

The Political Impact of Media Bias*

Stefano DellaVigna Ethan Kaplan
UC Berkeley and NBER IIES, Stockholm University
sdellavi@berkeley.edu ekaplan@iies.su.se

This version: June 26, 2007.

1. Introduction

In a representative system of government, policy outcomes are affected by the political preferences and the beliefs of the voters. The media plays a key role in shaping these preferences and beliefs. It collects, summarizes, and frames the information that voters use in their voting decisions.

As a result, many have expressed concern that political beliefs may be systematically manipulable by the media. Media slant may bias voters, and hence bias the policy decisions.

Concerns of this type are relevant in the U.S. given that over 70 percent of Americans believe that there is a great deal or a fair amount of media bias in news coverage (Pew, 2004). Media bias is at least as common, if not more common, in other countries with less media freedom than the U.S.

But is media bias necessarily a problem? The effect of media bias depends on how the audience processes the information broadcast by the media. If the audience is aware of the media bias and filters it from the information, distortions

Bran Knight, Roumeen Islam, and participants of the World Bank conference on ‘The Effects of Mass Media on Public Policy’ provided useful comments. Anitha Sivasankaran provided excellent research assistance.

in media reporting are unlikely to have large effects on voter beliefs (Bray and Kreps, 1987). In this rational world, media bias does not persuade voters.

Other theories hold that, instead, media bias persuades voters. This may occur because voters do not sufficiently account for bias in the media (De Marzo, Vayanos, and Zwiebel 2003). This, in turn, may be a direct effect of the framing of news (Lakoff, 1987).

Ultimately, understanding the impact of media bias on voter beliefs and preferences is an empirical task. In this chapter, we first review some of the papers that have provided a measure of this impact. Most of these papers indicate a large impact of the media. However, some of the findings can also be explained by self-selection of voters into preferred media. For example, right-wing voters are more likely to expose themselves to right-wing media, giving an impression that the right-wing media persuades them. Other studies provide evidence of an impact on self-reported voting, or stated voting in a laboratory experiment, as opposed to voting in actual elections.

In the rest of the paper, we summarize the result of a natural experiment that addresses the question of the impact of media bias on political preferences. We draw on DellaVigna and Kaplan (2007) which examines the timing of the entry of Fox News in local cable markets, and considers the impact on voting. Relative to DellaVigna and Kaplan (2007), we present new results on turnout for US Senate elections, as well as a more general analysis of persuasion rates.

Rupert Murdoch introduced the 24-hour Fox News Channel (henceforth Fox News) in October 1996. Fox News expanded rapidly to reach 20 percent of US cities, and an audience of 17 percent of the US population, by June 2000 (Scarborough Research data). The decentralized nature of the cable industry induced substantial geographical variation in access to Fox News. Cable companies in neighboring towns adopted Fox News in different years, creating idiosyncratic differences in access. Since Fox News is significantly to the right of all other mainstream television networks (Groseclose and Milyo 2005), the introduction of Fox News into a cable market is likely to have had a 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.

These aspects of the Fox News entry into the US media market make it likely

that, on the one hand, the impact of Fox News was plausibly large enough to be detected and, on the other hand, that it is possible to identify it separately from other confounding factors which also affect elections.

In this chapter, we discuss our findings on the impact of Fox News on voting patterns. The key finding is that we detect a significant impact on voting for the Republican candidates. Media bias, therefore, affected voting, at least in the case of the Fox News expansion. We discuss a variety of results ranging from the impact of Fox News on the Republican vote share, the impact on turnout, regional variation in the impact, the impact over a longer time horizon, and on races which Fox News did not explicitly cover.

To apply these results to other media markets, such as those in developing countries, it is useful to obtain quantitative estimates of the persuasive impact of the media that are generalizable to other contexts. We use our estimates of the impact of Fox News to compute persuasion rates, that is, the share of Democratic voters that switched to voting Republican because of exposure to Fox News. We also compute mobilization rates, that is, the share of non-voters that turn out to the polls because of exposure to Fox News. This section expands substantially on the discussion of persuasion rates in DellaVigna and Kaplan (2007). In our baseline calibration, we estimate that 4 to 8 percent of the audience was persuaded to vote Republican because of exposure to Fox News. When we allow for a separate effect on non-voters, we find that the mobilization effect of Fox News may have accounted for one sixth to one hundred percent of the impact. We obtain similar persuasion rates for the effect of Fox News on US Senate elections. These estimates imply a sizeable, and large in some specifications, impact of the media on political decisions.

