

The Fox News Effect: Media Bias and Voting*

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Abstract

Does media bias affect voting? We address this question by looking at the entry of Fox News in cable markets and its impact on voting. Between October 1996 and November 2000, the conservative Fox News Channel was introduced in the cable programming of 20 percent of US towns. Fox News availability in 2000 appears to be largely idiosyncratic. Using a data set of voting data for 9,256 towns, we investigate if Republicans gained vote share in towns where Fox News entered the cable market by the year 2000. We find a significant effect of the introduction of Fox News on the vote share in Presidential elections between 1996 and 2000. Republicans gain 0.4 to 0.6 percentage points in the towns which broadcast Fox News. The results are robust to town-level controls, district and county fixed effects, and alternative specifications. We also find a significant effect of Fox News on Senate vote share and, to a lesser extent, on voter turnout. Our estimates imply that Fox News convinced 3 to 8 percent of its viewers to vote Republican. The evidence is most consistent with voters suffering from persuasion bias. We also discuss a model of rational voter updating that fits most facts.

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1 Introduction

Over 70 percent of Americans believe that there is a great deal or a fair amount of media bias in news coverage (Pew, 2004). Evidence of bias ranges from the topic choice of the New York Times (Puglisi, 2004) to the choice of think-tanks that the media refer to (Groseclose and Milyo, 2004). Media bias was even more prevalent in the late 19th and early 20th century (Gentzkow, Glaeser, Goldin, 2005).

This evidence, however, leaves open the question of whether media bias matters. Does media bias affect the political beliefs of the audience? Does it change voting behavior? These are key questions for economics and political science that the media bias literature has yet to address.

The answers to these questions also have implications for policy, such as for the regulation of media concentration. If media bias alters voting behavior, deregulation of media markets may have a large impact on political outcomes.

In this paper, we present empirical evidence on the impact of media bias on voting. We consider one of the most significant changes in the US media in recent years, the entry and expansion of the Fox News cable channel. We exploit the natural experiment induced by the timing of the entry of this conservative news channel in local cable markets and consider its impact on voting behavior.

We employ a difference-in-difference methodology and compare changes in the Republican vote share for towns where Fox News was introduced before the 2000 elections to towns where it was not present by 2000. We exploit three key elements of the Fox News quasi-experiment, the fast expansion, the geographical differentiation, and the widely-perceived conservative slant in its coverage.

The 24-hour Fox News channel was introduced by Rupert Murdoch in October 1996 in order to compete with CNN. Like CNN, it was offered only via cable and, to a smaller extent, via satellite. Thanks to an aggressive marketing campaign, a number of cable companies added Fox News to their programming over the next four years. The geographical expansion of Fox News was accompanied by a corresponding increase in its share of the audience. By June 2000, 17.3 percent of the US population reported watching Fox News regularly (Scarborough Research data)¹.

The nature of the cable industry induces substantial geographical variation in access to Fox News. Cable markets are natural monopolies with capacity constraints on the number of channels. The availability of Fox News in a town depends on whether the local cable company decides to add it to the programming, possibly at the expense of another channel. Cable companies in two neighboring towns often make different decisions, creating idiosyncratic variation in access. This allows us to compare voting patterns in neighboring towns which are

¹Details on this audience measure are presented in Section 2.

similar except for the availability of Fox News.

Even given the sudden expansion and popularity of Fox News, and the variation in Fox News diffusion, it is unclear whether the addition of any single media source could have a significant impact on political beliefs of voters. Fox News coverage, however, is unique among the television media. Groseclose and Milyo (2004) use data on citations of think-tanks to rank the political orientation of the media. They conclude that Fox News is significantly to the right of all the other mainstream television networks (ABC, CBS, CNN, and NBC). The introduction of Fox News into a cable market, therefore, is likely to have a systematic and significant effect on the available political information in that cable market. This is true whether Fox News represents the political center and the rest of the media the liberal wing, or Fox News represents the right and the rest of the media the middle.

In order to analyze the impact of Fox News on voting, we assemble a new panel data set of town-level election data and match it with town-level data on cable programming. The data set covers the federal elections in 1996 and 2000 for 28 US states. We compare the change in the Republican vote share between 1996 and 2000 for the towns that had adopted Fox News by 2000 with those that had not. The availability of Fox News in 2000 appears to be largely idiosyncratic. Conditional on a set of controls, the Fox News and the non-Fox News towns have indistinguishable political outcomes in 1996 and indistinguishable pre-1996 political trends.

Our main result is that Fox News had a sizeable impact on voting. The entry of Fox News increased the Republican vote share in presidential elections by 0.4 to 0.6 percentage points. Since Fox News in 2000 was available in about 35 percent of households, the overall effect of Fox News on the 2000 elections is estimated to be 0.15 to 0.2 percentage points, approximately 200,000 votes nation-wide. A vote shift of this magnitude is likely to have been decisive in Florida, and therefore in the 2000 elections. The results hold after the introduction of town-level Census controls, state, district, and county dummies, as well as controls for features of the cable system. The results do not differ for Republican or for Democratic States and are robust to a variety of alternative specifications.

We analyze whether Fox News affects voting also in races that they do not directly cover, like Senate races. This allows us to estimate whether the influence of Fox News is politician-specific or whether it extends to general political beliefs. We find that Fox News significantly increases the Republican vote share for Senate by 0.8 percentage points. The effect is not larger for the Senatorial race that Fox News covered heavily, the New York State race between Hillary Clinton and Rick Lazio.

We also consider whether the Fox News effect on Presidential elections occurs mainly because of voters switching party lines, or because the media convinces additional voters to turn out to the polls. We examine the effect of Fox News on two measures of voter turnout. Fox News significantly increased voter turnout with one measure of turnout, but not with the other. We take this as suggestive evidence that the entry of the new conservative media mobilized

new voters.

Overall, we find a positive and sizeable impact of Fox News on the vote share for Republicans. This empirical result, however, does not directly quantify the effectiveness of media bias in altering voting behavior. To estimate the persuasion rate of Fox News, we need to incorporate information on the size and the share of Republicans in the Fox News audience. We calibrate the media bias effect using data on the Fox News audience collected by Scarborough Research data. The Scarborough data allows us to compute the differential exposure to Fox News arising from availability of Fox News in local cable programming. The resulting point estimates imply that Fox News convinced between 3 and 8 percent of its non-Republican listeners to vote Republican. Exposure to the conservative coverage of Fox News, therefore, had a sizeable persuasion effect.

Our results can be compared with findings of large effects of media exposure on political beliefs.² Following Lazarsfeld, Berelson and Gaudet (1944), political scientists have widely used surveys to assess the impact of the media. A survey in this tradition (Kull et al., 2003) finds that Fox News watchers are 50 percent more likely to believe (erroneously) that weapons of mass destruction were found in Iraq by October 2003, compared to viewers of other networks. Gentzkow and Shapiro (2004) find large effects on beliefs about 9/11 of exposure to CNN vs. Al Jazeera in the Islamic world. In a separate strand of the literature, laboratory experiments involving exposure to political advertisements (Ansolabehre and Iyengar, 1995) find a large impact on beliefs and voting intentions elicited at the end of the experiment. While the media impact in our paper is not as large as some of the evidence in this literature, it is consistent with sizeable effects of the media on belief formation.

In Section 5 we consider three main interpretations of our results. The first explanation is that our finding is spurious and is induced by entry of Fox News in towns that were independently turning more conservative. Contrary to this explanation, we show that these towns were no more conservative nor were they becoming more conservative before the entry of Fox News. A second explanation is based on rational processing of information. To the extent that voters do not know the bias of Fox News, exposure to a conservative source of information will have a temporary effect on beliefs and voting. However, the Fox News effect appears to be permanent, if anything increasing over time. Finally, the findings are consistent with the theory that consumers underestimate the extent of media bias (Mullainathan and Shleifer, 2004) or are subject to persuasion bias (De Marzo, Vayanos, and Zwiebel, 2003). According to these theories, exposure to media slant systematically alters beliefs and voting behavior.

Our paper contributes to the evidence on shifts in voter turnout following media market expansion. George and Waldfogel (2004) show that, in areas where New York Times circulation

²Dyck and Zingales (2003) and Huberman and Regev (1999), among others, find that media coverage has a large impact on stock returns, even when arguably it conveys no new information.

expanded in the '90s, voter turnout in local election decreased among likely readers. Gentzkow (2004) finds a similar effect on voter turnout from the expansion of television. Prat and Stromberg (2004) find that the introduction of a private TV channel in Sweden increased voter turnout. We differ from these studies in that (i) we examine the introduction of a politically-slanted media, and (ii) we consider the media effects at a finer geographical level, the town. Like these authors, we find that the arrival of a new information source impacts voter turnout.

Finally, our paper relates to the field experiments on voter mobilization (Gerber and Green, 2000; Imai, forthcoming). These studies examine the impact of door-to-door campaigning, phone calling, and mass mailings on voter turnout. They estimate that canvassing and phone calling convinced about 5 percent of the subjects, while mailings have a much smaller effect. The most effective methods depend on personal contact with the voter. Our study obtains an effect of a similar magnitude even in the absence of personal contact.

The remainder of the paper is structured as follows. In Section 2 we provide an overview of the cable industry and of the history of the expansion of Fox News. In Section 3 we discuss the cable, election, and Census data. In Section 4 we present the empirical results, first on the Republican vote share and then on turnout. In Section 5 we present interpretations and calibrations of the results and in Section 6 we conclude.

2 Cable Industry and Fox News

Cable industry. The cable industry is a local natural monopoly. Once one company has paid the fixed cost to lay the cables in a town, it is uncommon for a second company to pay the fixed cost as well and enter the local market. In our sample, only ten percent of towns have two competing cable companies, and only one percent have three or more companies.

A second important feature of the cable industry is the technological constraint on the number of channels. Channels are rationed, and consumers have to take as given the programming choices of the cable company. This generates substantial variation across towns in the programming provided. Established channels like CNN are offered in almost all towns. New channels like Fox News, instead, have to convince local cable companies in order to be added, often at the expense of other channels being dropped.

Cable companies pay a monthly fee, typically between 10 cents and 40 cents per user, to the networks that they carry. Cable companies also pay fees to towns that grant them the right to broadcast. These fees are typically set as part of a 10- to 15-year contract between the cable company and the town. Finally, cable companies get their revenue from their monthly subscriber fees. The amount of the subscriber fee is partly regulated and varies between \$10 and \$60, depending on the cable company and on the tier of service.

Fox News history. In March of 1996, Rupert Murdoch, CEO of News Corp., announced

the introduction of a 24-hour-a-day cable news channel. The new channel, Fox News Channel (“Fox News” from here on), was created to compete with CNN. Prior to the launch of Fox News, news broadcasts took up a small share of programming of the Fox Broadcasting Corporation, which included channels like Fox Sports, Fox Entertainment, and Fox Family Channel. There was no broadcast news at a national level, and prime time programming on the various Fox channels did not include news. The main television sources for news before 1996 were the three major networks—ABC, CBS, and NBC—, in addition to CNN, distributed via cable.

The distribution of Fox News started on October 7, 1996 in a limited number of cable markets. In order to facilitate the spread of the new channel, the Fox Network made the unusual move of offering a one-time payment of \$10 per subscriber to cable companies that included Fox News in their programming. TCI was one of the first cable companies to sign a contract with Fox News, and carried the channel already in 1996. After TCI, other cable companies signed agreements with Fox News. After the initial contract was signed by one of these companies, the local affiliates of this company decided whether to include Fox News among the channels transmitted. The timing of the agreement affected the diffusion of Fox News among the affiliates. By November 2000, AT&T Broadband, which acquired TCI Cable in February of 1999, offered Fox News in 32.5 percent of the 1,955 towns served by AT&T Broadband affiliates (estimate in our sample of 28 US States). Adelphia Communications, instead, had a late agreement with Fox News. By November 2000 only 7.5 percent of the 1,592 towns in our sample served by Adelphia affiliates included Fox News in their broadcast.

In addition to 24-hour cable programming, Fox News distributes short news segments to local TV stations that are affiliates of Fox Broadcasting. However, the complete programming of Fox News is only available via cable and to 12 million satellite subscribers (in 2000).³

We focus on the year 2000, coinciding with the Presidential elections. By 2000, Fox News was already present in 20 percent of towns in our sample with cable service. Since the towns reached by Fox News in 2000 were more than twice as large as the remaining towns, Fox News was available to 34.3 percent of the population of these states.

Fox News content and programming. A key feature of Fox News for the purpose of this study is the significant differentiation in political coverage relative to CNN and the network news stations. Groseclose and Milyo (2004) use data on citations of think-tanks between 1998 and 2003 to rank the political orientation of news from different media sources. In particular, they impute an ADA score for the media source based on the ADA score of the members of Congress that refer to the same think-tanks.⁴ Their estimation results assign an imputed ADA score for Fox News *Special Report* of 39.7. This score is significantly lower than the score

³As of June 2000, 14,458,000 US households subscribe the a satellite service, but 2 million of these subscribers do not receive Fox News (Satellite Broadcasting and Communications Association, from <http://www.sbca.com/index.asp>).

⁴The ADA score is a measure of political orientation created by Americans for Democratic Action.

for any of the other mainstream television media (ABC, CBS, CNN, and NBC), with scores between 56.0 (CNN *NewsNight*) and 73.7 (CBS *Evening News*). The news coverage of Fox News, therefore, is assigned a more conservative record compared to all the other TV news channels. Moreover, Fox News coverage is estimated to be to the right of the average US elected official. The *mean score for US House members* is 50.

The study by Groseclose and Milyo may, if anything, underestimate the degree of political differentiation of Fox News. The two Fox News shows with the highest ratings, *The O'Reilly Factor* and *Hannity & Colmes*, are likely more conservative than the *Special Report*, which Groseclose and Milyo use to estimate the ADA citations. Fox News' top-rated show, *The O'Reilly Factor*, is named after its confrontational anchor, Bill O'Reilly. The show, which has aired since the beginning of Fox News, now occupies the popular 8pm spot. The show, which hosts mainly journalists and politicians, deals mostly with political topics. It is not meant to be unbiased; in fact, every segment of the show begins with a "Talking Points" memo, in which Bill O'Reilly shares his opinion on a leading news story. The second most popular Fox News programs is *Hannity & Colmes*, a talk show hosted by conservative Sean Hannity and liberal Alan Colmes. The more aggressive Hannity typically prevails over the calmer Colmes. This show has also been part of the programming of Fox News since 1996 and is aired at 9pm.

Fox News Audience. Mere availability of Fox News via cable is not enough to impact aggregate voting behavior. A necessary condition is that a substantial share of the audience were watching the Fox News channel by the year 2000. We use micro-level audience data from Scarborough Research⁵. Scarborough collects demographic variables and Nielsen-type television usage data from a representative panel of households⁶. In particular, two measures of audience are available. Respondents are classified as a part of the 'regular audience' of a TV channel if they answer yes to a question on whether or not they listened regularly to it in the three months prior to the survey. The 'diary audience' measure is tabulated from a week-long diary of TV watching in half-an-hour intervals. The diary audience measure for a channel is the share of people that watched it for at least one full half-an-hour block in the survey week.

