992. An additional complication is the mapping of media markets into congressional districts. The median media market cost of \$32 per point is much lower than the median district media cost of \$200 per point because many rural counties comprise only a part of a district.

<sup>12</sup> To make the 1970s and 1990s media expenditures comparable, we adjust the 1970s figure up by 30 percent to account for fees and production costs, which are already included in the 1990s figures.

Without doing so the broadcasting cost figure for 1970s is \$37,000 instead of \$49,000.

One might just as easily argue that the price of postage has caused campaign spending to rise.

A direct test of the cost-push argument is comparison of spending across districts. Cross-sectional analyses of media market prices provide substantially more statistical leverage than over time analyses because broadcast advertising prices vary much more across districts than they do over time. From 1972 to 1992, real media prices grew 2 fold. Media prices are 18 times higher in US House districts with the most expensive broadcast advertising prices than in districts with the least expensive broadcast advertising prices. Variation in electoral competition, which drives demand for advertising, and other features of districts allows us to hold constant other factors in the cross-section, which we cannot do with just two time points. Equally important, the price of direct mail, a close substitute for TV advertising, is roughly constant across districts, but direct mail prices change considerably over time, and within the cross-section the technologies are roughly the same.

#### 4.1. Broadcast Advertising Prices and Total Campaign Spending

Looking across districts reveals that media prices do not, in fact, affect how much campaigns spend overall.

Figure 1 displays the relationship between total campaign spending in US House races and media prices in districts. The top panel corresponds to the 1970s and the bottom panel corresponds to the 1990s. For simplicity, we sort the districts according to quintiles of the media market price index, from least expensive to most expensive. Districts in each successive quintile face roughly double the price of the next cheaper quintile. Districts in the first quintile have the lowest broadcast media prices: in 1992, the average value of the media market price index is 62. Districts in the fifth quintile (New York and Los Angeles) have the highest media prices: in 1992,

the average value of the index is 1100. In other words, candidates running in New York and Los Angeles – districts that are in the most expensive media markets – can expect to pay 18 times more for a unit of advertising than candidates running in districts in the least expensive media markets, such as Dayton, Ohio. Our measure of total spending combines all candidates' expenditures in each race. For each quintile, we then calculate the average total campaign expenditures of all candidates.

[Figure 1]

The pattern in Figure 1 is striking. Under two very different campaign finance systems, twenty years apart, no relationship between the cost of advertising and total campaign spending is apparent. In both periods, there is enormous variation in the price of broadcast advertising across the districts, but little variation in total spending across categories of cost. In 1990 and 1992, total campaign spending in US House races in the most expensive media markets exceeded total campaign spending in the least expensive media markets by only 10 percent, while broadcasting costs in the expensive media markets were 1700 percent more than the broadcasting costs in the least expensive markets. In 1972, the graph is flatter still. Those in the most expensive media markets spent only 2 percent more than those in the least expensive markets.

If the cost-push argument were true, we would expect some statistical relationship between media market cost and total spending. In fact, there is no correlation at all in the cross-sections in either period. For the 1970s, the F-statistic is .76 with a p-value of .55. For the 1990s, the F-statistic is 1.07, with a p-value of .37. The hypothesis that there is no difference across quintiles in average total spending cannot be rejected at the .10-level.

The data in Figure 1 casts significant doubt on the hypothesis that higher media costs cause higher total campaign spending. These analyses are not conclusive since other factors that are

known to affect spending levels might also be correlated with district television costs.

Table 2 reports the results of ordinary least squares regressions of total campaign spending in 1972, 1990 and 1992 on TV advertising costs and a variety of other factors. The dependent variables in these regressions are the combined total campaign expenditures (in logarithms) of the two major party candidates in each race. The TV Cost Index is also measured in logarithms. Because we are less sure of the quality of the cost index for districts that cover multiple media markets, we provide two separate estimates – one for all districts and one for only those districts that lie entirely within a single media market.<sup>13</sup>

The control variables used in the regressions were characteristics of the district constituency (district median household income and percent college educated) and electoral conditions (open seat, closeness of the election).<sup>14</sup> District characteristics come from the census files on congressional districts; income and education data are not available for the 1972 districts. Election results, incumbency status, and the absence of a challenger are from Dubin (1998). The appendix contains sample statistics from the Morris data set (Table A) and the FCC data set (Table B).

[Table 2 here]

The regression results confirm the pattern observed in Figure 1. Both the 1970s and the 1990s show no relationship between higher advertising prices on total spending. Consider the estimated relationship for the 1990s. Since both total spending and television cost are measured in

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13 In separate analyses we also included the Herfindahl index measure of market fragmentation. It has no statistically significant or substantively large effect on spending.