We conclude by discussing some limitations of our approach and some questions for future research on the impact of media bias on politics.

This chapter relates to the empirical literature on media bias (Herman and Chomsky, 1998; Hamilton, 2004; Groseclose and Milyo 2005; Puglisi 2004) and the theoretical literature on it (Mullainathan and Shleifer 2005; Gentzkow and Shapiro 2006). We provide evidence that exposure to media bias persuades voters, an implicit assumption underlying most of these papers.

2. Theoretical Predictions

We summarize here the key results of a model (DellaVigna and Kaplan, 2006) that allows for two channels through which exposure to media news can affect voting. The first channel captures rational learning and predicts that exposure to the media may have an impact on beliefs and voting only in the short-run. The second channel captures non-rational persuasion and implies that exposure to the media may affect beliefs and voting also in the long-run.

We present first the rational updating channel in the presence of a new media source whose bias may not be known. A media source injects bias into its coverage of a political candidate. For example, it reports more positive (and less negative) news about the Republican candidate. A rational viewer, knowing the exact extent of the bias, realizes that often times bad news is not reported and good news is exaggerated. If the viewer has a good sense of the degree of the media source's bias, she will take into account the media source's bias and discount the news about the candidate. She will not on average be persuaded by the biased news source. The prediction differs if the bias of the media source is unknown. This is the case for a television viewer who watches a new news source for the first time. As in the case of Fox News, consider the case of a new media source that is more positive to the Republicans than other media sources. The viewer watches reports about a Republican candidate and finds the reports to be quite positive relative to what she had expected. Therefore, she alters her beliefs thinking that the candidate is possibly a truly good candidate; she also, however, leaves some room for the possibility that the new media source might be biased to the right. Over time, as the viewer sees a large number of positive reports about Republican candidates in comparison with other media sources, she starts to realize that the new media source's bias is to the right of the average media source. Therefore, she takes the updated bias into account when she evaluates candidates. In the short run, therefore, she is persuaded by the new media source; in the long-run, she learns about the bias and is no longer affected by the media bias in her beliefs and behavior.

A second possibility is that a non-rational viewer does not properly filter out the bias. For example, the viewer may be able to learn the degree of the bias but does not realize the degree to which bias impacts reporting. Systematically

then, the behavioral viewer places too little weight on the media source being biased and thus too much weight on the news reports of the media source. This behavioral viewer eventually learns the degree of bias of the media source but is nonetheless persuaded because he underweights the degree to which the bias of the source impacts news reports. In this behavioral scenario, media has a permanent persuasive impact which does not decrease over time.

The two different theories, one rational and one behavioral, have similar short-run predictions but different long-run predictions. The first predicts that the Fox News effect will be temporary and the second predicts that it will be permanent.

3. Estimates of the Impact of Media Bias

We summarize in Table I a small number of key studies examining the impact of media bias on political behavior and voting. We group them into four groups by the methodologies used: Surveys, Laboratory Experiments, Field Experiments, and Natural Experiments.

Surveys. Following Lazarsfeld, Berelson and Gaudet (1944), political scientists have widely used surveys to assess the impact of the media. A number of these surveys have pointed out that the people who watch a given media source tend to share a common political viewpoint with that source.

For example, a survey of 8,634 US respondents in 2003 (Kull et al., 2003) finds that 33 percent of Fox News watchers believe (erroneously) that weapons of mass destruction were found in Iraq by October 2003, compared to 22 percent for the overall sample. The finding holds even after controlling for political affiliation of the respondent. Taken at face value, these estimates imply that Fox News persuaded 14 percent of the respondents that did not previously believe that such weapons were found. Findings of this type suggest that exposure to the media could swing voter opinions in a very significant way.

Other studies find similar results. Gentzkow and Shapiro (2004) examine the effect of media exposure in the Islamic world using a survey of 2,457 respondents. Members of the CNN audience were 30 percent more likely to believe, and members of the Al Jazeera audience were 40 percent less likely to believe, that Arabs carried out the 9/11 attacks, compared to survey respondents who watched

neither. If, again, we translate these responses into persuasion rates, this study implies that the media persuaded between 8 and 10 percent of the audience.