In Column 1 of Table 1 we report summary statistics for the 105,201 respondents to the August 2000-March 2001 survey. The regular audience for Fox News is 17.3 percent, and 34.1 percent for CNN. According to this measure, by the year 2000, Fox News already had an audience half as large as that of CNN. The diary audience is not available for this sample.

In Table 1, we also present other summary statistics for the overall sample (Column 1), for

⁵We are very grateful to Matthew Gentzkow and Jim Collins for providing us with this data.

⁶In an earlier version of the paper we used a June 2000 Pew Survey to estimate the determinants of the Fox News audience, with different results: in that sample, the Fox News audience does not appear to be selected on political variables, while it is heavily selected on low-education. The Scarborough data has several advantages over the Pew Survey, including a substantially larger sample, zip-code identifiers for part of the sample, and a more precise measure of audience. We believe that at least part of the findings on the Pew data were likely due to confusion between the Fox News Channel and the Fox affiliates.

the regular Fox News audience (Column 2), and for the rest of the sample (Column 3). The regular Fox News audience is significantly more likely to also watch CNN regularly, probably reflecting a taste for television news. The education level and unemployment rate are comparable across the two samples, African Americans are somewhat more likely to listen regularly to Fox News, and Hispanics somewhat less likely. The Fox News audience is older (49.7 vs. 44.8 years) and more likely to be male (48.1 vs. 41.2 percent).

Turning to the political variables, 37.5 percent of the regular Fox News audience self-identify as Republican, 29.4 percent as Democrat, and the remainder as Independent. Among the non-Fox News audience, 26.2 percent identify as Republican and 32.4 percent as Democrat. Fox News listeners therefore are more likely to be Republican. This difference could be due either to sorting of Republicans into the Fox News audience, or to a persuasion effect of exposure to Fox News. Self-reported turnout also differs: 76.9 percent of the Fox News audience state that they always vote in Presidential elections, compared to 67.7 in the complementary group.

The survey also asks respondents whether they have cable and satellite. Over the whole sample (Column 1), 68.7 percent of the population reports having cable, while only 14.7 percent reports having access to satellite television. The share with cable is higher for the regular Fox News audience, while the share with satellite does not vary.

In Columns 4-6 we focus on a subsample for which ZIP-code of residence and the diary audience measure are both available. This sample was recorded mostly between March 2000 and February 2001 in five geographical areas⁷. We further restrict the sample to the 11,388 respondents living in one of the 568 towns which we can match to the sample of cable, Census, and election data used in Section 4. In Section 5.1, we use this sample to estimate the causal impact of Fox News availability via cable on the Fox News audience. In this sample (Column 4), the regular Fox News audience (16.6) is slightly lower than in the whole sample (Column 1), while the demographics are comparable to the whole sample, with the exception of a higher share of Hispanics. The diary audience is 3 to 5 times smaller than the corresponding regular audience: The Fox News diary audience measure is .035, compared to a regular audience measure of .166. Similarly, the CNN measure of audience is .103, compared to a regular audience of .353. The diary audience is likely to understate the real audience, since it excludes anyone who watched less television than usual during the survey week, as well as anyone who watched Fox News repeatedly but either never watched a full half hour block, or watched it but failed to report it. The regular audience measure is immune to most of the issues, since it covers a longer time period, the quarter, but it has the disadvantage of subjectivity.

In Columns 5 and 6 we compare the Fox News diary audience and the rest of the sample. The differences between these two samples resemble the ones found for the regular audience

⁷The data includes respondents residing in the DMAs of Chicago, Los Angeles (February 2000-January 2001), Pittsburgh (September 2000-August 2001), New York (March 2000-February 2001), and Washington (March 2000-February 2001).

measures (Columns 2 and 3), except for the political differences that are more accentuated and the difference in share of African Americans that reverses direction.

3 Data

Cable data. We obtained the cable data from a paper copy of the *Television and Cable Factbook*, 2001 edition (Warren, 2001). This edition contains information on all local cable companies as of November 2000, that is, right up to the 2000 elections. We did not collect information for the year 1996, since Fox News became available only in October 1996 and just for a limited number of markets. Each local cable company is identified by an account number, a company name, and an owner. A cable company serves up to 100 communities in the neighboring region, all listed in the entry.⁸ All companies offer a basic service package, and over a half also offer up to three expanded basic service packages. The basic service programming typically includes channels such as C-Span and the ABC Family Channel. In addition, cable companies are required by law to broadcast local television stations as part of their basic service. Expanded basic service, when available, offers additional channels such as Comedy Central and Fox Sports for an additional fee. Finally, cable companies sometimes offer à la carte channels such as HBO for a fee. In Appendix A we present an example of a local cable company entry and further details on the data.

For the 28 states for which we were able to obtain town-level election data (Appendix Table 1), we collected, for each local cable company, data on the communities served, as well as an estimate of the total number of channels (excluding the local TV channels) offered. We also recorded whether CNN and Fox News were included and, if so, as part of which contract (Basic or Expanded Basic). Overall, this data set covers 17,333 communities in 28 States. (Column 1 in Appendix Table 1). The states with the largest number of communities are California (1,110), Michigan (1,373), New York (1,465), Ohio (1,873), and especially Pennsylvania (2,667).

Election data. We collected voting data in the general elections for Presidential, US House, and US Senate races in all the US states which made the data available conveniently. For the year 2000 we mostly used data from the Federal Election Project (Lublin and Voss, 2001). For the year 1988, we used data from the Record of American Democracy (ROAD) project (King et al., 1997). For most of the other years we obtained the information from the Election Division of the Secretary of State of each state. An additional source of Presidential voting data for the years 1992, 1996, and 2004 was the Atlas Election data (Leip, 2004).

⁸In a few cases, the communities reached are indicated only as fractions of a county, such as "Alameda County (Western borders)". We exclude these communities, since we cannot match them to voting data. As long as these communities do not include other separately-listed towns in the cable data, their deletion will not bias the measure of cable offerings for the other towns. As a robustness check, we recompute the results in the paper excluding the 149 counties which include one such community where Fox News is available. All the results hold in this smaller sample of 8,262 towns.

Since cable information is available at the town level, we have generated a data set of voting information at the town level. The data collection differs depending on the state. A first group of states—California, Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont—directly provides voting information at the town level, which we employ. A second group of states—Minnesota, Michigan, Montana, Pennsylvania—provides precinct-level voting information with the town name explicitly specified for each precinct; in this case, we simply aggregated the voting information to the town level. Finally, a third group of states—Alaska, Alabama, Arkansas, Hawaii, Iowa, Idaho, Missouri, North Dakota, Ohio, South Carolina, Tennessee, Utah, Virginia, Wisconsin, and Wyoming—only has precinct-level voting information, with precinct names that usually include the name of the town, but sometimes not. Examples of precinct names are “02 - Concord Elem School” and “Hot Springs Retirement Hm”. For these states, we recover the town name from the precinct name by elimination of numbers and commonly used words, such as “School” and “Church”⁹. We then aggregate the voting data over precincts with the same town name in a given county and state. Twenty-eight US states fall into one of these groups and have voting information available for both years 1996 and 2000. These states form the sample used in this paper. The remaining states either do not have electronic precinct-level or town-level voting information available, or have numeric precincts with no precinct-to-town conversion table available from the state. The aggregation procedure generates 26,710 distinct localities (Columns 3 and 5 in Appendix Table 1). States like Alabama, Arkansas, and Tennessee have a very large number of localities because precinct names are often incorrectly identified as a locality by our code. (These fictitious towns drop out from the final sample, since they do not match to Census and election data.) Conversely, the New England states have a small number of exactly-identified towns because the election data is reported at the town level.

Census data. For the 28 US states for which election and cable data are available, we collect information on town-level demographics from the 1990 Census and the 2000 Census. More precisely, we obtain the demographic information at the level of “Place”, including “Remainders of Place”. In order to match the Census data with the election and cable data, we transform the place name and aggregate the Census data using the same code employed for the election and cable data. This procedure leaves 27,064 places with information from both the 2000 and the 1990 Census. The average population for these places (Column 7 in Appendix Table 1) varies from 719 in Alaska to 24,070 in California.

Matched data. We match the cable, the election, and the Census data by state, county, and place name. The match between the cable data and the election data reduces the overall sample to 10,479 localities. Of these towns, we drop 353 localities that fail to match to the Census data. We also drop 289 towns with multiple cable systems, one of which carries Fox News and one of which does not. For these towns, we do not know if cable consumers have

⁹The Stata ado file that translates precinct names into town names is available upon request.

access to Fox News. We also drop 324 towns with cable systems that do not offer CNN as part of the cable package. In these towns, cable offerings are typically limited to the re-programming of local cable channels. Their news programming, therefore, is not comparable to the programming of the other towns.¹⁰ Finally, we drop 257 towns with likely voting data problems: 238 towns for which the number of precincts generating the town-level vote count differs by more than 20 percent between 1996 and 2000¹¹; and 19 towns for which the total votes cast in the Presidential election differs by more than 100 percent between 1996 and 2000.

The final sample includes 9,256 towns, for which we have complete information on cable programming, voting behavior, and town-level demographics (Column 2 of Appendix Table 1). The states with the largest number of observations are Pennsylvania (1,716), Michigan (930), and Ohio (904), three of the largest States. The Census regions with the greatest number of towns are the Northeast (4,030 towns) and the Midwest (3,812 towns), followed by the South (725 towns) and the West (689 towns). Figure 1 shows the distribution of observations by county. In the majority of the 1,166 counties in the sample, no town offers Fox News. This is not surprising given that Fox News is available in only 20 percent of towns. Very few counties have Fox News available in all towns. The remaining 290 counties, in which a fraction of the towns offers Fox News, are spread widely over the 28 states.

The towns in the final sample cover 65.9 percent of the population of the 28 States in year 2000 (Column 11 of Appendix Table 1). The corresponding figure for the voting data is 68.6 percent for the year 2000 (Column 9) and 70.4 percent for the year 1996 (Column 10). The coverage rate is lower than 100 percent for three reasons: (1) we drop from the sample some of the largest cities like New York which have several cable systems spanning different parts of the city, only some of which carry Fox News, (2) in states like Missouri, Utah, and Virginia, some of the counties have numeric precinct names that we cannot match to town, and (3) in states like Arkansas and Alabama the complicated patterns of precinct names induce a poor match between the election data and the cable and Census data. The exclusion of large cities or certain counties and the presence of States with a large non-matching rate should not affect the results, as long as the non-match rate is not correlated with Fox News and voting data.

Appendix Table 1 allows us also to compare the characteristics of towns in the final sample and in the initial sample. The final sample has comparable Fox News availability relative to the initial sample (Columns 1 and 2), and somewhat lower Republican vote share in 2000 and 1996 (Columns 3 through 6) because the unmatched towns are more likely to be small and rural. Except for population, which is substantially higher in the final sample (Columns 7 and 8), the towns in the final sample are fairly comparable to the towns in the initial sample.

Variables. The indicator variable $d_{k,2000}^{FOX}$ equals one if all cable systems in town k in year

¹⁰The results do not vary if we include these towns.

¹¹We do not apply this criterion for Michigan, New Hampshire, New York, Ohio, Rhode Island, and Utah, since the numbering of precincts is not comparable across 1996 and 2000.

2000 include Fox News in either the Basic package or one of the Expanded Basic packages, and zero if no cable system includes Fox News. According to this measure, 20 percent of towns offer Fox News (Columns 1 and 2 of Appendix Table 1). In most states, the percentage varies between 10 percent and 30 percent, indicating substantial within-state variation in Fox News availability.

Appendix Table 1 also presents information on the voting data. For each town k in year t we denote the number of votes cast for the Republican candidate in race j ($j = \text{Pres., Sen., House}$) as $V_{k,t}^{R,j}$. Similarly, we denote the number of votes cast for the Democratic candidate as $V_{k,t}^{D,j}$ and the number of votes cast for other parties as $V_{k,t}^{O,j}$. We then define the two-party republican vote share $v_{k,t}^{R,j} = V_{k,t}^{R,j} / (V_{k,t}^{R,j} + V_{k,t}^{D,j})$. As a robustness check, we also use the all-party Republican vote share $v_{k,t}^{R,j} = V_{k,t}^{R,j} / (V_{k,t}^{R,j} + V_{k,t}^{D,j} + V_{k,t}^{O,j})$ and the right-wing vote share $v_{k,t}^{R,j} = (V_{k,t}^{R,j} + V_{k,t}^{\text{Ref},j}) / (V_{k,t}^{R,j} + V_{k,t}^{\text{Ref},j} + V_{k,t}^{D,j} + V_{k,t}^{\text{Green},j})$, where Ref. denotes the Reform party and Green denotes the Green Party. These variables are set to missing if the number of votes for either the Republican or the Democratic candidate is zero, usually reflecting an incumbent running unchallenged. Over the final sample, the average two-party Republican vote share is .470 in the year 1996 (Column 6) and .538 in the year 2000 (Column 4). Since these simple averages weight equally small and large towns, the average Republican vote share in our sample is higher than the population-weighted average.

The other political outcome we consider is voter turnout. Our main measure of turnout $t_{k,t}^j$ in town k for year t and race j is the log of the total votes cast: $t_{k,t}^j = \ln(V_{k,t}^{\text{TOT},j})$. The change in $t_{k,t}^j$ over time is the percent change in total votes. As an alternative measure of turnout $t_{k,t}^{j'}$, we use the ratio of the total votes cast in year t to the voting-age population of the town in the same year: $t_{k,t}^{j'} = V_{k,t}^{\text{TOT},j} / \text{Pop}_{k,t}$. For the year 1996, we compute the town-level population as a linear interpolation between the 1990 and the 2000 levels: $\text{Pop}_{k,1996} = \text{Pop}_{k,1990} + .6 * (\text{Pop}_{k,2000} - \text{Pop}_{k,1990})$. We drop towns with turnout $t_{k,t}^{j'}$ lower than 10 percent or larger than 100 percent, since these cases of extremely low or high turnout are likely due to imperfect matches between voting and Census data. Additionally, we drop towns in which the voting-age population $\text{Pop}_{k,t}$ changed by more than 300 percent between the 2000 and the 1990 Census, since this is due to imperfect matches across the two Censuses. The resulting sample includes 8,455 towns. The average town-level turnout according to this second measure is .580 in the year 2000 and .548 in the year 1996.