14 We use Democratic vote and Democratic Vote Squared to measure closeness. The results are very similar using the square of Democratic vote minus 50 percent.

logarithms, the coefficient on TV cost index is an elasticity. According to the regression results in Table 2, a 100% increase in advertising rates corresponds with an increase district campaign spending of only 3.8% – a statistically insignificant change.

Concerned about possible measurement error in the media price index caused by fragmentation of some districts across many markets, we examined the relationship between prices and spending in those districts that lie entirely within one media market. The regression results for this subsample are shown in columns 2 and 4. The coefficients on TV Cost are indistinguishable from the estimates in the entire sample. In all of the analyses, the hypothesis that there is no effect of television cost on total spending cannot be rejected at standard significance levels.

The coefficient values for the control variables are also similar for both the complete and restricted sample and have the expected signs. As the election becomes less close, total spending falls. Open seat elections and races involving a high-quality challenger have much higher spending, which reflects politicians' demand for money and, in the case of quality, also their ability to raise funds. Districts with better-educated constituents have higher levels of campaign spending. A higher proportion of college educated constituents, which is a marker for both higher lifetime expected wealth as well as a greater level of political knowledge and engagement, is strongly associated with higher campaign spending. District median income has no separate statistical effect. For the 1990s, these estimates imply a modest effect of income and education on total spending. Using the column 1 regression results, holding other things constant, a district with 53% college educated and a median income of \$41,000, which represents a one standard deviation increase from the sample average for each of the two variables, is predicted to have 16 percent more total campaign spending than the average district.

A final way to measure the amount of inflation in campaign spending due to advertising

prices is to estimate the change in total spending from 1972 to 1992 that is associated with changes in media market costs over this span. If there is much cost-push inflation, then media markets with rising advertising costs should show the highest increase in campaign spending in all districts within those markets. To measure whether over time changes in prices affect over time changes in total spending we analyzed the data at the media market level.<sup>15</sup> First, we calculated the average total campaign expenditure in all congressional races that lie entirely within each media market. Then, we calculated changes in spending and changes in cost for the subset of media markets that are the same from 1970s to the 1990s. There are 55 such cases (markets). On this subset we are able to regress changes in total campaign spending (averaged) on changes in media costs and other factors.

The over time results confirm the cross-sectional analyses. Changes in media market costs do correspond to higher total spending within media markets. The coefficient of change in costs (in logs) equals .13, with a standard error of .22.<sup>16</sup> The value of this coefficient means that higher broadcast advertising costs predict only a slight growth in total spending. The regression

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<sup>15</sup> Because of redistricting it is nearly impossible to pool congressional districts of the 1970s and 1990s. However, a large number of media markets are substantially the same from the 1970s to the 1990s, and these completely contain a large number of districts.

<sup>16</sup> The regression is of change in log total spending on change in closeness of elections, change in the number of incumbents in the market, and change in log cost. The estimated intercept is .63; the coefficient on log cost is +.13 with a standard error of .17; the coefficient on change in closeness is 4.09 with a standard error of .74, and the coefficient on change in number of incumbents is -.67 with a standard error of .44. The R-squared is .40 and the MSE is .476.

coefficient means that a 100 percent increase in prices (which is roughly the price growth from 1972 to 1992) implies only a 13 percent increase in spending. Increases in broadcast advertising prices, then, explain only a small part of the total increase in campaign spending. Moreover, we cannot reject the hypothesis that the estimated effect of price changes on spending over time is in fact 0.

#### 4.2. Broadcast Advertising Prices and Expenditures on Campaign Communications

These findings leave us with a puzzle. Why is total spending apparently invariant to the price of a key input? Again, the cross-sectional analyses illuminate the answer.

Figure 2 displays the percent of total campaign spending devoted to broadcasting as a function of district media prices. For the 1990s, we also have data on the amount spent on direct mail. As in Figure 1, we sort the districts according to quintiles of the media prices.

[Figure 2]

Figure 2 reveals two important ways that campaigns adjust their communications strategies to cope with higher television advertising prices.

First, in the face of higher advertising prices, campaigns drastically cut their broadcast advertising expenditures. The patterns are exactly the same in the two time periods. In 1972, campaigns in districts where television is cheap spend 18 percent of their total funds on broadcasting, but campaigns where television is most expensive spend only 5 percent of their total funds on broadcasting. In 1990 and 1992, campaigns where television is least expensive spend 27 percent of their total funds on broadcast advertising, while campaigns where television is most expensive spend 8 percent of their total funds on broadcasting.

Notably, the total fraction spent on broadcasting appears to rise over time, across all media

markets. This is almost entirely an artifact of the differences in accounting between the FCC and the Morris data. As mentioned earlier, fees and production costs account for roughly 30 percent of total broadcast expenditures in the 1990s. Adjusting the 1990s figures down by this amount, reveals no growth in the percent of money spent on airtime. With this adjustment, candidates in the 1990s spend approximately 20 percent of their funds on airtime in the districts with the lowest advertising prices and approximately 5 percent of their funds on airtime in the districts with the highest broadcast advertising prices.