These studies clearly document that media audiences differ in their political beliefs and opinions. They do not, however, necessarily imply that the media persuades voters. An alternative interpretation of this evidence is that people choose media sources that match their own political views of the world. This alternative interpretation of the findings would lead to different policy implications, since it does not imply that media bias shapes the preferences of voters.

Laboratory Experiments. Political scientists have taken a second approach, laboratory experiments, to measure the impact of the media on voting. In particular, they have examined the impact of political advertisements on stated voter preferences. The impact of political advertisement on voting is similar to the impact of media bias on voting in that both political advertisements and the media attempt to provide information to voters. However, they differ in that political advertisements claim to be partisan whereas news media do not.

Methodologically, a key difference from the survey studies is that the laboratory allows the researcher to separate self-selection from persuasion. By randomly assigning subjects to groups watching different advertisements, the researcher can estimate the causal impact of exposure to different political information.

In a classical study in this literature, Ansolabehre and Iyengar (1995) expose experimental subjects to 30-second political advertisements supporting a candidate (or criticizing the opposite candidate). They then elicit beliefs and voting intentions at the end of the experiment. The advertisements are embedded in longer news clips to make the exposure to the advertisement more credible and more externally valid.

While the impact of political advertisement differs for positive and negative advertisement and depending on the content, by and large Ansolabehre and Iyengar (1995) find substantial effects of persuasion. We summarize the results of three experiments run in Southern California involving advertisements for a Governor race (in 1990), a Senate race (in 1992), and a Mayor race (in 1993). Aggregating the data for the 1,716 subjects in these three experiments, exposure to one advertisement increases the stated vote share for the sponsoring party from .530 to .568. This is a sizeable persuasion effect, implying that the advertisements convinced

8 percent of the subjects that would not otherwise have done so to support the sponsoring party.

These experiments capture the causal effect of exposure to the media on voting intentions in the laboratory. It is less clear, however, that these findings would translate into similar persuasion effects of the media in the field. In the experiments, subjects state their voting intention immediately followed the advertising. If the impact of exposure to advertising is temporary, advertisements in the field would have a much more muted impact. In addition, these experiments do not measure actual voting. Statements of voting in the laboratory do not readily translate into actual votes. For example, survey respondents generally report much higher voting rates than appear in voting records. Finally, subjects may also respond differently in a (somewhat artificial) laboratory setting, compared to the response in an election campaign.

For these reasons, while these experiments suggest very interesting patterns of the impact of the media, it is important to also collect evidence in the field from media exposure in actual campaigns.

Field Experiments. Recently, Gerber, Karlan and Bergan (2006) performed a randomized experiment to look at the impact of media bias on voting patterns. In the fall of 2005, they randomly selected three groups of people from a county in Virginia at the time of the 2005 Virginia Gubernatorial election. To members of the first group, they gave a free subscription to the Washington Post (a purportedly left-leaning paper). To members of the second group, they gave a free subscription to the Washington Times (a purportedly right-leaning paper). The third group was a control group whose members received no free subscriptions. A few months later, they surveyed the subscription recipients and the control group members on knowledge of current events, political viewpoints, and voting patterns. They found little statistically significant evidence on the impact of media bias on knowledge or viewpoints, but they did find a significant impact on self-reported voting.

The group that was assigned a subscription to the left-wing newspaper stated that they voted more heavily for the Democrat in the Virginia Gubernatorial election of 2005. However, they also find that also the group that was assigned a subscription for the right-wing newspaper also voted more for the Democrat,

albeit insignificantly so. They interpret decrease in support for the Republicans by the group receiving the right-wing newspaper as due to an information provision (rather than bias) role for the media. The experiment took place at a time when a number of scandals reduced Republican popularity; exposure to these scandals reduced support for the Republicans.

A study of this type has a double advantage: it controls for self-selection by randomly allocating the newspapers, and it measures the impact in a real election. In this sense, it combines the advantages of the surveys and the advantages of the laboratory experiments. However, this study also has two drawbacks. First, the study does not measure actual voting, but only self-reported voting, which displays some known biases, as we discussed above. Second, since field experiments such as this are expensive to run, the sample size is necessarily small (1,011 subjects) and geographically concentrated in one county. This implies that the impacts of voting are assessed with substantial uncertainty, and may not represent the impact over a different population.

4. The Impact of Fox News

We now report the results of a natural experiment on the exposure to media bias and its effects on voting. We summarize the results from the staggered timing of the entry of Fox News in local cable systems from DellaVigna and Kaplan (2007).