4 Empirical results

4.1 Summary statistics

Column 1 of Table 2 presents unweighted summary statistics on the 9,256 towns in our sample. In the year 2000, the average cable system included over 28 channels in the Basic and Expanded

Basic programming. The mean total population reached by a cable system is 78,124, with a median of 23,921. The mean town population in our sample is 9,612 people, with a median town population of 2,766. As Census controls, we include the share of the population with some college, the share of college graduates, the share of African Americans and of Hispanics, the unemployment rate, and the share of the town that is urban (shown in Table 1). In addition, we include the share of population in the 18-29, 30-44, 45-59, and 60+ age groups, the share of high school graduates, the share of males, the marriage rate, the employment and the unemployment rate, average income, the share of the population in armed forces, and the share of population living in an urban area (not shown). These controls are present both in their 2000 value, and in the change in their value between 1990 and 2000. Finally, the political variables are the two-party vote share for Republicans in Presidential elections (1996 and 2000) and the total turnout in Presidential elections measured as share of the voting-age population (1996 and 2000).

Columns 2 and 3 compare towns that offered Fox News in their programming (Column 2) and towns that did not (Column 3). Towns that offer Fox News have a substantially higher number of channels offered (44.5 versus 24.7). In addition, towns that offer Fox News are 25 percent larger, are served by cable companies that reach three times as many people, and are more likely to be urban.

More importantly, towns that offer Fox News by 2000 increased their Republican vote share by 5.9 percentage points (from 47.9 percent to 53.8 percent) between 1996 and 2000, while those that do not offer Fox News increased theirs by an even larger 7.1 percentage points (from 46.7 percent to 53.8 percent). These figures suggest a perverse Fox News effect. This result, however, does not weight towns by size, nor does it take into account differences between Fox and non-Fox towns in voting trends across geographical areas, demographic composition, and cable market structure. Below, we estimate the Fox News effect taking into account all these factors.

The overall sample of towns spans 235 congressional districts, out of 435 total in the US. Out of these 235 districts, 152 districts include both towns that offered Fox News and towns that did not. In our difference-in-difference specification with district fixed effects, the effect of Fox News is estimated on these districts. The median district in this subsample of 7,631 towns offers Fox News in 20.4 percent of towns (Columns 4 and 5 of Table 2). Towns in this subsample are smaller but have comparable political behavior and geographical distribution to the overall sample.

We also consider the distribution of Fox News at the finer geographical level of the county. Only 284 counties out of 1,156 incorporate both towns that have Fox News and towns that do not. Figure 1 shows the geographical distribution of these counties. In our empirical specification with county fixed effects, the effect of Fox News is estimated on the 3,890 towns in these counties. The median county in this subsample offers Fox News in 40.4 percent of

towns. Observations in this subsample are more concentrated geographically in the Northeast and less in the South. The Census demographics and the voting data are more similar across towns with Fox News (Column 6 of Table 2) and without Fox News (Column 7) than in the original sample. In this subsample, the towns are close geographical neighbors and therefore more closely matched on observables.

4.2 Selection

The identification in this paper relies on comparing towns with Fox News in their programming in the year 2000 to towns without Fox News. Since the assignment of towns into these two groups is not random, we investigate the nature of the selection. We focus in particular on sorting with respect to electoral outcomes, since this is a concern for a causal interpretation of our estimates. Fox News may well have expanded first in more Republican areas, since demand for its services is likely to be higher in these areas. If Republican vote share in 1996 is correlated with changes in vote share between 1996 and 2000, the difference-in-difference estimates are biased.

To investigate this and other forms of selection, we estimate which town-level variables predict the availability of Fox News in 2000. In particular, we include the Republican vote share in presidential elections in 1996 (that is, pre-Fox News), $v_{k,1996}^{R,Pres}$. We estimate a linear probability model¹²:

$$d_{k,2000}^{FOX} = \alpha + \beta v_{k,1996}^{R,Pres} + \Gamma_{2000} X_{k,2000} + \Gamma_{00-90} X_{k,00-90} + \Gamma_C C_{k,2000} + \varepsilon_k, \quad (1)$$

where $X_{k,2000}$ is the set of demographic controls from the 2000 Census, and $X_{k,2000-1990}$ is the set of changes in demographic controls between the 1990 Census and the 2000 Census (see Table 2). In addition to the demographic variables, we control for features of the cable system by including $C_{k,2000}$, deciles in the number of channels provided and in the number of potential subscribers. Since the precision of the vote share variable $v_{k,1996}^{R,Pres}$ is increasing in the total number of votes cast, we weight the observations by the total votes cast in 1996. The standard errors are clustered at the level of the local cable company. There are 2,992 companies in the sample, for an average of 3.09 towns per cable company.

We first estimate (1) with demographic controls and without cable controls ($\Gamma_C = 0$) (Column 1 of Table 3). In this specification, Fox News availability in 2000 is substantially higher in more Republican towns: a 10 percentage point increase in Republican vote share is associated with a 6.4 percentage points increase in Fox News penetration. Urban towns and more highly educated towns are more likely to have Fox News by year 2000. While these demographic variables are significant, they predict a relatively small share of the variance, with a R^2 of .0841. In Column 2, we add the non-parametric controls $C_{k,2000}$ for potential subscribers

¹²The results are similar with logit and conditional logit specifications.

in the cable system and for number of channels. The additional variables are highly significant and raise the R^2 to .4116. Larger cable systems are much more likely to offer Fox News. The introduction of the cable controls lowers the coefficient $\hat{\beta}$ on the Republican vote share by half.

In Column 3 we add US House district fixed effects to control for some of the geographic heterogeneity in Fox News penetration. With these additional geographic controls, specification (1) captures the determinants of within-district Fox News availability. In this specification, there is no evidence that towns with higher Republican vote share are more likely to offer Fox News: in fact, the estimated $\hat{\beta} = -.0649$ is negative, albeit insignificant. Given the precision of the estimates, we can reject substantial effects of pre-existing political composition on the availability of Fox News. Moreover, none of 14 demographic controls is significant at the 5% level. This suggests that, once we control for geographic heterogeneity and size of the cable system, availability of Fox News in 2000 is idiosyncratic. We obtain similar results when we introduce county fixed effects instead of congressional district fixed effects (Column 4).

In Column 5 we replicate the specification in Column 3 with the addition of $t_{k,1996}^{\text{Pres}}$, voter turnout in the 1996 Presidential election measured by votes cast as share of population. As with the case of the Republican vote share, voter turnout in 1996 is uncorrelated with the availability of Fox News in 2000. Finally, in Columns 6 and 7 we test whether voting trends predict the availability of Fox News. We add the change in the Republican vote share in Presidential elections between 1988 and 1992 to the specifications in Columns 3 and 4. Since town-level data for 1992 is hard to find, this reduces the sample to 3,722 towns. The time trend variable is not significant and switches sign between the two specifications.

Overall, the strongest determinant of the availability of Fox News in 2000 is the presence of a cable system with a large number of channels. Once we control for cable size and for geographical heterogeneity, the presence of Fox News in 2000 appears to be idiosyncratic. Fox News availability is not systematically related to demographics at the town level. Further, it is orthogonal to both the Republican vote share and voter turnout in the 1996 Presidential elections. Finally, it is also unrelated to the time trends in voting between 1988 and 1992.

4.3 Presidential elections

The baseline empirical specification is a standard difference-in-difference estimation. We compare towns where Fox News entered the cable market by the year 2000 with towns where Fox News was not available by the year 2000. We consider the impact of the entry of Fox News on the change in Republican vote share between 1996 and 2000. This strategy exploits the timing of the entry of Fox News. By November 1996, Fox News had been launched in only a few markets, and just one month before the elections. By November 2000, Fox News had an audience that was smaller, but nonetheless comparable to that of CNN. The specification is

$$v_{k,2000}^{R,\text{Pres}} - v_{k,1996}^{R,\text{Pres}} = \alpha + \beta_F d_{k,2000}^{\text{FOX}} + \Gamma_{2000} X_{k,2000} + \Gamma_{00-90} X_{k,00-90} + \Gamma_C C_{k,2000} + \varepsilon_k. \quad (2)$$

The controls are the same as in Table 3, that is, town-level demographics from the 2000 Census ($X_{k,2000}$), changes in demographics between the 1990 and the 2000 Census ($X_{k,00-90}$), and cable-level controls ($C_{k,2000}$). As in Table 3, the observations are weighed by votes cast in 1996 and the standard errors are clustered by local cable company.

We first estimate (2) with demographic controls, but without cable controls ($\Gamma_C = 0$) (Column 1 in Table 4). The average value of the dependent variable is .0680, indicating an average 6.80 percentage point increase of vote share for Republicans between the 1996 and the 2000 elections. The estimate for β_F , $\hat{\beta}_F = .0024$, implies that towns with Fox News became (insignificantly) more Democratic by two tenths of a percentage point relative to towns without Fox News. The change in vote share for Republicans is more positive in towns with fewer college graduates, fewer blacks and Hispanics, and higher unemployment in 2000. The change in vote share is also positively correlated with decreases in the number of blacks and decreases in the number of unemployed workers between 1990 and 2000.

Column 2 presents the results after adding controls for cable size $C_{k,2000}$. Controlling for population, a higher number of potential cable subscribers is strongly negatively correlated with Republican vote shares. The introduction of these controls renders the coefficient β_F on Fox News positive (.0076) and significant. The point estimate suggests that the introduction of Fox News increases the Republican vote share by 7 tenths of a percentage point, a sizeable effect.

We then introduce district (Column 3) and county fixed effects (Column 4). In these specifications the identification of β_F depends on the comparison of neighboring towns with and without Fox News. This specification controls for unobserved trends in voting that are common to a geographic area, and that may be correlated with Fox News availability. In Column 3, the comparison of neighboring towns takes place within a US House district, while in Column 4 it takes place within the finer geographical unit of the county. The estimate of the effect of Fox News is positive and significant in both cases, .0040 and .0066 respectively. In the specifications that best control for heterogeneity, availability of Fox News increases the Republican vote share by 4 to 6 tenths of a percentage point, a sizeable and precisely estimated effect.

In Columns 5 and 6, we replicate the results of Columns 3 and 4 after adding the change in Republican vote share between 1988 and 1992 as an additional control. Over this substantially smaller sample (3,722 observations), the effect of Fox News availability is less precisely estimated and smaller, but still significant in the specification with county fixed effects. Interestingly, the coefficient on 1988-1992 voting trends is close to zero with district fixed effects and only marginally significant with county fixed effects. Since previous voting trends are not significant predictors of current voting trends, we do not include them in the later regressions.

Robustness. In Table 5, we examine the robustness of the results of specification (2)

to a number of alternative assumptions. Throughout, we use the full set of controls as well as fixed effects for congressional districts, as in Column 3 of Table 4¹³. First, we regress vote share in 2000, $v_{k,2000}^{R,Pres}$, on vote share in 1996, $v_{k,1996}^{R,Pres}$, instead of taking their difference (Column 1)¹⁴. Then, we consider alternative specifications of the dependent variable to take into account the role of third parties, that is, Ross Perot in 1996 and, to a lesser extent, Ralph Nader in 2000. To the extent that towns with Fox News in 2000 may be more informed about third party candidates, neglecting third parties could lead to a bias in the estimates. Therefore, we consider as alternative dependent variables the all-party Republican vote share $v_{k,t}^{R,Pres} = V_{k,t}^{R,Pres} / (V_{k,t}^{R,Pres} + V_{k,t}^{D,Pres} + V_{k,t}^{O,Pres})$ (Column 2) and the right-wing-party vote share $v_{k,t}^{R,j} = (V_{k,t}^{R,Pres} + V_{k,t}^{Ref,Pres}) / (V_{k,t}^{R,Pres} + V_{k,t}^{D,Pres} + V_{k,t}^{Ref,Pres} + V_{k,t}^{Green,Pres})$ (Column 3). Across these specifications, the estimate for $\hat{\beta}_F$ is positive and significant and hovers around 4 tenths of a percentage point, as in the benchmark specification with district fixed effects.

Next, we consider alternative specifications of the Fox News variable $d_{k,2000}^{FOX}$. Exposure to Fox News is likely to be higher for towns in which Fox News is provided as part of the Basic cable package, rather than as part of the (more expensive) Expanded package. We add a dummy for towns with Fox News in the Basic package (Column 4). The estimated coefficient on this dummy is positive but insignificant. The lack of a significant difference likely reflects the fact that availability in the Basic package does not make much difference: two thirds of Basic subscribers purchase the Extended package whenever available. While this specification accounts for differences in exposure to different packages, it does not account for variation across towns in subscription rates to cable. To account for this, we compute $r_{k,t}$, the ratio of the number of Fox News subscribers to the number of potential subscribers. This ratio is zero for towns that do not offer Fox News.¹⁵ The coefficient on this ratio (Column 5), .006, is positive and marginally significant.

We also test the sensitivity of the results to alternative samples. To check the robustness to the weighting procedure, we run an unweighted regression restricted to the 2,995 towns with turnout of at least 2000 votes in 1996 (Column 6). To examine the potential impact of outliers, we trim the top and bottom 1 percent of the dependent variable (Column 7). In both of these specifications, the effect of Fox News is positive and significant.

Finally, we adopt the optimal trimming approach of Crump et al. (2005) (Column 8). This approach acknowledges that treatment and control group often differ in the observables, making the interpretation of treatment effects problematic. As a solution, it limits the sample to observations such that treatment and control observations have sufficiently similar controls. In our context, we implement the method by estimating a propensity score for the availability

¹³The results are similar with larger point estimates if we instead use fixed effects for county, as in Column 4 of Table 4.

¹⁴Including a polynomial function in the Republican vote share in 1996 does not affect the results.

¹⁵Since subscription information is missing for some towns, 42 towns drop out from this regression.

of Fox News based on the controls $v_{k,1996}^{R,Pres}$, $X_{k,2000}$, $X_{k,00-90}$, and $C_{k,2000}$. We then eliminate the 5,105 observations with propensity score smaller than .1 or larger than .9, the cutoffs suggested by Crump et al. (2005). In this optimally trimmed sample the treatment and control sample are more homogeneous. Over this sample, the point estimate for $\hat{\beta}_F$ is positive and significant and larger than in the baseline specification.

Interaction effects. In Table 6, we examine whether the effect of Fox News exposure on the Republican vote share depends on the geographical area or the previous vote share. The effect of Fox News is highest in the North East (Column 1 and 2), followed by the West. Perhaps surprisingly, the effect is lowest in the most Republican region, the South. These results, however, should be taken with caution in light of the small number of observations (725 towns) in the South.

Columns 3 through 6 confirm that the Fox News effect is not driven by the most Republican areas. In Columns 3 and 4 we split US States into thirds, depending on the 2000 Republican vote share in the State. We then examine if the Fox News effect is larger for swing States and for Republican States, relative to the omitted category of Democratic States. In Columns 5 and 6 we do a similar split, except that we divide by congressional district. The point estimates for the Fox News effect are lowest for the more Republican states and districts, even though these differences are not significant.

Magnitudes. Overall, across the different specifications, the entry of Fox News into a cable market by the year 2000 has a sizeable and significant effect on the Republican vote share in Presidential elections. The result is precisely estimated and robust to controls and alternative specifications. We now evaluate the magnitude of these effects on the election outcome. The benchmark estimates for the Fox News effect on the Republican vote share (Columns 3 and 4 of Table 4) have standard errors of .0015 and .0014. This implies fairly tight confidence intervals for the effect of Fox News: (.0010, .0070) with district fixed effects and (.0038,.0094) with county fixed effects. The findings, therefore, are potentially consistent with both a small (but positive) effect of Fox News, specially in the specification with district fixed effects, and a fairly large effect, close to one percentage point.