Second, campaigns shift their spending into alternative modes of communication, notably direct mail. The 1990s data show that as media costs rise the share of spending devoted to mail increases. In districts with relatively cheap television, candidates spent four times as much on electronic media as on mail, while in the most expensive media markets campaigns largely avoided broadcast expenditures. The obvious inference is that campaigns do not begin with a rough idea of an appropriate television campaign, and then raise money to fund it; rather, campaigns are highly responsive to the cost structure in which the campaign operates, and tailor their campaigns to it. When faced with higher media costs the campaigns do not go out and raise more money; they adjust along a different margin, shifting money away from costly and inefficient broadcast spending to mail, which can be targeted to their constituents and is no more expensive in New York than in North Dakota.

Tables 3 and 4 show how campaigns alter their spending strategies in response to higher advertising prices, holding other factors constant. Table 3 presents regression analyses predicting broadcast expenditures in the 1990s and 1970s using TV advertising costs, electoral competition, and other factors. Table 4 presents regression analyses predicting direct mail expenditures in the 1990s using TV advertising costs, electoral competition, and other factors. All dependent variables

are in logarithms. For each of these dependent variables, we analyzed the data two ways - OLS regression and Tobit. In the OLS regressions we set these cases equal to 0. Zero expenditure levels might bias estimates of the marginal effects of district television advertising costs on spending, so we correct for possible “selection biases” with the Tobit model. The independent variables in Tables 3 and 4 are the same as those in Table 2. As in Table 2, district income and education measures are not available for the 1970 and 1972 elections.

[Tables 3 and 4 here]

The regressions sharpen the patterns revealed in Figure 2. First, higher advertising prices lead candidates to spend substantially less on broadcast advertising. The OLS and Tobit analyses produce approximately the same estimated price-elasticity of spending on electronic media for the two periods. The OLS estimate of the coefficient on broadcast costs (in logs) is  $-.71$  in the 1990s and  $-.84$  in the 1970s. These effects are highly statistically significant, but not statistically different from each other. They imply that a 1 percent increase in advertising prices corresponds with nearly a 1 percent decrease in broadcasting expenditures (the coefficient is approximately  $.8$ ). In the 1970s and in the Tobit for the 1990s, we cannot reject the hypothesis that the elasticity is, in fact,  $-1$ . This suggests that campaign budgets do not rise with higher broadcasting prices because campaigns shift to other activities.

Second, the 1990s data reveal that direct mail is one such close substitute. Table 4 reports regressions of mail expenditures on television advertising prices and other variables. The coefficient on TV advertising prices is a cross-elasticity; it measures how quickly campaigns move to mail as TV advertising prices rise. In both the OLS and Tobit specifications, higher television advertising prices lead to significantly higher mail expenditures. The elasticities are in the neighborhood of  $+.35$ . A one percent increase in advertising prices leads to a  $.35$  percent increase

in direct mail expenditures, which accounts for roughly half of the reduction in broadcast expenditures. There are other substitutes, including labor (door-to-door canvassing), yard signs, and billboards. The efficiency of these activities compared to television is a subject of on-going study. The strong rise in mail expenditures in response to higher broadcasting expenditures indicates that for political campaigns mail is a close substitute for broadcasting: campaigns are not locked-in to television advertising.

#### 4.3. Election Outcomes and Broadcast Advertising Prices

An implication and final test of our argument is that television advertising prices and, thus, usage should have no effect on electoral competition. If campaigns are just as effective with television as without, then there is no inflationary pressure. If, however, TV is an essential input, then campaigns in areas where TV is expensive and thus less used should show different patterns of competition. In particular, TV advertising creates incumbency advantages by increasing name recognition beyond what one could gain through other modes of communication and by creating barriers to entry.<sup>17</sup> Here we examine whether higher TV costs predict greater electoral security of

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<sup>17</sup> The rationale for this is that challenger must overcome a significant deficits in voter recognition and knowledge, so anything that stands in the way of the challenger's message, such as prohibitively expensive television advertising rates, makes it that much more difficult for the challenger to prevail (see Jacobson 1978). Assuming that this argument has merit, it applies only if the challenger suffers a material loss when moving from television advertising to other forms of campaigning. To date there has been very little empirical work measuring the relationship between media markets and actual vote totals rather than survey responses (e.g. Prinz 1995).

incumbents.

Table 5 shows the relationship between several measures of electoral competition and television costs, holding many other factors constant. The sample includes House elections from the four years studied above (1970,1972, 1990, 1992), plus the adjacent years of 1968, 1988, and 1994. These years consist of those for which we are confident in our measures of the relative TV advertising costs of most congressional districts (substantial redistricting occurred in many states between 1972 and 1974, so we do not include 1974).