In our view, natural experiments address the issues raised above for the other studies. Like in the field experiments and in the surveys, we consider the impact of actual political information in the field, avoiding the artificial setting of the laboratory. Unlike in the above studies, we measure the impact using actual voting, as opposed to self-reports. Finally, while the assignment of the media is not random (as in the laboratory of field experiments), we argue that it is quasi-random, allowing us to study the causal impact of media bias. That is, conditional on a set of controls, the availability of the new media (Fox News) appears to be random.

Introduction of Fox News. Rupert Murdoch introduced the 24-hour Fox News Channel (“Fox News” from here on) in October 1996 to compete with CNN. Like CNN, it was offered only via cable and, to a smaller extent, via satellite. The

introduction of Fox News has three features that make it a particularly appropriate case to study to estimate the impact of media bias.

First, the expansion of Fox News was very fast. 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 was accompanied by a corresponding increase in the audience share. By June 2000, less than four years after the introduction, 17.3 percent of the US population reported watching Fox News regularly (Scarborough Research data). The speed of the expansion implies that the pre-Fox News period (year 1996) and the post-Fox News period (year 2000) are reasonably comparable.

Second, the expansion was geographically differentiated. Cable markets are natural monopolies with capacity constraints on the number of channels. The availability of Fox News in 2000 in a town depended on whether the local cable company decided to add it to the programming, possibly at the expense of another channel. Cable companies in neighboring towns adopted Fox News in different years, creating idiosyncratic differences in access. This allows us to compare voting patterns in neighboring towns which are similar except for the availability of Fox News. The comparison at a very fine geographical level makes it less likely that confounding factors affect the estimates. While we do not have an instrument for Fox News availability, we document below that the introduction of Fox News appears to be idiosyncratic, conditional on a set of controls.

Third, the expansion altered the political news coverage in a cable market. 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 the political beliefs of voters. Fox News coverage, however, is unique among the television media. Fox News is significantly to the right of all the other mainstream television networks (ABC, CBS, CNN, and NBC) This difference is agreed upon in popular discussions as well as academic ones (Groseclose and Milyo, 2005). The introduction of Fox News into a cable market, therefore, had 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. We should also point out that the Fox News channel did not carry political advertisements and that political ads in

local cable companies were uncommon in 2000. Hence, the impact of the exposure to Fox News is purely due to exposure to the content of the programming.

The three features of the expansion of Fox News are unusual, and are the main reason we focused on Fox News as opposed to other politically-biased news sources. For example, it would be hard to estimate the impact of the introduction in the radio programming of right-wing and left-wing talk shows, since radio waves spread over a very large geographical area. Similarly, it is nearly impossible to study the impact of the coverage of the major networks (ABC, CBS, and NBC), which are now available essentially everywhere in the US.

Selection. We take advantage of the three features of the expansion of Fox News and estimate the impact of availability of Fox News in 2000 on voting in the 2000 elections at the town level. The data set includes 9,256 towns with the 1996 and 2000 voting record. Before we do that, we assess whether the towns offering Fox News in 2000 are ex ante comparable to the towns not offering Fox in 2000.

We first compare the two groups of towns without including any controls. We find that the towns offering Fox News in 2000 are substantially more likely to vote Republican in the pre-Fox News period (in 1996) and more likely to turn out to the polls (in 1996). They are also more likely to be larger towns. This implies that we cannot compare the two groups of towns directly.

This kind of comparison, however, does not take advantage of the rich set of town-level controls that we assembled. In particular, the comparison is not limited to geographical neighbors and to cable systems with a similar number of channels. Next, we exploit the detailed town-level controls and introduce controls for the cable system and for county fixed effects or congressional district fixed effects. Introducing these fixed effects implies that we compare towns with and without Fox News within a county and within a US congressional district.

When we do the comparison conditional on these controls, there is no evidence that towns with higher Republican vote share in 1996, or with higher turnout, are more likely to offer Fox News in 2000. Moreover, once we control for geographic heterogeneity and size of the cable system, availability of Fox News in 2000 is uncorrelated with town-level demographic controls from the 1990 and 2000 Census, such as population, income, ethnic composition, education, and unemployment rate.

To sum up, while overall the availability of Fox News is highly selective—Fox News enters into larger markets and, given the town size, into more Republican areas—, conditional on cable market size, the assignment to towns within an area (county or congressional district) is essentially random. This implies that, as long as we include the controls for geography and cable size, we can estimate the causal effect of the introduction of a new media by comparing towns with and without Fox News in 2000.