How large are these effects relative to shifts in vote share between 1996 and 2000? The average change in vote share between 1996 and 2000 for the 9,256 towns in our sample is 6.80 percentage points, with a median change of 6.45 percentage points. The standard deviation of this same measure is 5.40 percentage points. Therefore, our point estimates of the Fox News effect represent about one tenth of a standard deviation, with a lower bound of 1/50th and an upper bound of 1/7th of a standard deviation.

A second way to measure the effect is to estimate the number of votes that Fox News is likely to have shifted in the 2000 Presidential election. We assume that the treatment effect estimated in this paper holds for the 22 States for which we do not have data. The two

estimates for the average treatment effect of Fox News, as we said, are .40 and .66 percentage points. We take the midpoint, .53, to be the leading estimate. We assume that the diffusion of Fox News over the US is the same as in the 28 States in our sample, where it reaches 34 percent of the population. The point estimate of the effect of Fox News entry on the Republican vote share, therefore, is $.34 * (.0053) = .0018$, that is, .18 percentage points. Assuming that Fox News did not affect turnout substantially (see Section 4.6), Fox News shifted approximately 200,000 votes from the Democratic candidate to the Republican candidate.

To compute whether this vote shift may have decided the 2000 election, we compute the predicted number of votes that Fox News shifted in Florida. Using cable and Census data that we collected for Florida, we estimate that in 2000 Fox News was available in 23.2 percent of the towns and reached 32.8 percent of the Florida population. We assume that the Fox News effect on the 5,963,110 Florida votes cast is the same as the effect estimated in our sample. Under this assumption, the introduction of Fox News is likely to have shifted $.328 * (.0053) * 5,963,110 = 10,366$ votes, a number substantially larger than Bush’s official margin of victory of 537 votes.

While these estimates should be taken with caution, our point estimates suggest that the entry of Fox News may have contributed to the Bush victory in 2000. In this unusually close election, a moderate media effect may have tipped the election.

4.4 Timing of effects

So far, we have considered the impact of the availability of Fox News in 2000 on elections between 1996 and 2000. Now we consider alternative timings of the Fox News effect in two respects: (i) the availability of Fox News in 1998 and 2004; (ii) the effect on the change in vote share between 1992 and 1996, and between 2000 and 2004.

For a subset of the 28 states¹⁶, we collected the availability of Fox News in November 1998. Out of 6,672 towns in this subsample, 1,221 towns offer Fox News in 2000, and 666 towns offer it in 1998. The difference between 1998 and 2000 is almost exclusively due to introduction of Fox News in additional towns: only 29 towns that have Fox News in 1998 do not have it in 2000. In Columns 1 and 2 of Table 7, we re-estimate the specification (2) with the addition of the indicator variable $d_{k,1998}^{FOX}$ for the availability of Fox News in 1998. This allows us to test whether the Fox News effect increases or decreases in the length of exposure. The point estimate on this variable is negative and insignificant both with district fixed effects (Column 1) and with county fixed effects (Column 2). Length of exposure to Fox News does not appear to have a significant effect, but these results should be taken with caution given the smaller sample and the lower audience rates for Fox News in 1998.

We also collected the data on Fox News diffusion in March 2004 for the 28 states in our

¹⁶We collected this data for Alaska, California, Connecticut, Iowa (part of), Idaho, Massachusetts, Maine, Michigan, Minnesota, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

sample. In this period, Fox News is available in 4,844 out of 8,645 towns.¹⁷ In Columns 3 and 4, we re-estimate the specification (2) with the addition of the indicator variable $d_{k,2004}^{FOX}$ for the availability of Fox News in 2004. This is a placebo specification, since the introduction of Fox News after the year 2000 should not affect the change in vote share between 1996 and 2000. Indeed, the availability of Fox News in 2004 has no effect on the change in vote share.

In Columns 5 and 6 we take further advantage of the staggered nature of the Fox News introduction to address endogeneity issues. The endogeneity story holds that the impact of Fox News on the Republican vote share is due to the fact that Fox News was introduced in towns that were becoming more Republican anyway. While the findings in Table 3 address this concern, as an additional test we consider the 4,844 towns that got Fox News by 2004. We compare the vote share change between 1996 and 2000 for the towns that had Fox News already in 2000 with the towns that introduced it only after 2000. These two sets of towns should have similar political trends, but only the former set was exposed to Fox News before the 2000 elections. We find that availability of Fox News by 2000 has a positive effect, marginally significant ($\hat{\beta}_F = .0035$) with district fixed effects and significant with county fixed effects ($\hat{\beta}_F = .0055$). Again, voting trends do not appear to explain the Fox News effect on voting.

In Columns 7 through 10 we present variants of specification (2) with voting in different years as dependent variables. First, we estimate whether the introduction of Fox News in 2000 affects the change in Republican vote share between 2000 and 2004. The introduction of Fox News is associated with .2 percentage points higher vote share change, but the estimate is not significant (Columns 7 and 8). Similarly to the finding in Columns 1 and 2, we do not find evidence of a stronger effect of longer exposure to Fox News.

Second, we estimate whether the introduction of Fox News in 2000 predicts the vote share change between 1992 and 1996 (Columns 9 and 10). This is a placebo treatment: Fox News introduction in 2000 should not affect voting between years in which Fox News did not exist. We find no evidence of a positive correlation; in fact, the estimate in Column 9 is negative (not significant). This suggests that voting trends are unlikely to confound the effect of Fox News on contemporaneous voting.

4.5 Senate elections

The previous findings suggest that Fox News had a significant effect on the Republican vote share in the Presidential election. In this Section, we consider whether the effect of Fox News extends to local politics that is not covered by Fox News. This allows us to test whether the Fox News effect is candidate-specific, or is a general ideological shift.

Senate races are a good test in this respect, because they are a middle ground between the

¹⁷Similarly to what we did for $d_{k,2000}^{FOX}$, we exclude 281 towns which offer Fox News in 2004 in one, but not all of the cable systems in the town.

national Presidential elections and the local elections. A large majority of the Senate races fail to get national coverage, with few exceptions. In 2000, the Senate race that got the most coverage in Fox News by a wide margin was the Hillary Clinton-Rick Lazio race in New York State. The names of these two candidates got 99 overall mentions in the *O’Reilly Factor* and the *Hannity & Colmes* show in the two months prior to the 2000 elections, with most mentions critical of Hillary Clinton¹⁸. All the other Senate candidates running in the 2000 campaign combined got a total of 73 mentions, with Joe Lieberman, who was typically mentioned because of his Vice-Presidential race, getting the lion’s share of these mentions.

We examine whether Fox News impacted the vote share in Senate elections, and whether it had a differential effect for the Clinton-Lazio race. We denote by d_{NY} the indicator variable for the New York Senate races. We estimate the specification

$$v_{k,2000}^{R,Sen} - v_{k,1996}^{R,Pres} = \alpha + \beta_F d_{k,2000}^{FOX} + \phi_F d_{k,2000}^{FOX} * d_{NY} + \Gamma_{2000} X_{k,2000} + \Gamma_{00-90} X_{k,00-90} + \Gamma_C C_{k,2000} + \varepsilon_k, \quad (3)$$

where the coefficient β_F indicates the effect of Fox News on Senate races other than New York, and ϕ_F indicates the differential effect for the featured New York race. Notice that the dependent variable is the difference of the Senatorial vote share in 2000 and the Presidential vote share in 1996. This specification maximizes sample size: the voting data for the 1994 Senatorial election is available for only 5 States, not including New York state.

Table 8 reports the results. The effect of Fox News on non-featured Senate races is large and significant, .0081 with district fixed effects (Column 1) and .0086 with county fixed effects (Column 2). Compared to this effect, the effect of Fox News on the New York race is not significantly different, although the standard errors on the coefficient $\hat{\phi}_F$ are relatively large.

In Columns 3 and 4, we re-estimate specification (3) on the optimally trimmed subsample defined in Section 4.3. Over this subsample, the estimated impact of Fox News on Senate races is smaller and not significant. Interestingly, in the specification with District fixed effects the coefficient $\hat{\phi}_F$ is positive and significant ($\hat{\phi}_F = .0147$), consistent with Fox News having a stronger effect on the New York Senate race. The result does not replicate with county fixed effects (Column 4), where $\hat{\phi}_F$ is positive but insignificant. In Column 5, we use the ratio of population subscribing to Fox News. The result is very similar to the baseline estimate, suggesting a substantial impact of Fox News on all Senate races. In Column 6, we do not find any significant difference in the Fox News Senate effect for more Republican and more Democratic districts. Finally, the results using the all-party vote share (Column 7) parallel the benchmark finding in Column 1.

¹⁸Two excerpts from the “O’Reilly Factor” of 10/31/2000: “Now, I am saying to THE FACTOR viewers, and everyone else who hears what we have to say on this program, that Mrs. Clinton has trouble with honesty”; “Mr. Gore does have some honesty issues about campaign finance, but they pale beside the deceit factory the Clintons have set up”.

In the last two columns (Columns 8 and 9) we re-estimate (3) using the difference in two-party Republican vote share between the 2000 and the 1994 Senate Races as dependent variable. This allows us to compare two races both featuring the 2000 incumbent, at the cost of reducing the sample to 2,037 towns in 5 States (Maine, Michigan, Minnesota, Montana, and Rhode Island). Over this small sample, we find large and significant effects of Fox News in the order of one percentage point. While these estimates are imprecise, they corroborate the finding of a substantial effect of Fox News on Senate races.

Overall, we find evidence of an effect of Fox News also for non-featured races such as Senate races. We fail to find a stronger effect for highly emphasized races. These results suggest that media exposure induces a generalized ideological shift, as opposed to a candidate-specific effect.

4.6 Voter turnout

The main finding in the above Sections is that the introduction of Fox News had a significant impact on the Republican vote share. The effect of Fox News on the Republican vote share could occur for two reasons. First, Fox News entry led to Democratic voters shifting to voting Republican. Second, Fox News attracted new Republican voters. We use measures of turnout to test these hypotheses.

The baseline regression for voter turnout is:

$$t_{k,2000}^{\text{Pres}} - t_{k,1996}^{\text{Pres}} = \alpha + \beta_F d_{k,2000}^{\text{FOX}} + \Gamma_{2000} X_{k,2000} + \Gamma_{00-90} X_{k,00-90} + \Gamma_C C_{k,2000} + \varepsilon_k, \quad (4)$$

where $t_{k,t}^{\text{Pres}}$ is the log total votes in town k in year t : $t_{k,t}^j = \ln(V_{k,t}^{\text{TOT},j})$. The change in this measure over time is the percent change in total votes cast.

Table 9 shows the results. The average change in log votes is .0925, implying a 9.25 percent higher turnout in the much tighter Presidential race of 2000. The estimate for β_F is positive but insignificant with district fixed effects, and is large and significant with county fixed effects. This second estimate ($\hat{\beta}_F = .0169$) suggests that fox News increased turnout by 1.69 percent, a large effect. Over the optimally trimmed subsample (Columns 3 and 4), the Fox News effect is positive and significant with both sets of fixed effects, with a larger point estimate for $\hat{\beta}_F$ with county fixed effects. The Fox News coefficient $\hat{\beta}_F$ is positive and marginally significant using the ratio of subscribers to Fox News (Column 5). Column 6 shows that the Fox News effect on turnout occurred mostly in the more Democratic areas.

In Columns 7 and 8 we replicate the results of the benchmark specifications of Columns 1 and 2 for the second measure of turnout, the ratio of the total votes cast in year t divided by voting-age population in the same year. With this alternative measure, we fail to detect a significant effect of Fox News on voter turnout.

Overall, there is some evidence that Fox News entry into a market mobilized new voters, but the evidence is not as clear-cut as for the effect on vote share.

5 Interpretation

This paper studies the effects on voting of one of the most dramatic shifts in media orientation in past years. We find that the introduction of a (comparatively speaking) conservative news channel increases the vote share of Republican presidential candidates by .4 to .6 percentage points. We also detect a significant effect on Senate races, and find some evidence of an effect on turnout to the polls.

We now evaluate the magnitude of the Fox News effect and put forward possible interpretations of our empirical findings. In particular, what share of the Fox News audience was convinced by Fox News to vote Republican? Clearly, Republican voters or people that were not watching Fox News could not have been convinced. From an econometric standpoint, we do a calculation of treatment on the treated using the average treatment effect.

5.1 Calibration

Consider two towns: town F which has Fox News available via cable, and town N which does not. We denote by μ_F the share of towns of type F , by r the share of Republican voters, and by d the share of Democratic voters before the introduction of Fox News. Consequently, $(1 - r - d)$ denotes the share of non-voters. (For simplicity, we neglect third parties) Following the evidence that the two types of towns have similar political outcomes in the pre-Fox News period (Section 4.2), we assume that r and d are the same in towns F and N .

After the nation-wide introduction of Fox News, a fraction e of the town population is exposed to the new channel. The exposure parameter e is higher in town F than in town N , that is, $e_F > e_N \geq 0$. We allow exposure e_N in town N to be positive because, for example, of the availability of satellite (which broadcasts Fox News) in both towns. For simplicity, we also assume that the exposure e_j to Fox News in town j is independent of political affiliation. That is, we assume that Republicans are as likely as Democrats or non-voters to watch Fox News when available. While the evidence in Table 1 suggests that Republicans are more likely to watch Fox News, we cannot rule out that this captures the causal convincing effect of Fox News, rather than differential exposure e_j by party.

We assume that Fox News convinces a fraction f of its audience to vote Republican. The parameter f therefore captures the causal effect of Fox News on voting. This persuasion rate f applies both to Democratic voters and to non-voters, that is, to a fraction $(1 - r)$ of the Fox News audience e_j , where $j = F, N$. Overall, therefore, the Fox News introduction increases the fraction of people voting Republican by $(1 - r)e_j f$. The two-party vote share v_j in town j , with $j = F, N$, therefore, equals

$$v_j = \frac{r + (1 - r)e_j f}{r + d + (1 - r - d)e_j f}. \quad (5)$$

(Notice that turnout increases since Fox News induces a fraction f of the non-voters to vote Republican.) Using expression (5) for towns F and N , we can now solve for the difference in vote share between town F and town N , $v_F - v_N$. This difference corresponds to the estimated $\hat{\beta}_F$ in the data. We obtain

$$v_F - v_N = (e_F - e_N) f \frac{d}{t_N t_F}$$

where $t_j \equiv (r + d + (1 - r) e_j f)$ is the turnout in town j . It follows that the fraction of people convinced f is

$$f = \frac{v_F - v_N}{e_F - e_N} \frac{t_N t_F}{d}. \quad (6)$$

Expression (6) is easily interpretable. The numerator of the first term, $(v_F - v_N)$, is the change in Republican vote share due to the availability of Fox News via cable. The larger the shift in votes, the higher is the impact of Fox News, f . The denominator, $(e_F - e_N)$, normalizes the change in the vote share by the differential exposure to Fox News in towns F and N . The larger the exposure rate, the smaller is the causal effect f for given vote shift $(v_F - v_N)$. Finally, the higher the turnout variables t_F and t_N , and the lower the Democratic share d , the smaller is the pool of people that was not already voting Republican, and therefore the larger is the impact of Fox News for a given $(v_F - v_N) / (e_F - e_N)$.