The basic finding is that TV advertising costs have little or no effect on electoral competition over the period 1968 to 1994. We find no evidence of an important relationship between TV costs and the vote shares of incumbents – the estimated coefficient on the TV cost index variable is tiny, and statistically indistinguishable from zero ( $p > .2$ ) even with almost 2,600 observations. Moreover, the sign of the coefficient is negative. This is inconsistent with the usual argument linking TV costs to the incumbency advantage, which emphasizes the inability of challengers to air their messages in expensive media markets. We also find no relationship between district TV costs and incumbents' probabilities of reelection (column 3 of table 5).

Overall, it appears that political competition does not vary in any important way with the cost structure of communications. This suggests that in very expensive media markets campaigns find immediate substitutes for television without appreciably affecting their ability to compete for votes.

[Table 5 here]

## 5. Discussion

Our results cast serious doubt on one of the leading explanations for the growth of spending

in congressional campaigns – that is, the rising cost of television advertising.

Three empirical results bear this out. First, there is no association between total spending and media prices. This pattern holds true in the cross-sections of House races in 1972 and 1990-1992. It also holds true when we analyze changes in prices and total campaign spending within media markets over time. Second, there are close substitutes for broadcasting, so campaigns do not have to rely on television to be effective. As media prices rise, campaigns spend substantially less on broadcasting and substantially more on direct mail. Third, there is no association between districts' media costs (and thus media usage) and incumbents' win rates or vote margins. This suggests that incumbents do not have excessive demand for TV advertising in order to deter entry.

The results of this analysis are instructive about the nature of political campaigns, and how political scientists can fruitfully model campaigns. Campaigns operate much like firms engaged in other forms of marketing. On the margin, campaigns are highly responsive to the prices of different media: campaigns do not commit to one technology, but rationally allocate their funds among many media. The task facing candidates and consultants is choosing the appropriate mix of broadcasting, mail and other modes of communication to get the most voter contact for the money. One fundamental puzzle remains. Broadcast advertising prices have risen substantially since the 1970s, yet broadcast expenditures have not fallen. Accounting for fees and production costs in 1972 and 1992, House campaigns spent around 20 percent of their total budgets on broadcasting in both eras and the amounts spent on TV have increased in real terms.<sup>18</sup>

The finding that campaigns substitute away from television as the price of television

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<sup>18</sup> These are necessarily approximations rather than precise estimates owing to differences in accounting in the two data sets, as mentioned earlier.

advertising rises is not inconsistent with the accurate observation that over time campaigns continue to rely heavily on broadcasting. Our analysis suggests two explanations. First, use of TV, mail, and other media depends on the relative effectiveness of these modes of communication. Holding the prices of two inputs fixed, if innovations improve one technology's potential to reach and persuade voters, then candidates will spend additional funds on this mode of communication and reduce spending on other campaign inputs. Over time, broadcast advertising may have become relatively more effective than other inputs. We know of no evidence on this matter.

Second, use of TV and other inputs depends on relative prices. If the relative effectiveness of two modes of communication is held constant, but the price of one of them increases, then campaigns will use less of the more expensive medium. The Direct Marketing Association tracks comparable price indices for all media inputs since 1980. No indexes for direct mail are available before 1980. Surprisingly, from 1980 to 1992, the price of television advertising grew less quickly than the price of direct mail or the price of newspaper advertising. This suggests that over the last couple of decades television advertising has become a somewhat better value for campaigns.

Finally, our results indicate that television advertising cannot explain the rise of the incumbency advantage in the United States. Television advertising is often conjectured to have contributed to the dramatic increase in House incumbents' vote margins since the 1950s. While the timing is right, the connection appears to be more of a coincidence. The presence of close substitutes for television implies that campaigns can be just as effective with television as with the mail and other media. The decision about what to use, then, is mainly a matter of price. What medium is most commonly used should have no effect on electoral outcomes. Looking across districts in the 1970s and in the 1990s, areas where prices are high and TV advertising use is very low have the same incumbency advantages as areas of the nation where broadcast advertising

prices are low and TV advertising is a campaign staple. TV advertising prices affect how campaigns are run, but they do not affect how much is spent or electoral results.

The finding that TV advertising prices do not explain the rise of campaign spending is an important null conclusion. Among academics, policy-advocates, and policy-makers, TV advertising prices are widely believed to have caused campaign spending to grow. To relieve such cost-push inflation, it is thought, televised political advertising should be regulated or subsidized. The patterns we have documented show quite clearly that TV advertising prices cannot explain the rise of campaign spending in the United States. The search for a cause for the rise of campaign spending must look elsewhere.