Impact on Voting in Presidential Elections. Next, we come to the main analysis. We consider the impact of the entry of Fox News on the change in the Republican vote share between 1996 and 2000 at the town level, conditional on the control variables described above. This strategy exploits the timing of the entry of Fox News. By the November 1996 elections, Fox News had been launched in only a few markets, and, even in those markets, just one month before the elections. By the November 2000 elections, Fox News had an audience that was smaller, but nonetheless comparable to that of CNN.

We compare the change in Republican vote share between 1996 and 2000 for towns with Fox News in 2000 and towns without Fox News in 2000, weighting for number of voters. This uses a standard differences-in-differences methodology in that it compares the change over time (first difference) for the towns with Fox News versus the towns without (second difference). This tests whether or not exposure to Fox News, and more in general to politically-biased media, leads to persuasion.

The results are reported in Column (1) of Table II. Formally, we estimate the specification

$$v_{k,2000}^{R,Pres} - v_{k,1996}^{R,Pres} = \alpha + \beta_F d_{k,2000}^{FOX} + \Gamma X_k + \eta_g + \varepsilon_k \quad (4.1)$$

where $v_{k,2000}^{R,Pres} - v_{k,1996}^{R,Pres}$ denotes the change in the 2-party Republican vote share between the year 1996 (before the entry of Fox News) and the year 2000 (after the entry of Fox News). The set of controls X_k includes town-level demographic variables from the 1990 and 2000 Census, as well as controls for features of the cable system in the town (number of channels provided and in the number of potential subscribers). In addition, the specification includes a set of geographical fixed effects η_g , at the US House District level in Panel A and at the county level

in Panel B. The fixed effects and the control help to ensure the comparability of towns with and without Fox News. In the specification with district fixed effects, we compare towns in the same congressional District, served by cable companies with similar features, and with similar demographics. In the specification with county fixed effects we make the same comparison for towns within a county. Geographic neighbors are more likely to be comparable, in particular if they share similar demographics and cable system features.

Our main result is that Fox News had a significant impact on the 2000 elections. The entry of Fox News increased the Republican vote share in presidential elections by 0.4 percentage points (with district fixed effects, Panel A) or 0.7 percentage points (with county fixed effects, Panel B). The difference between the specifications with congressional district (Panel A) and county fixed effects (Panel B) reflect different geographic comparisons. In both specifications, the result is statistically significant and robust to a variety of alternative specifications, alternative samples, and placebo specifications, documented in DellaVigna and Kaplan (2007). Column (2) in Table II presents one such robustness check: we obtain very similar results if we control for the vote share in 1996, $v_{k,1996}^{R,Pres}$, instead of taking the first difference as in (4.1). Altogether, these results imply that exposure to the media shifted people’s voting in the direction of the media content.

How large is this effect of the media? Since Fox News was available in 2000 in about 35 percent of households, the impact of Fox News is estimated to be 0.15 to 0.2 percentage points, i.e., 200,000 votes nation-wide. While this vote shift is small compared to the nation-wide shift toward the Republicans of 3.5 percentage points between 1996 and 2000, it is still likely to have been decisive in the close 2000 presidential elections. Moreover, this impact may become larger over time as the Fox News audience and diffusion grow.

Town Characteristics. We examine how the Fox News effect interacts with town characteristics, namely the number of channels, the share of population which is urban, and the political orientation of the District. (These results are in DellaVigna and Kaplan, 2007)

The impact of Fox News on voting was smaller in towns with more cable channels, which is consistent with a moderating effect of competition [Mullainathan and Shleifer 2005]. The lower Fox News impact result could reflect exposure to

more balanced reporting (though CNN and the network news are available in all towns in the sample) or merely lower audience rates for Fox News when more channels are available. In either case, this suggests that the impact of media bias on voting would be larger in countries with a small number of media sources, as is the case in most developing countries.

We also find that the impact of Fox News was (significantly) smaller in rural towns, in the South, and in more Republican districts. All these results may be explained by the fact that in rural towns, in the South, and in Republican districts most people already voted Republican, and therefore the share of the population that could be convinced was smaller.

Persistence of Effects. A prediction of the model of persuasion that we described earlier is that the exposure to Fox News would have a persistent effect on voting, as opposed to a temporary one. Instead, the model of rational learning predicts that over time the effect of Fox News should decay, as voters learn about the (previously unobserved) bias of Fox News.