We can estimate the persuading power f of Fox News provided that we estimate the terms on the right-hand side of expression (6). We start by evaluating the political variables t_N , t_F , and d . We estimate these variables as sample averages, weighted by total votes cast in 1996. We use weighted averages both for consistency with the regression results and because the weighted averages better approximate the individual-level expression (5). In the robustness section, we discuss alternative estimates based on unweighted averages. The average weighted turnout in 2000 as a share of the voting-age population is .555, and it is very similar in Fox News and non-Fox News towns. We therefore assume $t_F = t_N = .555$ ¹⁹. We estimate the percentage of Democratic voters d as the product of the turnout rate t and the average weighted Democratic two-party vote share in 2000 in our sample, that is, $.555 * (1 - .444) = .308$. This implies $t_N t_F / d = .998$ and therefore $f = .998 * (v_F - v_N) / (e_F - e_N)$.

We estimate the difference in exposure $(e_F - e_N)$ using the micro-level Scarborough data on television audiences described in Section 2. We use the subsample of 11,388 respondents for whom we observe the ZIP code of residence, and whom we can match by ZIP code to the cable data on availability of Fox News (Table 1, Columns 4-6). We use the ‘diary audience’ measure, since the ‘regular audience’ measure is not available for most of this sample. We aggregate the data at the town level to maximize the similarity to the specifications in the rest of the paper. For each town k , we compute a town-level measure of the Fox News audience, e_k^{FOX} , as the fraction of town residents that belong to the Fox News audience.

¹⁹The average self-reported turnout in the Scarborough survey is 67.7 percent, but self-reported turnout is known to overstate the actual figure.

We estimate

$$e_k^{FOX} = \alpha + \beta_F d_{k,2000}^{FOX} + \Gamma_{2000} X_{k,2000} + \Gamma_{00-90} X_{k,00-90} + \Gamma_C C_{k,2000} + \varepsilon_k, \quad (7)$$

where k indicates one of the 568 towns in the sample. The regression is weighted by the number of respondents in a town, and the standard errors are clustered at the level of the local cable company. The coefficient β_F is the differential Fox News diary audience due to Fox News availability via cable in the town.

Table 10 shows the results. In the specification without controls (Column 1), the availability of Fox News by the local cable provider induces 2.7 percent ($\hat{\beta}_F = .027$) additional town residents to watch Fox News for at least a full half hour per week. The estimate is significant and sizeable. The estimated $\hat{\alpha} = .0262$ indicates that, in towns where Fox News is not available via cable, 2.62 percent of the residents still watch Fox News at least a full half hour per week. About half of the Fox News audience, therefore, watches Fox News in ways other than via cable, possibly via satellite. This finding could also be due to measurement error in our measure of Fox News availability via cable. In either case, this suggests that our estimates of the impact of Fox News on voting understate the overall Fox News effect. The empirical results in Section 4.3 capture exclusively the impact on voting of Fox News availability via cable. In addition, Fox News availability via satellite or in other ways is likely to have a similar impact.

The estimates of the exposure effect in Column 1 do not control for demographic and geographic differences between towns that adopt Fox News and towns that do not. They also do not control for features of the cable system. In Columns 2 and 3 we re-estimate specification (7) adding the Census, cable, and geographic controls used in the body of the paper. The estimated differential exposure rates are $\hat{\beta}_F = .0353$ with congressional district fixed effects and $\hat{\beta}_F = .0232$ with county fixed effects. Interestingly, introducing control variables and district fixed effects increases the estimated exposure rate $\hat{\beta}_F$ relative to the estimate in Column 1. Even after introducing controls that absorb 67 percent of the variation in Fox News availability (Table 3, Column 3, $R^2 = .6711$), the remaining variation is still a strong predictor of the Fox News audience.

Columns 4 through 6 present robustness checks. In the optimally trimmed subsample (Column 4) the estimated exposure rate is still positive and significant, as is the estimate using the Fox News subscription ratio (Column 5). Finally, as a placebo test, we check that availability of Fox News via cable in 2004 does not increase audience rates in 2000 (Column 6). Indeed, the coefficient on Fox News availability in 2004 is not significantly different from 0 and, in fact, negative.

In Columns 7, 8, and 9 we replicate the specifications in Columns 1, 2, and 3 using the CNN audience as dependent variable. This specification provides a placebo treatment. Availability of Fox News via cable should not, to a first approximation, increase the audience for CNN, since CNN is available in all towns in our sample. In the specification without controls (Column 7),

availability of Fox News increases CNN audience by .0251, compared to an average audience for CNN of .0947. Once we introduce controls (Columns 8 and 9), the availability of Fox News via cable no longer forecasts the CNN audience. The audience data, therefore, passes this second placebo test.

We construct our measures of exposure rate $e_F - e_N$ using the coefficient $\hat{\beta}_F$ estimated in Columns 2 and 3. Ideally, we would like to estimate $e_F - e_N$ using the Scarborough measure of regular audience, since the Scarborough diary measure is likely to underestimate the actual audience. Since we cannot estimate model (7) for the regular audience variable, we multiply the estimates of $\hat{\beta}_F$ by a conversion rate between the ‘regular audience’ measure and the diary audience measure. We compute the conversion rate as the ratio between regular audience and diary audience for CNN from Table 1, Column 4, that is, $35.3/10.3 = 3.42$. (The ratio would be higher if we used the audience numbers for Fox News) Using this conversion rate, the estimates for the exposure differential are $\hat{e}_F - \hat{e}_N = 3.42 * .0353 = .1207$ with district fixed effects and $\hat{e}_F - \hat{e}_N = 3.42 * .0232 = .0793$ with county fixed effects.

We now combine the estimates of the political variables (t_F, t_N, d) and of the audience ($e_F - e_N$) with the estimates of the voting impact ($v_F - v_N$) from Table 4 to obtain a predicted persuasion rate f . We compute two sets of estimates, with congressional fixed effects and with county fixed effects. With congressional district fixed effects we obtain $\hat{f} = .998 * (.0040/.1207) = .0331$, that is, Fox News convinced 3.31 percent of its listeners that were not already voting Republican to do so. With county fixed effects, we derive $\hat{f} = .998 * (.0066/.0793) = .0831$, that is, Fox News convinced 8.31 percent of its audience.

Robustness. We now assess the robustness of the calibrations to alternative assumptions. The calibration is robust to different estimates of the political parameters t_N , t_F , and d . If, instead of using weighted town averages, we use the unweighted averages of turnout ($t = .583$) and Democratic vote share ($d = .583 * (1 - .538)$), we obtain $t_F t_N / d = .583 / .462 = 1.261$. With this ratio, we obtain convincing rates $\hat{f} = 1.261 * .0332 = .042$ (with district fixed effects) and $\hat{f} = 1.261 * .0833 = .1050$ (with county fixed effects). These effects are in the ballpark of the benchmark estimates.

The key element in the calibrations is the measure of selective exposure $e_F - e_N$. Above, we have argued that the regular audience measure is likely to be the best measure. An alternative approach is to take the diary measure as the measure of audience. This alternative calibration leads to convincing rates f that are 3.42 times larger, that is, $\hat{f} = .1132$ (district fixed effects) and $\hat{f} = .2842$ (county fixed effects). These estimates would indicate very substantial persuasion effects of the media.

Conclusion. The benchmark estimates of the persuasion rate f imply that Fox News convinced 3 to 8 percent of its audience to shift its voting behavior to conform to the media bias. These estimates are consistent with a sizeable persuasion effect of the media. Alternative

estimates using the diary audience measure lead to estimates of the persuasion rate between 11 and 28 percent, corresponding to very large media effects.

5.2 Explanations

The above benchmark calibrations indicate that Fox News convinced 3 to 8 percent of the audience to vote Republican, a substantial media effect. We consider three explanations for this finding: one statistical, one rational, and one non-rational. The first is that Fox News selected into towns which were already becoming more Republican but there was no actual effect of Fox News itself. The second is that viewers learn about media bias slowly, relying substantially upon new media sources as an unbiased source in the short run. The third story is that voters are subject to persuasion bias.

1. **Endogeneity Bias.** A first explanation suggests that the media effect on voting is a spurious correlation. Towns where Fox News entered were trending more Republican and would have voted more conservatively, independent of Fox News entry. Thus, the Fox News variable is picking up correlation with underlying political trends. However, we have shown that, conditional on geographic and cable controls, vote shares in 1996 and voting trends in 1988-1992 do not predict the introduction of Fox News (Table 3). Moreover, the Fox News introduction does not predict political voting trends between 1992 and 1996, or between 2000 and 2004 (Table 7). Fox News only affects vote share changes between 1996 and 2000. Therefore, it is unlikely that Fox News selected into towns which were otherwise trending Republican.

2. **Rational Learning.** A second explanation holds the results as causal and interprets them in light of a rational learning model. When Fox News first entered, viewers were unsure of the political biases of Fox News. Therefore, they did not fully take into account Fox's conservative slant and were persuaded in the short run to vote more Republican. This learning effect, however, should be temporary. Eventually, as voters become aware of Fox News' political slant, they should adjust their updating techniques to filter out Fox's bias. Instead, we do not find any evidence that the Fox News effect reverts in the 2000-2004 period (Table 7), if anything it gets larger. In addition, it is unlikely that the audience was unaware of the Fox News political orientation. Since 1996, Fox News had "Fair and Balanced" as its motto, in contraposition to CNN's presumed liberal bias.

3. **Persuasion Bias.** A third interpretation provides a behavioral interpretation to the results. The viewers do not fully take into account the bias of the media source and are therefore subject to persuasion upon exposure. This may be due to voters naively underweighting the degree of media bias (Mullainathan and Shleifer, 2005) or being subject to persuasion bias (DeMarzo, Vayanos and Zwiebel, 2001).

Overall, we find the data to be most consistent with the last interpretation, that voters

do not fully optimally process the media information. A version of a rational learning model, however, can also explain most findings. The two interpretations have very different long run predictions. Learning predicts that Fox News's political effect will be temporary. Persuasion Bias predicts that Fox News may have permanently altered voting patterns in the United States.

6 Conclusion

This paper studies the impact of media bias upon voting. We consider one of the most dramatic changes in the US media in recent years, the sudden expansion of the Fox News cable channel from 1996 to 2000. We exploit the natural experiment induced by the timing of the entry of the Fox News channel in local cable markets. We estimate the impact of the availability of Fox News in 2000 on the Republican vote share and on voter turnout. This provides a test of whether exposure to media bias affects political beliefs and voting.

We find a sizeable effect of exposure to Fox News on voting. Towns with Fox News have 0.4 to 0.6 percentage points higher Republican vote share in the 2000 Presidential elections. A vote shift of this magnitude is likely to have been decisive in Florida, and therefore in the 2000 elections. We also find an effect on vote share in Senate elections and, to a lesser extent, on turnout to the polls. The effect on Senate elections implies that the Fox News impact is not candidate-specific, but rather it extends to general political beliefs.

Based on this evidence, we evaluate the persuasion impact of the media. We estimate the size of the Fox News audience in 2000 using micro-level audience data. The audience estimates imply that exposure to Fox News induced 3 to 8 percent of its non-Republican viewers to start voting for the Republican party. The size of this effect is consistent with the findings of field experiments on voter mobilization, and are lower than most laboratory evidence of media effects.

The leading interpretation of the results is that viewers underestimate media bias and are subject to persuasion. We also consider the alternative possibility that voters may be rational and respond temporarily to a new media source whose slant they do not know. We discuss the possibility that pre-existing trends in voting drive the results, but find no evidence supporting this interpretation.

This paper leaves a number of open questions on the impact of Fox News and, more generally, of media bias. First, while we analyze the extensive margin of voting, we do not consider the effect of Fox News on the intensity of political convictions of Republican voters. In ongoing research, we consider the impact on the intensive margin of campaign contributions. Second, we have not directly examined the impact of Fox News on policy-making. While a vote shift toward Republicans is likely to induce a change in policy (Lee, Moretti, and Butler, 2004), direct evidence of this effect would be interesting. Finally, we hope that more evidence on the

introduction of other sources of media bias, such as local papers and radio talk shows, will complement the evidence in this paper.

A Appendix A

Cable data. The source for the cable data is the *Television and Cable Factbook 2001* (referring to year 2000). A typical entry from the Pennsylvania state section is:

“KING OF PRUSSIA (Pa)—Comcast Cable. Counties: Delaware and Montgomery. Also serves: Colledgeville, Graterford, Graterford Prison, Gulph Mills, Perkiomen, Rahns, Schmenksville, Skipjack, Swedeland, Trappe, Upper Merion Twp., Upper Providence Twp. (Delaware County), Wayne. Account No: PA0050. [...]

Basic Service: Subscribers 17,692. [...] Programming (received off-air): WFMZ-TV (I); WLVT-TV (P) Allentown; WGTW (I) Burlington; KYW-TV (C); [...]. Programming (via satellite): C-SPAN; EWTN; Fox Family Channel; MSNBC; QVC; TBS Superstation; The Box. [...] Fee: \$35 installation (aerial); [...] \$21.95 monthly. [...]

Expanded Basic Service: Subscribers 17,138. Programming (via satellite): A&E; AMC; Bravo; CNBC; CNN; Comedy Central; Discovery Channel; E!; ESPN; ESPN 2; Headline News; History Channel; Lifetime; MTV; Nick at Nite; Nickelodeon; Sci-Fi Channel; TLC; TNN; TNT; TWC; The Sports Network; USA Cable; VH1. Fee: N.A.

Pay Service 1: Pay units: 845. Programming (via satellite): Cinemax. Fee: \$15 installation; \$8.95 monthly.

Pay Service 2: [...]

Ownership: Comcast Cable Communications Inc.”

Each entry is listed by State under the name of the principal community, which is the town where a given local cable company’s business office is located. The additional communities reached by the local cable company are listed in alphabetical order, typically without indication of the county, which is listed separately (the number of counties is rarely more than three). In the example above, the communities listed belong to one of two counties (Delaware and Montgomery) in Pennsylvania. Since we do not know which belongs to which, we generate all possible combinations of town and county, except in cases where the county is explicitly listed as in “Upper Providence Twp. (Delaware County)”. When we match the cable data with the Census and election data, the fictitious town-county combinations drop out. (The town-county combination that do not match to either election or Census data are already dropped from Column 1 in Appendix Table 1) The only possibility of error in the match is if there are two towns with the same name in the multiple counties listed, but in this case we expect the county to be explicitly listed next to the town name.