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Figure 1A: Total Spending in House Campaigns By Media Market Prices, 1970-72

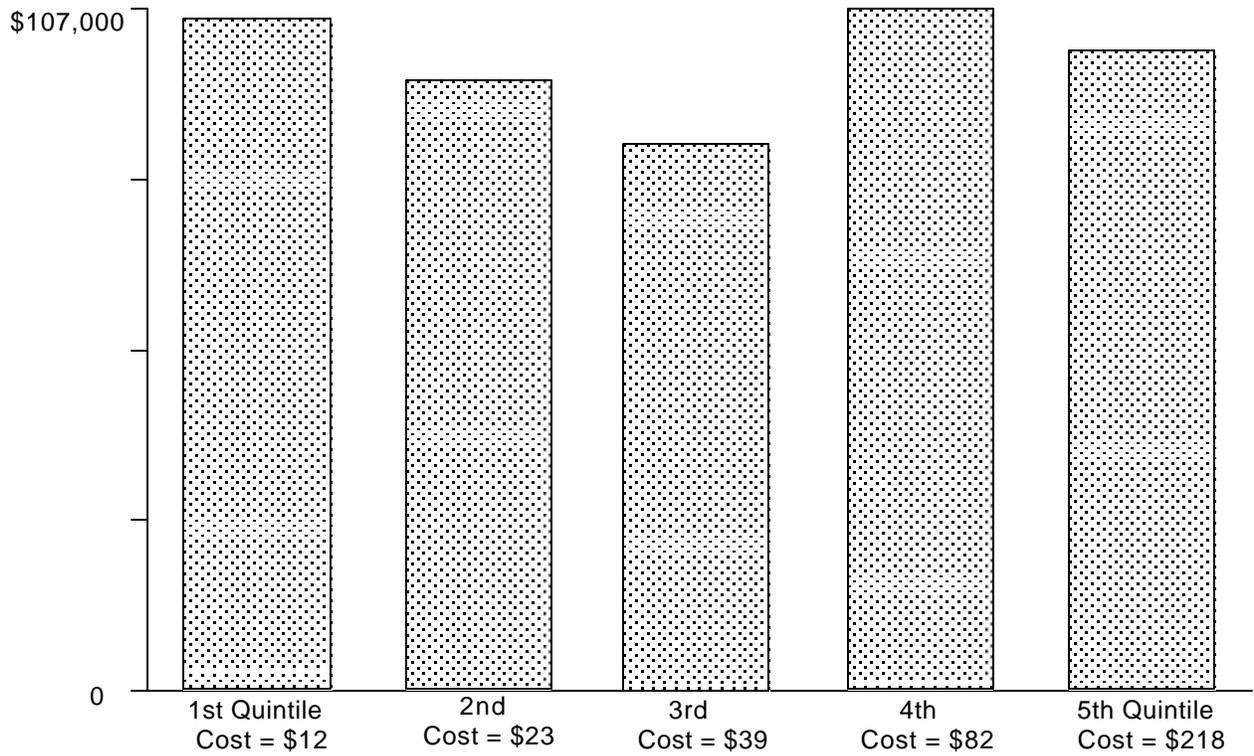


Figure 1B: Total Spending in House Campaigns by Media Market Prices, 1990-92

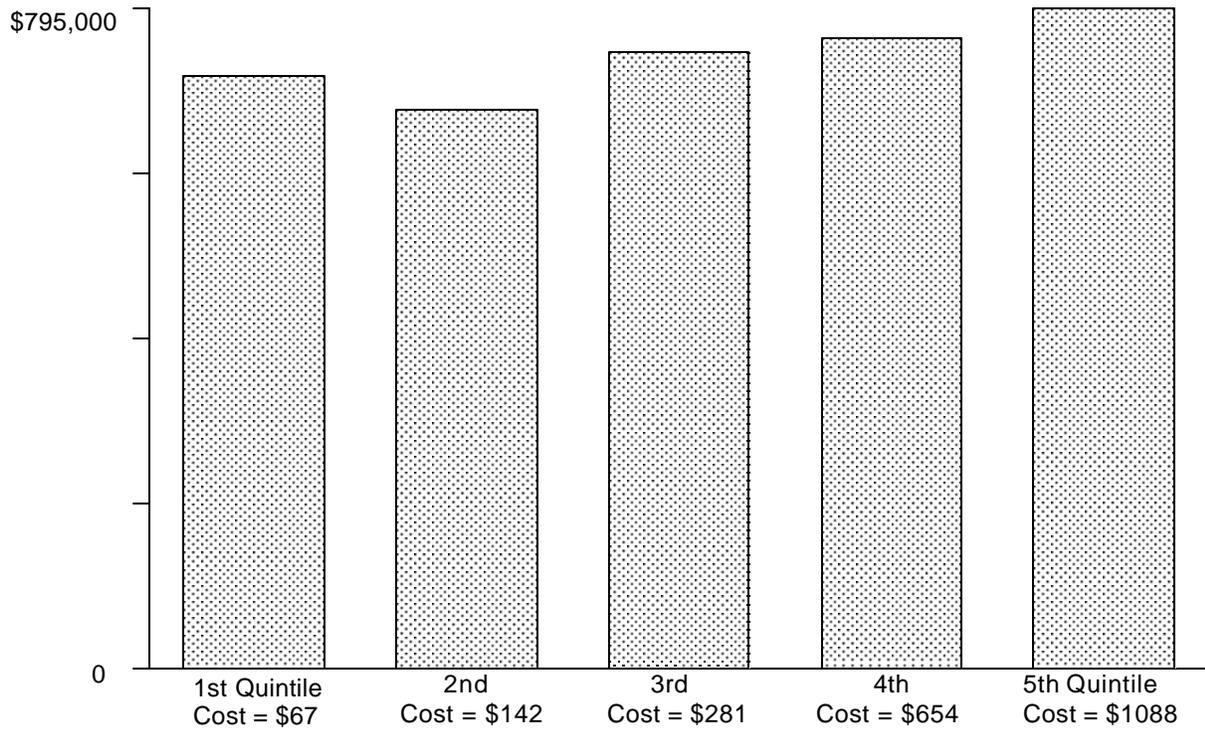