We therefore study whether the impact of Fox News persists between the 2000 Presidential election and the 2004 Presidential election. In Column (3) of Table II, we estimate the specification

$$v_{k,2004}^{R,Pres} - v_{k,2000}^{R,Pres} = \alpha + \beta_F d_{k,2000}^{FOX} + \Gamma X_k + \eta_g + \varepsilon_k.$$

We find that the availability of Fox News in a town in 2000 is associated with an (insignificant) .2 percentage point vote share increase between 2000 and 2004. The result is essentially identical with district fixed effects (Panel A) and with county fixed effects (Panel B). The effect of Fox News therefore appears to be persistent, if not increasing over time. Persistence is consistent with the predictions of a model of non-rational persuasion; however, this result could also be due to greater audience exposure to Fox News over the 2000-2004 period.

Ideology vs. Popularity. The previous findings suggest that Fox News had a significant effect on the Republican vote share and on turnout in the Presidential election. We now consider whether the effect of Fox News extends to local politics not covered by Fox News. This allows us to test whether the Fox News effect is candidate-specific, in which case the effect should not extend to local elections,

or a general ideological shift, which should affect also local elections. U.S. Senate elections are a good test in this respect, because a large majority of Senate races fail to get national coverage. These elections are similar to local elections, for which unfortunately no town-level data set is available. As a test of the ideology shift, therefore, we estimate whether or not exposure to Fox News affected the two-party vote share in US Senate elections.

In addition, one or two Senate races per year attract substantial national coverage, almost like Presidential races. This allows us to compare the effect of Fox News on races that were not covered, where only ideological shifts should matter, to the effect on covered races, where candidate-specific coverage also could matter. 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. These two candidates had 99 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 Clinton¹. 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. In Column (4) of Table II, we estimate

$$v_{k,2000}^{R,Sen} = \alpha + \alpha_P v_{k,1996}^{R,Pres} + \beta_F d_{k,2000}^{FOX} + \phi_F d_{k,2000}^{FOX} * d_{NY} + \Gamma X_k + \eta_g + \varepsilon_k, \quad (4.2)$$

where $v_{k,2000}^{R,Sen}$ is the 2-party vote share in the US Senate elections in the year 2000. 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. This specification controls for the 1996 Presidential vote share.² We find that Fox News significantly increased the Republican vote share for Senate by 0.7 percentage points ($\hat{\beta}_F = .0072$ in Panel A and $\hat{\beta}_F = .0071$ in Panel B). Interestingly, the

¹From the "O'Reilly Factor" of 10/31/2000: "Mr. Gore does have some honesty issues about campaign finance, but they pale beside the deceit factory the Clintons have set up".

²The results are similar if we control for the 1994 Senatorial vote share instead. The disadvantage of this specification is that it restricts the sample to 2,037 towns in 5 States.

effect is as large as the effect on the Presidential elections. Additionally, the effect is not significantly larger for the one Senatorial race that Fox News covered heavily, the New York State race between Hillary Clinton and Rick Lazio ($\hat{\phi}_F = .0039$ in Panel A and $\hat{\phi}_F = -.0017$ in Panel B). Thus, Fox News appears to have induced a generalized ideological shift, as opposed to a candidate-specific popularity effect.

Impact on Turnout. The significant impact of Fox News on voting in Presidential and US Senate elections could have occurred through two channels. First, Fox News entry convinced Democratic voters to vote Republican. Second, Fox News attracted new Republican voters. To provide evidence on the two channels, we study the impact of Fox News on turnout, as measured by the number of people turning out to the polls. To the extent that the persuasion effect was purely due to a change in the minds of Democratic voters, we would not expect an increase in turnout.

In Column (5) of Table II, we estimate

$$t_{k,2000}^{\text{Pres}} - t_{k,1996}^{\text{Pres}} = \alpha + \beta_F d_{k,2000}^{\text{FOX}} + \gamma [\ln(\text{Pop}_{k,2000}) - \ln(\text{Pop}_{k,1996})] + \Gamma X_k + \eta_g + \varepsilon_k, \quad (4.3)$$

where $t_{k,t}^{\text{Pres}}$ is the log total votes in town k in year t : $t_{k,t}^{\text{Pres}} = \ln(V_{k,t}^{\text{TOT,Pres}})$. The change in this measure over time is the percent change in total votes cast. This specification controls for the percentage change in the voting-age town population over time, $\ln(\text{Pop}_{k,2000}) - \ln(\text{Pop}_{k,1996})$, since increases in population increase the number of votes cast.