The Basic Service description lists all the local television stations that the cable company rebroadcasts under the heading “Programming (received off-air)”. We disregard these local stations. We estimate instead the number of cable channels broadcast in the “Programming (via satellite)” section. In order to save coding time, the total number of channels is estimated counting the number of lines listing cable channels in the Basic and Expanded Basic 1, 2, and 3 Services. The estimated number of channels follows by multiplying this number by 2.5, a conversion rate estimated on a subsample of 40 cable companies. Over this subsample, a regression of actual number of channels on forecasted number of channels yields an R^2 of .95 and a coefficient of 1.

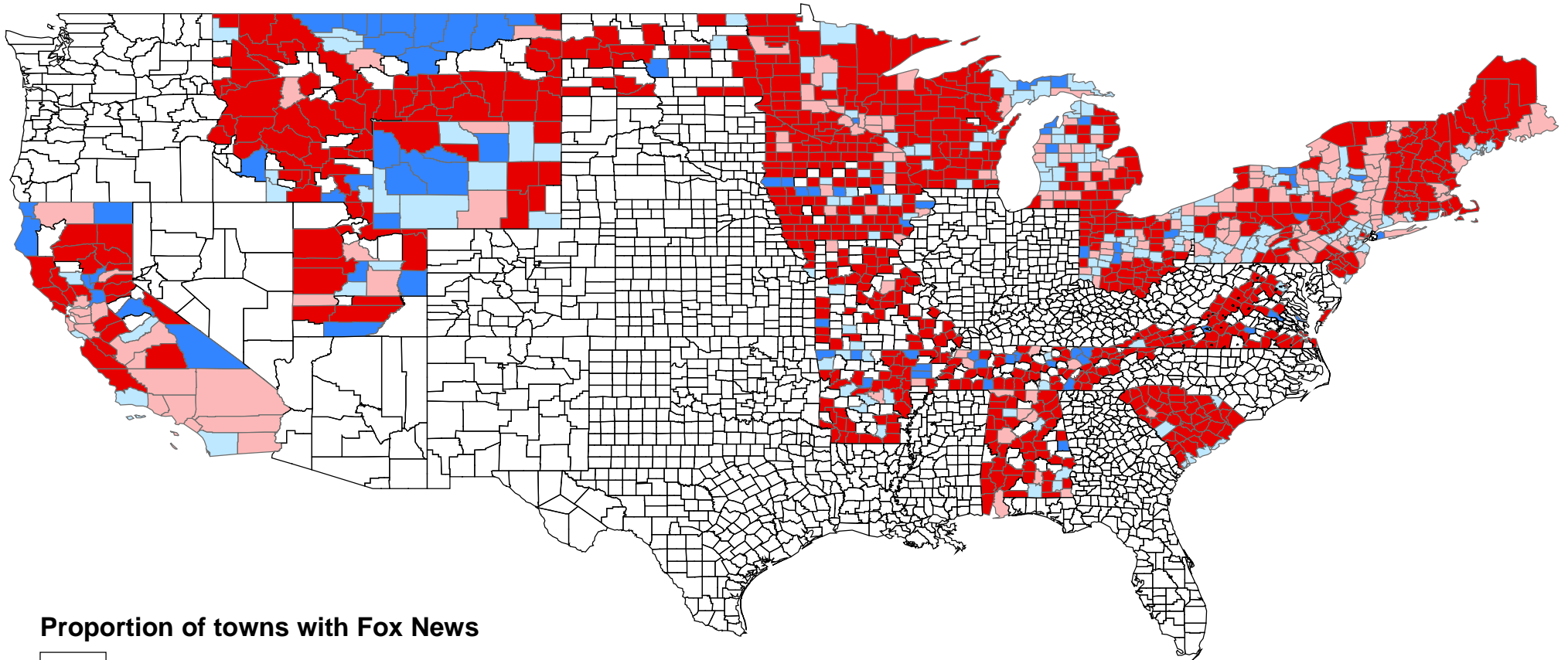
Finally, it is worth noting that sometimes the number of subscribers or (as in this case) the price of the subscription is missing.

References

- [1] Akerlof, George and Rachel Kranton, "Economics and Identity," *Quarterly Journal of Economics*, Vol. 115, pp. 715-753, 2000.
- [2] Ansolabehere, Stephen, Erik Snowberg, and James Snyder, "Television and the Incumbency Advantage in U.S. Elections", mimeo, 2004.
- [3] Ansolabehere, Stephen, and Shanto Iyengar, *Going negative: How Attack ads shrink and polarize the electorate*. New York: Free Press, 1995.
- [4] Baron, David, "Persistent Media Bias", mimeo, 2004.
- [5] Crump, Richard K., V. Joseph Hotz, Guido W. Imbens, and Oscar Mitnik. "Moving the Goalposts: Addressing Limited Overlap in Estimation of the Average Treatment Effects by Changing the Estimand", mimeo, 2005.
- [6] De Marzo, Peter, Dimitri Vayanos, and Jeffrey Zwiebel, "Persuasion Bias, Social Influence, and Uni-Dimensional Opinions", *Quarterly Journal of Economics*, Vol. 118, pp. 909-968, 2001.
- [7] Dyck, Alexander and Luigi Zingales. "The Media and Asset Prices" Working Paper, Harvard Business School, 2003.
- [8] Gentzkow, Matthew. "Television and Voter Turnout", mimeo, GSB Chicago, 2004.
- [9] Gentzkow, Matthew and Jesse Shapiro. "Media, Education, and Anti-Americanism in the Muslim World", *Journal of Economic Perspectives*, Summer 2004.
- [10] Gentzkow, Matthew and Jesse Shapiro. "Media Bias and Reputation", January 2005.
- [11] George, Lisa and Joel Waldfogel, "Does the New York Times Spread Ignorance and Apathy?", *American Economic Review*, forthcoming.
- [12] Gerber, Alan S. "Does Campaign Spending Work?" *American Behavioral Scientists*, vol. 47, pp.541-74, 2004.
- [13] Gerber, Alan and Donald Green, "The Effects of Canvassing, Telephone Calls and Direct Mail on Voter Turnout: A Field Experiment", *American Political Science Review*, pp. 653-663, 2000.
- [14] Groseclose, Timothy and Jeff Milyo, "A Measure of Media Bias", mimeo, 2004.
- [15] Hamilton, James T. *All the News That's Fit to Sell*, Princeton: Princeton University Press, 2004.
- [16] Huberman, Gur, and Tomer Regev. "Contagious Speculation and a Cure for Cancer: A Nonevent that Made Stock Prices Soar", *Journal of Finance*, Vol. 56, pp. 387-396, 2001.
- [17] Imai, Kosuke. "Do Get-Out-The-Vote Calls Reduce Turnout? The Importance of Statistical Methods for Field Experiments." *American Political Science Review*, forthcoming.
- [18] King, Gary, Bradley Palmquist, Greg Adams, Micah Altman, Kenneth Benoit, Claudine Gay, Jeffrey B. Lewis, Russ Mayer, and Eric Reinhardt. "The Record of American Democracy, 1984-1990," Harvard University, Cambridge, MA, Ann Arbor, MI: ICPSR, 1997.

- [19] Kull, Steven; Clay Ramsay; Stefan Subias; Evan Lewis; Phillip Warf. *Misperceptions, The Media, And The Iraq War*. The PIPA/Knowledge Networks Poll, 2003.
- [20] Lazarsfeld, Paul, Bernard Berelson, and Hazel Gaudet, *The People's Choice*, Duell, Sloan & Pearce, New York, 1944.
- [21] David S. Lee, Enrico Moretti, and Matthew J. Butler "Do Voters Affect or Elect Policies? Evidence from the U.S. House", *Quarterly Journal of Economics*, 119(3), pp. 807-860, 2004.
- [22] Leip, David. *Dave Leip's Atlas of U.S. Presidential Elections*. <http://www.uselectionatlas.org>, 2004.
- [23] Levitt, Steve. "Using Repeat Challengers to Estimate the Effect of Campaign spending on Election Outcomes in the U.S. House", *Journal of Political Economy*, Vol. 102, pp. 777-798, 1994.
- [24] Lord, C. G., L. Ross, and M. R. Lepper, "Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence," *Journal of Personality and Social Psychology*, Vol. 37, 2098-2109, 1979.
- [25] David Lublin and D. Stephen Voss. 2001. "Federal Elections Project." American University, Washington, DC and the University of Kentucky, Lexington, KY.
- [26] Mullainathan, Sendhil, and Andrei Shleifer. "The Market for News", *American Economic Review*, forthcoming.
- [27] News Corp., *Annual Report 2000*, 2001.
- [28] Pew Report, "News Audiences Increasingly Politicized", April 2004.
- [29] Prat, Andrea and Stromberg, David. "State Television and Voter Information", mimeo, 2004.
- [30] Puglisi, Riccardo. "Being the New York Times: the Political Behavior of a Newspaper", mimeo, 2004.
- [31] Stromberg, David, "Mass Media Competition, Political Competition, and Public Policy", *Review of Economic Studies*, Vol. 71, pp. 265-284, 2004.
- [32] Warren, Albert, *Television and Cable Factbook 2001*, Warren Communication News Editor, 2001.
- [33] Zaller, John, "The Myth of Massive Media Impact Revived." in *Political Persuasion and Attitude Change*, Diana C. Mutz, Richard A. Brody, and Paul M. Sniderman Editors, 1996, University of Michigan Press.

Figure 1. Fox News Availability by County, 2000.



Proportion of towns with Fox News

- No Data
- proportion = 0
- $0 < \text{proportion} < 0.5$
- $0.5 \leq \text{proportion} < 1$
- proportion = 1

Note: Proportion for each county is calculated as the ratio of number of towns with Fox News available via cable to total number of towns in the county. Alaska and Hawaii are also in the data set, but are not included on the map due to space constraints.

Table 1. Determinants of Fox News Audience (Scarborough Data)

Sample:	Summary Statistics					
	All Survey Respondents			Matched Zip-Coded Subsample		
	All	Fox News Regular Audience	Fox News Non-Regular Audience	All	Fox News Diary Audience	Fox News Non-Diary Audience
(1)	(2)	(3)	(4)	(5)	(6)	
Cable Variables:						
Fox News (Regular Audience)	0.173 (0.379)	1 .	0 .	0.166 (0.372)	0.591 (0.493)	0.146 (0.353)
Fox News (Diary Audience)				0.035 (0.185)	1 .	0 .
CNN (Regular Audience)	0.341 (0.474)	0.619 (0.486)	0.283 (0.451)	0.353 (0.478)	0.603 (0.490)	0.341 (0.474)
CNN (Diary Audience)				0.103 (0.304)	0.350 (0.478)	0.094 (0.292)
Demogr. Variables:						
Some College	0.214 (0.410)	0.219 (0.414)	0.213 (0.410)	0.215 (0.411)	0.206 (0.405)	0.215 (0.411)
College Graduate	0.344 (0.475)	0.356 (0.479)	0.341 (0.474)	0.386 (0.487)	0.452 (0.498)	0.384 (0.486)
African American	0.097 (0.296)	0.111 (0.314)	0.094 (0.292)	0.084 (0.277)	0.020 (0.140)	0.086 (0.281)
Hispanic	0.107 (0.309)	0.081 (0.273)	0.112 (0.315)	0.180 (0.384)	0.094 (0.293)	0.183 (0.387)
Unemployment	0.022 (0.147)	0.018 (0.134)	0.023 (0.149)	0.023 (0.151)	0.005 (0.070)	0.024 (0.153)
Age	45.679 (16.633)	49.744 (16.995)	44.827 (16.429)	44.506 (16.443)	51.727 (16.362)	44.241 (16.386)
Male	0.424 (0.494)	0.481 (0.500)	0.412 (0.492)	0.427 (0.495)	0.526 (0.500)	0.423 (0.494)
Political Variables:						
Republican	0.282 (0.450)	0.375 (0.484)	0.262 (0.440)	0.267 (0.442)	0.536 (0.499)	0.257 (0.437)
Democrat	0.319 (0.466)	0.294 (0.455)	0.324 (0.468)	0.335 (0.472)	0.159 (0.366)	0.342 (0.474)
Voter Turnout	0.693 (0.461)	0.769 (0.421)	0.677 (0.468)	0.677 (0.468)	0.819 (0.386)	0.672 (0.470)
Subscriptions:						
Cable	0.687 (0.464)	0.784 (0.411)	0.666 (0.471)	0.754 (0.431)	0.886 (0.318)	0.749 (0.434)
Satellite	0.147 (0.354)	0.138 (0.344)	0.149 (0.356)	0.104 (0.305)	0.122 (0.327)	0.103 (0.304)
No. Observations:	N = 105201	N = 18223	N = 86968	N = 11388	N = 403	N = 10985

Notes: Data from Scarborough Research. Columns 1 through 3 show mean and standard deviation of variables in the whole US sample (August 2000-March 2001, Column 1) and in the subsamples of regular Fox News audience (Column 2) and non-regular Fox News audience (Column 3). Columns 4 through 6 show mean and standard deviation of variables in the subsample with ZIP code data that matches to a town in the cable and election sample (February 2000-August 2001, Column 4) and in the subsamples of diary Fox News audience (Column 5) and non-diary Fox News audience (Column 6). Regular Fox News audience is an indicator variable for response to "Do you watch regularly the Fox News Channel?". Diary Fox News audience is an indicator variable for whether the respondent watched at least a full 30 minute block of Fox News in the survey week.