Figure 2A: Percent of Campaign Spending on Broadcast Media and Direct Mail as a Function of Media Prices, 1990-92

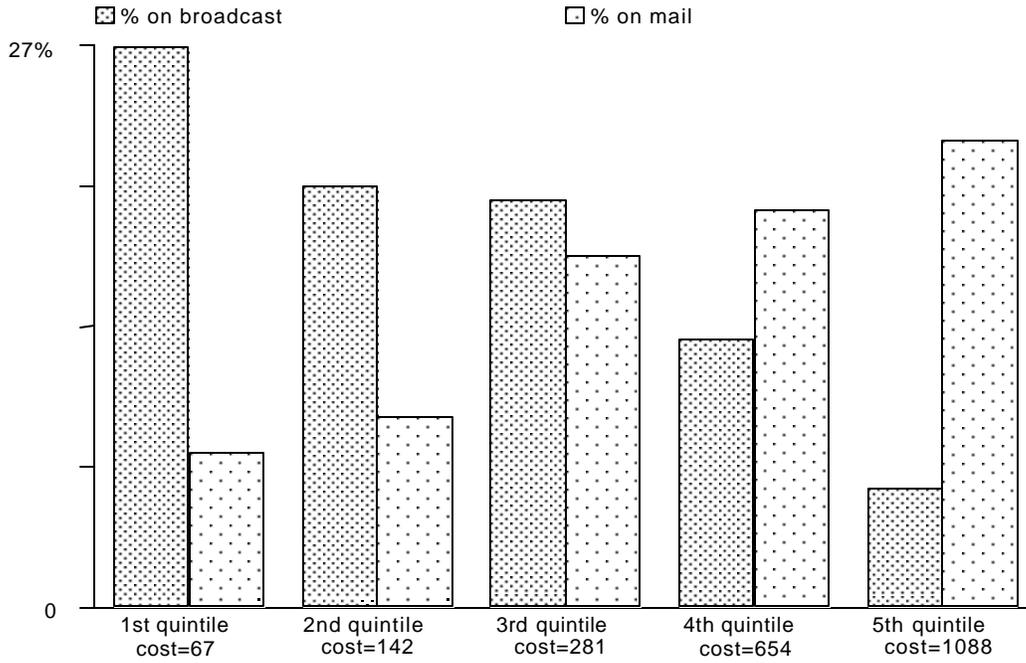


Figure 2B: Percent of Campaign Spending on Broadcast Media As a Function of Media Prices, 1972

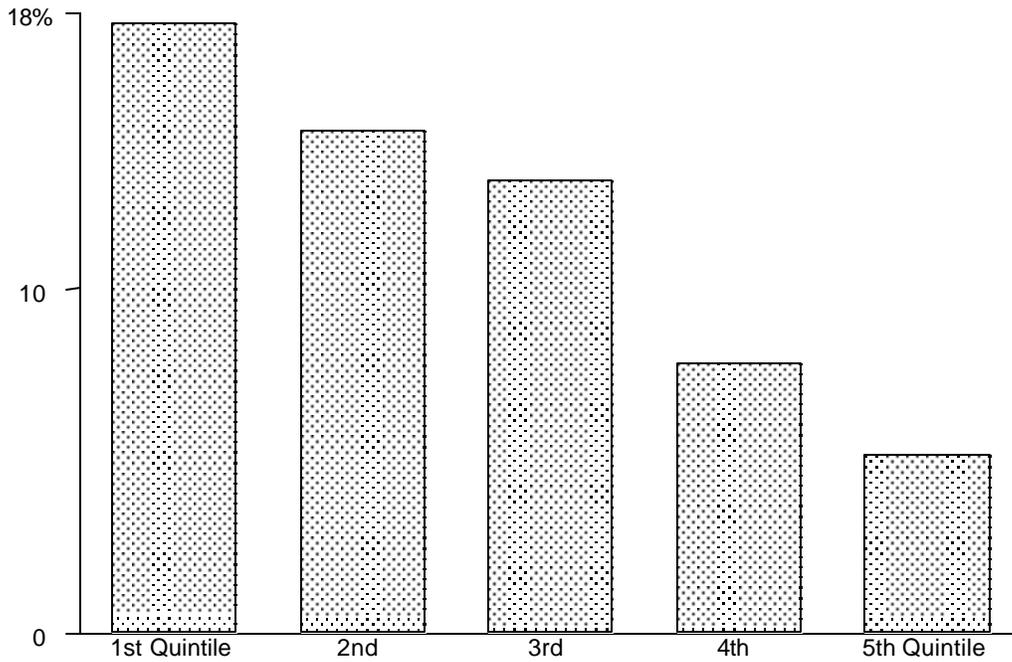


Table 1						
Summary Statistics on Campaign Spending and TV Advertising Costs (in nominal dollars)						
	1970-1972			1990-1992		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Total expenditures	90,245*	65,692*	84,929*	730,978	607,078	537,925
Total broadcast expenditures	11,646	6,701	13,811	187,468	105,525	226,959
Television	6,776	1,819	10,351	—	—	—
Radio	4,870	3,253	5,577	—	—	—
Mail expenditures	—	—	—	95,450	55,534	121,062
Television Cost Index	73	38	80	410	196	464
% Non-fragmented districts	51%	—	—	50%	—	—

Note: The observations are contested congressional races. Expenditures are the sum of the amount spent by the two major party candidates. Figures for 1970-1972 are in 1972 dollars, and figures for 1990-1992 are in 1992 dollars. To translate the 1972 dollars to 1992 dollars multiply the 1972 numbers by 3.363, which is the CPI index. The Television Cost Index equals the cost of a 30 second ad that reaches one percent of the market 1 rating point or the Cost Per Point.

\*Figures are for 1972 only

Table 2  
Regression Analyses Predicting Total Campaign Spending, 1972 and 1990-1992

	1972		1990-1992	
	Total Spending (in logs)	Total Spending (in logs) [Non- Fragmented Districts Only]	Total Spending (in logs)	Total Spending (in logs) [Non- Fragmented Districts Only]
TV Cost (in logarithms)	0.022 (0.040)	0.067 (0.055)	0.038 (0.026)	0.038 (0.033)
Democratic Vote Share	9.54** (0.95)	9.02** (1.44)	3.12** (1.15)	-2.00 (1.34)
Democratic Vote Share Squared	-9.50** (0.64)	-9.51** (1.20)	-3.88** (1.09)	-2.96** (1.24)
% College Educated (in logarithms)	—	—	0.53** (0.12)	0.56** (0.16)
Median Income (in logarithms)	—	—	0.08 (0.15)	-0.06 (0.21)
Challenger Quality	0.37** (0.11)	0.35** (0.15)	0.56** (0.07)	0.68* (0.09)
Open Seat (Dummy)	1.00** (0.12)	0.83** (0.21)	0.46** (0.07)	0.52** (0.09)
1992 (Dummy)	—	—	-0.13** (0.06)	-0.12 (0.08)
Constant	8.73** (0.23)	8.96 (0.42)	12.09** (1.58)	13.91 (2.25)
N	427	209	738	366
R <sup>2</sup>	.53	.47	.22	.32

Notes: Standard errors in parentheses. The dependent variable is the logarithm of the sum of campaign spending by the two major party candidates in each race. \* p < .05, \*\* p < .01.

Table 3				
Regression Analyses of Advertising Costs and Broadcast Spending, 1970-1972 and 1990-1992				
	1970-72		1990-92	
	OLS	Tobit	OLS	Tobit
TV Cost (in logarithms)	-0.84** (0.09)	-0.88** (0.10)	-0.71** (0.12)	-0.75** (0.13)
Democratic Vote Share	7.58 (4.09)	8.19 (4.39)	20.07** (5.50)	22.84** (6.05)
Democratic Voice Share, Squared	-12.58** (4.02)	-13.56** (4.32)	-26.49** (5.52)	-29.81** (5.80)
Challenger Quality	0.88* (0.23)	0.92** (0.24)	1.73** (0.32)	1.79** (0.35)
Open Seat (Dummy)	0.97** (0.28)	0.99** (0.24)	1.88** (0.32)	1.96** (0.35)
1972/1992 (Dummy)	-1.11** (0.46)	-1.20** (0.49)	0.65** (0.28)	0.72** (0.31)
% College Educated	—	—	.52 (0.59)	.50 (0.64)
Median Income (in logarithms)	—	—	-.65 (0.71)	-.65 (0.71)
Constant	14.00** (1.12)	14.32** (1.21)	17.41** (7.55)	16.96** (8.16)
N	698	698	738	738
R <sup>2</sup> (log likelihood)	.21	-1612.3	.25	-1855.2
Notes: Standard errors in parentheses. The dependent variable is the logarithm of the sum of the two major party candidates' spending on the respective activity. * p < .05, ** p < .01.				