Table 2. Summary Statistics

	All Sample			Mixed Districts		Mixed Counties	
	All Towns (1)	Fox News in 2000 (2)	No Fox in 2000 (3)	Fox News in 2000 (4)	No Fox in 2000 (5)	Fox News in 2000 (6)	No Fox in 2000 (7)
Cable Variables:							
Number of Channels	28.60 (14.64)	44.52 (15.98)	24.73 (11.31)	44.39 (16.14)	24.41 (11.57)	45.00 (16.06)	26.05 (11.81)
Potential Subscribers	78124 (149015)	163622 (246661)	57384 (103131)	140457 (198871)	47373 (91025)	167006 (254926)	70832 (116337)
Voting Variables:							
Vote Share in 1996	0.470 (0.125)	0.479 (0.125)	0.467 (0.125)	0.482 (0.124)	0.475 (0.124)	0.477 (0.125)	0.475 (0.127)
Vote Share in 2000	0.538 (0.130)	0.538 (0.129)	0.538 (0.130)	0.541 (0.128)	0.550 (0.126)	0.533 (0.129)	0.536 (0.133)
Turnout in 1996	0.551 (0.154)	0.552 (0.147)	0.551 (0.155)	0.552 (0.146)	0.553 (0.152)	0.554 (0.138)	0.553 (0.145)
Turnout in 2000	0.583 (0.159)	0.581 (0.153)	0.584 (0.160)	0.582 (0.151)	0.585 (0.157)	0.586 (0.141)	0.586 (0.152)
Census Variables for 2000:							
Population	9612 (32661)	11516 (32427)	9150 (32703)	10564 (31000)	7157 (23261)	11872 (33678)	12266 (37678)
Some college	0.257 (0.064)	0.259 (0.063)	0.257 (0.064)	0.258 (0.064)	0.257 (0.066)	0.258 (0.063)	0.254 (0.067)
College	0.195 (0.133)	0.220 (0.147)	0.189 (0.129)	0.216 (0.145)	0.178 (0.118)	0.224 (0.150)	0.210 (0.146)
African American	0.033 (0.095)	0.031 (0.082)	0.034 (0.098)	0.028 (0.073)	0.027 (0.083)	0.030 (0.084)	0.026 (0.072)
Hispanic	0.031 (0.073)	0.035 (0.072)	0.030 (0.073)	0.032 (0.067)	0.027 (0.065)	0.035 (0.074)	0.041 (0.096)
Unemployed	0.051 (0.035)	0.051 (0.035)	0.052 (0.035)	0.051 (0.035)	0.052 (0.035)	0.050 (0.036)	0.053 (0.038)
Urban	0.406 (0.438)	0.537 (0.447)	0.374 (0.429)	0.518 (0.446)	0.331 (0.416)	0.556 (0.446)	0.441 (0.447)
Census Variables, Change from 1990 to 2000:							
Population	704 (3457)	772 (3775)	687 (3375)	681 (3499)	584 (2727)	805 (3974)	934 (4461)
Some college	0.040 (0.048)	0.035 (0.046)	0.041 (0.049)	0.036 (0.046)	0.044 (0.049)	0.035 (0.046)	0.034 (0.047)
College	0.037 (0.042)	0.041 (0.044)	0.036 (0.042)	0.041 (0.045)	0.035 (0.041)	0.042 (0.045)	0.041 (0.043)
African American	0.004 (0.026)	0.003 (0.025)	0.004 (0.026)	0.003 (0.024)	0.003 (0.024)	0.003 (0.024)	0.004 (0.024)
Hispanic	0.011 (0.026)	0.013 (0.030)	0.010 (0.025)	0.012 (0.027)	0.010 (0.025)	0.013 (0.029)	0.011 (0.028)
Unemployed	0.012 (0.038)	0.011 (0.037)	0.013 (0.039)	0.011 (0.037)	0.013 (0.040)	0.012 (0.038)	0.012 (0.036)
Urban	0.082 (0.238)	0.079 (0.239)	0.083 (0.238)	0.082 (0.241)	0.080 (0.240)	0.084 (0.247)	0.086 (0.242)
No. of observations	N = 9256	N = 1807	N = 7449	N = 1734	N = 5897	N = 1548	N = 2342

Notes: Standard deviations in parenthesis. The subset "Fox News in 2000" is formed by the towns with availability of Fox News in 2000 in the cable package. The subset "No Fox in 2000" is the complementary groups of towns. Towns with district variation are towns in districts in which there is at least one town that does not get Fox News and one town that does. Towns with county variation are similarly defined except at the county level. Potential Subscribers is defined as the total voting-age population of the towns reached by a cable provider. Republican two-party vote share is the votes received by the republican candidate in the presidential election divided by the votes received by both the republican and democrats candidates. Voter turnout is measured by the total number of voters that turned out in a given town divided by the voting-age population of the town. Observations unweighted.

Table 3. Selective Penetration of Fox News in 2000, Linear Probability Model

	Dep. Var.: Fox News Availability in 2000 in Cable System						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pres. Republican Vote Share in 1996	0.6429 (0.2321)***	0.348 (0.1689)**	-0.0649 (0.0931)	-0.0981 (0.1011)	-0.1079 (0.0987)	0.0624 (0.1310)	0.0264 (0.1309)
Pres. Turnout in 1996					0.0459 (0.0557)		
Pres. Rep. Vote Share Change 1988-1992						0.2342 (0.2489)	-0.2016 (0.2379)
Census controls:							
Population 2000 (10,000s)	-0.0019 (0.0008)**	-0.0029 (0.0008)***	-0.0002 (0.0013)	-0.0008 (0.0010)	0.0006 (0.0013)	-0.0013 (0.0014)	-0.0007 (0.0012)
Some College 2000	-0.18 (0.3854)	0.3332 (0.3080)	0.0346 (0.2032)	-0.2838 (0.2224)	0.0889 (0.2156)	-0.0382 (0.2813)	0.0003 (0.3055)
College Grad. 2000	0.756 (0.2929)***	0.653 (0.3154)**	0.0268 (0.1670)	-0.0839 (0.1780)	0.017 (0.1800)	-0.3004 (0.2084)	-0.0636 (0.2038)
African American 2000	0.5624 (0.2119)***	0.4163 (0.1827)**	-0.0071 (0.1152)	0.0723 (0.1226)	0.0196 (0.1211)	-0.0835 (0.1810)	-0.2176 (0.1796)
Hispanic 2000	0.1505 (0.3049)	0.3001 (0.2985)	-0.2047 (0.2002)	-0.4085 (0.2093)*	-0.2876 (0.2098)	0.0559 (0.3220)	-0.431 (0.4214)
Unemployment Rate 2000	-0.5736 (0.8672)	-0.455 (0.6168)	-0.1151 (0.4063)	-0.1111 (0.3481)	0.0629 (0.4550)	0.5009 (0.4657)	0.0334 (0.3953)
Urban 2000	0.1771 (0.0496)***	0.033 (0.0368)	-0.0164 (0.0251)	0.0049 (0.0203)	-0.0058 (0.0258)	-0.0472 (0.0329)	-0.0218 (0.0294)
Chg Popul. (00-90)	-0.0052 (0.0128)	-0.0005 (0.0076)	-0.0205 (0.0104)**	-0.0095 (0.0080)	-0.0253 (0.0110)**	0.0043 (0.0120)	-0.0045 (0.0123)
Chg Some College (00-90)	0.5591 (0.5171)	-0.3538 (0.3939)	-0.2033 (0.2067)	0.1758 (0.2212)	-0.2678 (0.2230)	-0.3645 (0.2407)	-0.4274 (0.2428)*
Chg College Grad (00-90)	-0.0872 (0.5288)	-0.0991 (0.3996)	0.1376 (0.2232)	0.2881 (0.2509)	0.2337 (0.2663)	0.1909 (0.2590)	-0.0738 (0.2675)
Chg African Am. (00-90)	-1.7627 (0.5808)***	-1.1893 (0.4364)***	-0.4496 (0.2214)**	-0.3944 (0.2942)	-0.4973 (0.2306)**	0.1712 (0.4634)	0.536 (0.4961)
Chg Hispanic (00-90)	1.4166 (0.8301)*	0.5921 (0.7033)	0.0004 (0.3514)	0.3962 (0.3643)	0.1111 (0.3725)	-0.4792 (0.6952)	0.6511 (0.8461)
Chg Unemp. Rate (00-90)	0.4823 (0.7289)	-0.2553 (0.4811)	-0.2499 (0.2753)	-0.0625 (0.2602)	-0.4721 (0.3350)	-0.6331 (0.3253)*	-0.3076 (0.2901)
Chg Urban (00-90)	-0.1539 (0.0497)***	-0.0985 (0.0392)**	-0.0099 (0.0280)	-0.0849 (0.0270)***	-0.0087 (0.0277)	-0.0056 (0.0403)	-0.0578 (0.0410)
Other Census Controls	X	X	X	X	X	X	X
Control for Cable Features		X	X	X	X	X	X
US House District Fixed Effects			X		X	X	
County Fixed Effects				X			X
R²	0.0841	0.4116	0.6711	0.7707	0.6613	0.6351	0.7652
N	N = 9256	N = 9256	N = 9256	N = 9256	N = 8538	N = 3722	N = 3722

Notes: An observation in the linear probability model is a town in one of the 28 US States in the sample. The dependent variable is a binary variables that equal one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4. The Effect of Fox News on the 2000-1996 Presidential Vote Share Change

Dep. Var.: Republican Vote Share Change between 2000 & 1996 Pres. Elections						
	Two-Party Vote Share					
	(1)	(2)	(3)	(4)	(5)	(6)
Fox News 2000	0.0024 (0.0023)	0.0076 (0.0025)***	0.004 (0.0015)***	0.0066 (0.0014)***	0.0034 (0.0021)	0.0039 (0.0018)**
Pres. Vote Chg. (92-88)					0.0088 (0.0205)	0.0369 (0.0207)*
Census controls:						
Population 2000 (10,000s)	0 0.0000	0 0.0000	-0.0002 (0.0001)***	-0.0001 (0.0001)**	-0.0004 (0.0002)***	-0.0003 (0.0001)***
Some College 2000	-0.0088 (0.0173)	-0.0002 (0.0154)	-0.064 (0.0145)***	-0.063 (0.0164)***	-0.0307 (0.0206)	-0.0474 (0.0209)**
College Grad. 2000	-0.0874 (0.0154)***	-0.0878 (0.0141)***	-0.0885 (0.0106)***	-0.1164 (0.0121)***	-0.08 (0.0160)***	-0.1368 (0.0215)***
African American 2000	-0.0921 (0.0076)***	-0.0906 (0.0073)***	-0.0569 (0.0069)***	-0.0515 (0.0070)***	-0.0775 (0.0105)***	-0.0769 (0.0108)***
Hispanic 2000	-0.1388 (0.0165)***	-0.1309 (0.0160)***	-0.0719 (0.0137)***	-0.086 (0.0147)***	-0.065 (0.0307)**	-0.0759 (0.0259)***
Unemployment Rate 2000	0.1742 (0.0418)***	0.1806 (0.0382)***	0.0574 (0.0277)**	0.0286 (0.0250)	0.0576 (0.0416)	0.0492 (0.0365)
Urban 2000	-0.02 (0.0022)***	-0.0085 (0.0023)***	-0.0081 (0.0014)***	-0.0058 (0.0015)***	-0.0083 (0.0021)***	-0.0072 (0.0020)***
Chg Popul. (00-90)	-0.0007 (0.0005)	-0.0006 (0.0004)	0.0014 (0.0005)***	0.0001 (0.0005)	-0.001 (0.0016)	-0.0024 (0.0013)*
Chg Some College (00-90)	0.0129 (0.0261)	0.0196 (0.0234)	0.0605 (0.0159)***	0.0581 (0.0151)***	0.0323 (0.0229)	0.0121 (0.0229)
Chg College Grad (00-90)	0.031 (0.0264)	0.0451 (0.0227)**	0.0788 (0.0133)***	0.0907 (0.0135)***	0.0488 (0.0202)**	0.064 (0.0204)***
Chg African Am. (00-90)	-0.073 (0.0203)***	-0.0647 (0.0188)***	-0.0765 (0.0193)***	-0.1011 (0.0173)***	-0.0346 (0.0297)	-0.0573 (0.0284)**
Chg Hispanic (00-90)	-0.0006 (0.0384)	-0.0028 (0.0345)	-0.0512 (0.0214)**	-0.0448 (0.0252)*	-0.0382 (0.0574)	-0.0533 (0.0585)
Chg Unemp. Rate (00-90)	-0.185 (0.0325)***	-0.1797 (0.0305)***	-0.0417 (0.0217)*	-0.0144 (0.0208)	-0.1009 (0.0330)***	-0.0813 (0.0284)***
Chg Urban (00-90)	-0.0065 (0.0026)**	-0.0059 (0.0025)**	0.0021 (0.0017)	0.0023 (0.0016)	0.0004 (0.0023)	0.0046 (0.0022)**
Other Census Controls	X	X	X	X	X	X
Control for Cable Features		X	X	X	X	X
US House District Fixed Effects			X		X	
County Fixed Effects				X		X
R²	0.5465	0.5772	0.7579	0.8155	0.7661	0.8336
N	N = 9256	N = 9256	N = 9256	N = 9256	N = 3722	N = 3722

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. The dependent variable is the two-party republican vote share for the 2000 presidential election minus the two-party republican vote share for the 1996 presidential election. Fox News 2000 is a binary variables that equal one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. The Effect of Fox News on the 2000-1996 Presidential Vote Share Change. Robustness

Dep. Var.:	Pres. Rep. Vote Share Change between 2000 & 1996 Elections							
	Republican Vote Share in 2000	All-Party Vote Share	Right-Wing Vote Share	Two-Party Vote Share				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fox News 2000	0.0038 (0.0016)**	0.0037 (0.0016)**	0.0048 (0.0017)***	0.0037 (0.0017)**		0.0058 (0.0017)***	0.0036 (0.0015)**	0.0048 (0.0017)***
Republican Vote Share in 1996	0.9293 (0.0084)***							
Fox News in Basic Package				0.001 (0.0025)				
Share of Population Subscribing to Fox News Cable Package					0.006 (0.0034)*			
Control Variables:								
Census 2000 and 1990	X	X	X	X	X	X	X	X
Cable System Controls	X	X	X	X	X	X	X	X
US House District Fixed Effects	X	X	X	X	X	X	X	X
Unweighted, Turnout>2000						X		
Outliers Dropped							X	
Optimal Trimmed Sample								X
R²	0.9829	0.832	0.6925	0.7579	0.7576	0.74	0.7759	0.7887
N	N = 9256	N = 9256	N = 9256	N = 9256	N = 9214	N = 2995	N = 9071	N = 4151

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. In column (1), the dependent variable is the two-party republican vote share for the 2000 presidential election. In columns (2)-(8), the dependent variable is the Republican vote share for the 2000 presidential election minus the same variables for the 1996 elections. In Column (2) the Republican vote share is computed using the all-party vote share and in Column (3) it is computed including the Reform Party votes together with the Republican votes and the Green Party together with the Democratic votes. In Columns (4) through (8) the vote share refers to the two-party vote share. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by cable affiliate in parentheses. The observation is weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Fox News and the 2000-1996 Presidential Vote Share. Interactions

Dep. Var.: Republican Vote Share Change between 2000 & 1996 Presidential Elections						
	(1)	(2)	(3)	(4)	(5)	(6)
Fox News 2000	0.0057 (0.0020)***	0.0074 (0.0020)***	0.0043 (0.0023)*	0.0071 (0.0025)***	0.0036 (0.0020)*	0.0074 (0.0019)***
Fox News * South	-0.0069 (0.0043)	-0.0184 (0.0073)**				
Fox News * Midwest	-0.0061 (0.0028)**	-0.0055 (0.0027)**				
Fox News * West	0.0022 (0.0039)	0.0006 (0.0037)				
Fox * (.453 < Average 2000 Rep. Vote Share In State < .513)			0 (0.0032)	0.0015 (0.0031)		
Fox * (Average 2000 Rep. Vote Share In State > .513)			-0.0023 (0.0029)	-0.0057 (0.0030)*		
Fox * (.428 < Average 2000 Rep. Vote Share In District < .523)					0.001 (0.0032)	-0.0046 (0.0031)
Fox * (Average 2000 Rep. Vote Share In District > .523)					-0.0007 (0.0028)	-0.0041 (0.0025)
Control Variables:						
Census 2000 and 1990	X	X	X	X	X	X
Cable System Controls	X	X	X	X	X	X
US House District Fixed Effects	X		X		X	
County Fixed Effects		X		X		X
R²	0.8323	0.8741	0.832	0.874	0.832	0.8741
N	N = 9256	N = 9256	N = 9256	N = 9256	N = 9256	N = 9256