Table 4  
Regression Analyses of Advertising Costs and Direct Mail  
Expenditures,  
1990-1992

	OLS	Tobit
TV Cost Index (in logarithms)	0.32** (0.11)	0.32** (0.11)
Democratic Vote Share	14.47** (4.79)	15.51** (5.08)
Democratic Vote Share, Squared	-16.12** (4.56)	-17.30** (4.84)
% College Educated (in logarithms)	1.16** (0.51)	1.24** (0.54)
Median Income (in logarithms)	1.18 (0.62)	1.17 (0.65)
Challender Quality	0.93** (0.28)	2.23** (0.89)
Open Seat (Dummy)	0.92** (0.27)	1.65** (0.30)
1992 (Dummy)	0.52** (0.25)	0.55** (0.26)
Constant	-6.26 (6.58)	-6.32 (6.95)
N	738	738
R <sup>2</sup> (log-likelihood)	.19	-1768.8
<p>Notes: Standard errors in parentheses. The dependent variable is the logarithm of the sum of the two major party candidates' spending on the respective activity. * p &lt; .05, ** p &lt; .01.</p>		

Table 5  
Television Costs and Electoral Competition

	Incumbent Vote Share (OLS) [contested 2-way races]	Incumbent Vote Share (OLS) (non-fragmented districts only) [contested 2-way races]	Probability Incumbent Wins (Probit) [contested races]	Probability Incumbent is Uncontested (Probit) [all races]
TV Cost Index (in logarhims)	-.002 (.002)	-.001 (.002)	-.035 (.052)	-.078* (.039)
Incumbent's Party's Share of Presidential Vote	.38** (.02)	.41** (.03)	6.11** (1.26)	3.14** (.60)
Incumbent's Party's Share of Presidential Vote, Squared	1.13** (.19)	1.15** (.26)	17.38* (8.73)	-3.20 (4.92)
Incumbent's Party's Share of Presidential Vote, Cubed	-1.2** (.52)	-1.36** (.63)	2.01 (64.53)	0.87 (11.89)
Incumbent in Southern Democrat	.014** (.005)	.016 (.009)	.36** (.16)	1.11** (.09)
Incumbent in Southern Republican	-.007 (.007)	-.008 (.010)	.27 (.28)	.70** (.13)
Constant	.63** (.013)	.59** (.016)	1.71** (.29)	-1.58** (.28)
N	2274	1164	2468	2616
R <sup>2</sup> (Log Likelihood)	.36	.46	-335.9	-836.69

Notes: Standard errors in parentheses. All models also include dummy variables for each year interacted with market. The subset of non-fragmented districts refers to those districts that lie entirely within one media market. Dummy variables for each year, interacted with party are included in all models. \* p < .05, \*\* p < .01.

Table A  
Sample Studies for 1990-1992 Analysis

	Mean	Std. Dev.	Min.	Max.
Log of total spending	13.28	.71	8.96	15.62
Log of spending on electric media	10.50	3.46	0	14.67
Log of spending on mail	10.17	2.90	0	14.15
Log of television cost index	6.56	1.27	4.00	8.74
Closeness	.14	.08	.00	.47
Closeness squared	.03	.03	.00	.22
Non Fragmented dummy	.50	.50	0	1
Open seat dummy	.15	.36	0	1
% college educated	.39	.12	.14	.73
Median income (in \$10,000)	2.95	.76	1.18	5.72

Notes: There are 738 observations for each variable.

Table B				
Sample Statistics for 1970-1972 Analysis				
	Mean	Std. Dev.	Min.	Max.
Log of television spending	5.64	4.15	0	11.05
Log of radio spending	6.49	3.50	0	11.15
Log of spending on electronic media	7.99	2.71	0	11.21
Log of television cost index	3.75	1.03	1.54	5.89
Closeness	.15	.09	.00	.45
Closeness squared	.03	.03	.00	.20
Non-Fragmented dummy	.52	.50	0	1
Open seat dummy	.14	.34	0	1

Notes: There are 699 observations for each variable.