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. The dependent variable is the two-party Republican vote share for the 2000 presidential election minus the same variable for the 1996 elections. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Timing of Fox News Effect on the Presidential Vote Share Change

Dep. Var.:	Pres. Rep. Vote Share Change '00-'96						Pres. Rep. Vote Share Change '04-'00		Pres. Rep. Vote Share Change '96-'92	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fox News 2000	0.0034 (0.0020)*	0.0065 (0.0018)***	0.0033 (0.0016)**	0.0064 (0.0015)***	0.0035 (0.0021)*	0.0055 (0.0018)***	0.002 (0.0020)	0.0018 (0.0022)	-0.0017 (0.0031)	0.0002 (0.0037)
Fox News 1998	-0.0007 (0.0023)	-0.0021 (0.0021)								
Fox News 2004			0 (0.0011)	-0.001 (0.0014)						
Control Variables:										
Census 2000 and 1990	X	X	X	X	X	X	X	X	X	X
Cable System Controls	X	X	X	X	X	X	X	X	X	X
US House District Fixed Effects	X		X		X		X	X	X	X
County Fixed Effects		X		X		X				
Fox News 2004 = 1					X	X		X		X
Optimally Trimmed Sample								X		X
R²	0.7667	0.8155	0.757	0.8144	0.7841	0.8441	0.6321	0.6748	0.6256	0.6927
N	N = 6672	N = 6672	N = 8645	N = 8645	N = 4844	N = 4844	N = 8605	N = 3863	N = 4006	N = 1698

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. In columns (1)-(6), the dependent variable is the Republican vote share for the 2000 presidential election minus the same variables for the 1996 elections. In columns (7)-(8), the dependent variable is the Republican vote share for the 2004 presidential election minus the same variables for the 2000 elections. In columns (9)-(10), the dependent variable is the Republican vote share for the 1996 presidential election minus the same variables for the 1992 elections. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. Fox News 1998 and Fox News 2004 are similarly defined. In Columns (5) and (6) the sample is restricted to towns which have Fox News available by 2004. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. The Effect of Fox News on the 2000 Senatorial Races

Dep. Var.:	Rep. Vote Share Change between 2000 Senate & 1996 Presidential Elections						All-Party Vote Share	Rep. Vote Share Change Senate 2000 minus 1994	
	Two-Party Vote Share							(7)	(8)
	(1)	(2)	(3)	(4)	(5)	(6)			
Fox News 2000	0.0081 (0.0027)***	0.0086 (0.0031)***	0.0034 (0.0029)	0.0047 (0.0036)		0.0059 (0.0034)*	0.0072 (0.0028)**	0.011 (0.0050)**	0.0137 (0.0055)**
Fox News * (New York Race)	-0.0001 (0.0064)	-0.0074 (0.0071)	0.0147 (0.0072)**	0.0031 (0.0058)		0.0002 (0.0064)	0.0016 (0.0060)	.	.
Subscription Ratio to Fox News					0.02 (0.0054)***				
(Subscription Ratio to Fox News) * (New York Race)					0.0081 (0.0142)				
Fox * (.453 < Average 2000 Rep. Vote Share In District < .513)						0.0078 (0.0049)			
Fox * (Average 2000 Rep. Vote Share In District > .513)						0.001 (0.0055)			
Control Variables:									
Census 2000 and 1990	X	X	X	X	X	X	X	X	X
Cable System Controls	X	X	X	X	X	X	X	X	X
US House District Fixed Effects	X		X		X	X	X	X	
County Fixed Effects		X		X					X
Optimally Trimmed Sample			X	X					
R²	0.9303	0.9492	0.9288	0.9486	0.9304	0.9303	0.9276	0.7535	0.8403
N	N = 8192	N = 8192	N = 3851	N = 3851	N = 8150	N = 8192	N = 8192	N = 2037	N = 2037

Notes: An observation in the OLS regression is a town in one of the 24 US States in the sample. For columns (1)-(6), the dependent variable is the two-party Republican vote share for the 2000 Senate election minus the two-party Republican vote share for the 1996 Presidential election. For column (7) the dependent variable is the same except that we use the all-party Republican vote share rather than the two-party Republican vote share. For columns (8)-(9), the dependent variable is the two-party Republican vote share for the 2000 Senate election minus the two-party Republican vote share for the 1994 Senate election. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. Robust standard errors in parentheses. For all regression, Fox News is interacted with dummy for New York's senatorial race between Hillary Clinton and Rick Lazio. Robust standard errors clustered by cable affiliate in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9. The Effect of Fox News on the 2000-1996 Presidential Turnout Change

Dep. Var.: Turnout Change between the 2000 & 1996 Presidential Elections								
	Log Total Votes Cast						Total Votes Cast as Share of Pop. Over 18	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fox News 2000	0.0054 (0.0041)	0.0169 (0.0051)***	0.0085 (0.0043)**	0.0162 (0.0057)***		0.0112 (0.0063)*	-0.0016 (0.0018)	0.003 (0.0022)
Share of Population Subscribing to Fox News Cable Package					0.0152 (0.0083)*			
Fox * (.453 < Average 2000 Rep. Vote Share In District < .513)						-0.0132 (0.0097)		
Fox * (Average 2000 Rep. Vote Share In District > .513)						-0.0098 (0.0087)		
Control Variables:								
Census 2000 and 1990	X	X	X	X	X	X	X	X
Cable System Controls	X	X	X	X	X	X	X	X
US House District Fixed Effects	X		X		X	X	X	
County Fixed Effects		X		X				X
Optimally Trimmed Sample			X	X				
R²	0.6061	0.6781	0.6808	0.7468	0.6071	0.6064	0.6135	0.6882
N	N = 9256	N = 9256	N = 4151	N = 4151	N = 9214	N = 9256	N = 8455	N = 8455

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. For columns (1)-(6), the dependent variable is the log of total votes cast in the 2000 Presidential elections minus the same variable in 1996. For columns (7)-(8), the dependent variable is the share of total votes cast in the 2000 presidential election over the 2000 population over 18, minus the same measure in 1996. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 10. The Effect of Fox News Cable Exposure in 2000 on Fox News Audience, Scarborough Data

Dep. Var.: Share Of Town Population That Watched At Least 30 Minutes of a Channel in Past Week									
	Watched Fox News					Watched CNN			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.0262 (0.0036)***	0.0947 (0.0054)***	.	.
Availability of Fox News Via Cable in 2000	0.027 (0.0058)***	0.0353 (0.0101)***	0.0232 (0.0078)***	0.022 (0.0104)**		0.0351 (0.0113)***	0.0251 (0.0121)**	0.0035 (0.0115)	0.0036 (0.0102)
Subscription Ratio to Fox News					0.0797 (0.0226)***				
Availability of Fox News Via Cable in 2004						-0.0075 (0.0095)			
Control Variables:									
Census 2000 and 1990		X	X	X	X	X		X	X
Cable System Controls		X	X	X	X	X		X	X
US House District Fixed Effects		X		X	X	X		X	
County Fixed Effects			X						X
Optimally Trimmed Sample				X					
R²	0.0655	0.3344	0.3823	0.3699	0.3344	0.3453	0.0217	0.3947	0.4364
N	N = 568	N = 568	N = 568	N = 395	N = 567	N = 545	N = 568	N = 568	N = 568

Notes: An observation in the OLS regression is a town for which both Scarborough data on diary audience, as well as cable and election data are available. Fox News 2000 is a binary variable that equals one if Fox News was part of the town's local cable package in 2000, and similarly for Fox News 2004. Robust standard errors clustered by cable affiliate in parentheses. The observations are weighted by the number of individuals resident in the town interviewed in the survey.

* significant at 10%; ** significant at 5%; *** significant at 1%

Appendix Table 1. Summary Statistics by State

	Average Fox News Share in 2000		Average Rep. Vote Share in 2000		Average Rep. Vote Share in 1996		Average Populat. in 2000		Share of Final to Original Sample		
	Original Sample (1)	Final Sample (2)	Original Sample (3)	Final Sample (4)	Original Sample (5)	Final Sample (6)	Original Sample (7)	Final Sample (8)	Votes in 2000 (9)	Votes in 1996 (10)	Popul. in 2000 (11)
Total	0.200 N = 17333	0.195 N = 9256	0.561 N = 26678	0.538 N = 9256	0.485 N = 26479	0.470 N = 9256	4298 N = 27064	7171 N = 9256	0.686	0.704	0.659
By State											
Ak	0.262 N = 65	0.175 N = 40	0.621 N = 294	0.612 N = 40	0.506 N = 302	0.510 N = 40	719 N = 311	2416 N = 40	0.117	0.141	0.432
Al	0.115 N = 523	0.097 N = 113	0.565 N = 1888	0.566 N = 113	0.497 N = 1999	0.505 N = 113	5107 N = 643	4447 N = 113	0.077	0.068	0.153
Ar	0.220 N = 508	0.205 N = 122	0.521 N = 1576	0.497 N = 122	0.391 N = 1469	0.357 N = 122	1178 N = 1658	1677 N = 122	0.108	0.118	0.105
Ca	0.234 N = 1110	0.210 N = 391	0.468 N = 533	0.447 N = 391	0.437 N = 469	0.429 N = 391	24070 N = 1007	37088 N = 391	0.535	0.706	0.598
Ct	0.160 N = 188	0.156 N = 154	0.441 N = 169	0.442 N = 154	0.425 N = 168	0.427 N = 154	11738 N = 217	13606 N = 154	0.893	0.896	0.823
Hi	0.391 N = 128	0.414 N = 29	0.394 N = 294	0.385 N = 29	0.349 N = 298	0.336 N = 29	6249 N = 145	5627 N = 29	0.103	0.102	0.180
Ia	0.112 N = 802	0.158 N = 247	0.553 N = 1488	0.526 N = 247	0.483 N = 1470	0.455 N = 247	915 N = 2388	5345 N = 247	0.448	0.487	0.604
Id	0.107 N = 187	0.184 N = 87	0.777 N = 385	0.735 N = 87	0.652 N = 364	0.589 N = 87	3669 N = 252	3555 N = 87	0.462	0.531	0.335
Ma	0.066 N = 379	0.017 N = 290	0.397 N = 351	0.396 N = 290	0.346 N = 351	0.347 N = 290	11596 N = 417	13794 N = 290	0.880	0.883	0.827
Me	0.154 N = 396	0.175 N = 303	0.524 N = 508	0.500 N = 303	0.399 N = 508	0.387 N = 303	1826 N = 532	2784 N = 303	0.896	0.896	0.868
Mi	0.267 N = 1373	0.267 N = 930	0.554 N = 1413	0.544 N = 930	0.475 N = 1411	0.475 N = 930	4463 N = 1636	6569 N = 930	0.861	0.868	0.837
Mn	0.131 N = 865	0.110 N = 702	0.565 N = 2481	0.531 N = 702	0.454 N = 2444	0.427 N = 702	1483 N = 2443	3899 N = 702	0.756	0.759	0.756
Mo	0.096 N = 788	0.094 N = 212	0.607 N = 1724	0.579 N = 212	0.507 N = 1713	0.478 N = 212	1940 N = 2116	2489 N = 212	0.200	0.185	0.129
Mt	0.148 N = 142	0.189 N = 74	0.714 N = 175	0.673 N = 74	0.578 N = 181	0.535 N = 74	2535 N = 249	4916 N = 74	0.799	0.809	0.576
Nd	0.085 N = 211	0.078 N = 64	0.671 N = 457	0.680 N = 64	0.552 N = 505	0.546 N = 64	296 N = 1600	2219 N = 64	0.260	0.246	0.300
Nh	0.000 N = 268	0.000 N = 184	0.539 N = 239	0.530 N = 184	0.466 N = 240	0.459 N = 184	3737 N = 248	4550 N = 184	0.921	0.923	0.903
Nj	0.432 N = 702	0.428 N = 495	0.470 N = 538	0.466 N = 495	0.454 N = 543	0.450 N = 495	9611 N = 647	10801 N = 495	0.917	0.909	0.860
Ny	0.327 N = 1465	0.252 N = 738	0.550 N = 970	0.540 N = 738	0.480 N = 972	0.471 N = 738	8793 N = 1615	6514 N = 738	0.588	0.604	0.339
Oh	0.228 N = 1873	0.232 N = 904	0.596 N = 1572	0.581 N = 904	0.518 N = 1545	0.508 N = 904	3741 N = 2253	6397 N = 904	0.720	0.733	0.686
Pa	0.231 N = 2667	0.226 N = 1716	0.580 N = 2449	0.563 N = 1716	0.524 N = 2452	0.511 N = 1716	3510 N = 2636	4095 N = 1716	0.806	0.811	0.760
Ri	0.184 N = 49	0.182 N = 33	0.383 N = 39	0.378 N = 33	0.348 N = 39	0.343 N = 33	15400 N = 52	21361 N = 33	0.911	0.916	0.880
Sc	0.103 N = 330	0.051 N = 177	0.556 N = 1490	0.529 N = 177	0.502 N = 1468	0.466 N = 177	6597 N = 449	8185 N = 177	0.224	0.249	0.489
Tn	0.156 N = 449	0.247 N = 166	0.514 N = 1686	0.508 N = 166	0.482 N = 1686	0.459 N = 166	7003 N = 611	4507 N = 166	0.080	0.095	0.175
Ut	0.118 N = 195	0.117 N = 94	0.754 N = 334	0.799 N = 94	0.682 N = 304	0.690 N = 94	5063 N = 285	5450 N = 94	0.346	0.682	0.355
Va	0.096 N = 467	0.116 N = 147	0.568 N = 1539	0.561 N = 147	0.525 N = 1494	0.503 N = 147	7832 N = 614	12219 N = 147	0.257	0.262	0.374
Vt	0.018 N = 219	0.017 N = 117	0.478 N = 241	0.470 N = 117	0.389 N = 241	0.389 N = 117	1709 N = 269	2602 N = 117	0.706	0.717	0.662
Wi	0.101 N = 885	0.090 N = 666	0.533 N = 1628	0.530 N = 666	0.448 N = 1625	0.452 N = 666	2419 N = 1646	4274 N = 666	0.714	0.720	0.715
Wy	0.475 N = 99	0.443 N = 61	0.787 N = 217	0.753 N = 61	0.670 N = 218	0.599 N = 61	2787 N = 125	4816 N = 61	0.737	0.752	0.843

Notes: Summary statistics on town-level availability of Fox News in 2000 (Columns 1 and 2), two-party vote share in 1996 and 2000 (Columns 3 through 6), and population in 2000 (Columns 7 and 8). The data is presented for the initial sample of cable, voting, and Census data, as well as for the final sample of 9,256 observations. The averages are unweighted.