We obtain somewhat different answers using our two benchmark specifications. The estimates with county fixed effects (Panel B) imply that the availability of Fox News increased turnout to the polls by 1.78 percent, a large and significant effect. This estimate would imply that the effect of Fox News on voting was mainly through mobilization of Republicans. The effect is still positive, but smaller and statistically insignificant using congressional district fixed effects (Panel A). This latter estimate would imply that the impact of Fox News operated mainly through convincing Democratic voters.

In Column (6) of Table II, we estimate the impact of Fox News on turnout in US Senate elections. We estimate an equation parallel to specification (4.3) with the change in turnout between the Senate elections in 2000 and the Presidential

elections in 1996, $t_{k,2000}^{\text{Sen}} - t_{k,1996}^{\text{Pres}}$, as dependent variable. We find that the entry of Fox News increased turnout in Senatorial elections by .54 percent (with district fixed effects, Panel A) or by 1.58 percent (with county fixed effects, Panel B). These estimates parallel the estimates of turnout for Presidential elections, with a significant impact in the specification with county fixed effects.

Overall, Fox News entry into a market appears to have mobilized voters. However, the evidence for this is not as consistent as for the effect on vote share.

5. Persuasion Rates of the Media

Overall, we find a sizeable impact of Fox News on the vote share for Republicans and on turnout. These estimates, however, do not tell us how effective Fox News was in convincing Democrats who were exposed to Fox News nor does it tell us how effective Fox News was in mobilizing latent Republicans. Measures of the persuasiveness of the media depend, among other things, on the size of the audience of Fox News in 2000. The smaller the Fox News viewership, the larger the persuasion effect associated with the half percentage point impact on vote share. To generalize the Fox News results to other media markets, including possibly those in developing countries, it is useful to obtain quantitative estimates of effective persuasiveness of the media per individual exposed.³ What share of the public exposed to a media source changes its opinions in the political direction of the media source? While the impact of Fox News may not easily generalize to very different media markets, in principle the estimates of persuasion rates in this section can be applied to other similar media markets.

In this section, we compute the effectiveness of Fox News in convincing non-Republican viewers to turn out and vote Republican. This substantially extends computations in DellaVigna and Kaplan (2007) where we assumed that Fox News convinced the same percentage of Democrats and non-voters to vote Republican, and where we used only the vote share (i.e., not the turnout) estimates to compute the persuasion rate of Fox News. We generalize the previous approach by (1)

³Of course, the effective persuasiveness per individual of the media can vary across countries due to differences in political systems, educational systems, competitiveness of media markets, political orientation of the media and many other factors.

allowing for differential influence rates on Democrats and on non-voters and by (2) using turnout estimates, in addition to vote share estimates.

Setup. We compare the vote share v_j in treatment towns exposed to Fox News ($j = T$) and control towns not exposed to Fox News ($j = C$). Before the exposure to Fox News, a share r of the voting-eligible population votes Republican, a share d votes Democrat, and the remaining share $(1 - r - d)$ does not vote. Since the two types of towns have similar political outcomes in the pre-Fox News period conditional on a set of controls, we assume that r and d are the same in towns T and C .

A fraction e of the town population is exposed to Fox News, after the nationwide introduction. Exposure e is higher in treatment towns, that is, $e_T > e_C \geq 0$. We allow for non-zero exposure e_C in control towns because, for example, of the availability of satellite which broadcasts Fox News to subscribers in both towns.

The key parameters we use to capture the effectiveness of Fox News in affecting political behavior are the persuasion rate f and the mobilization rate m . Fox News persuades a fraction f of the Democrats in the audience, $e_j d$, to vote Republican. In addition, Fox News mobilizes a fraction z of the non-voters in the audience, $e_j(1 - r - d)$, inducing them to vote. Of these mobilized voters, f_m is the percentage of who turn out for the Republicans, with $0 \leq f_m \leq 1$. That is, we allow for Fox News to turn some non-voters into Democratic voters.

Altogether, this implies that the two-party vote share in town j equals

$$v_j = \frac{r + fe_jd + me_jf_m(1 - r - d)}{r + d + me_j(1 - r - d)} \quad (5.1)$$

The number of Republicans in town j is equal to the number of Republicans in the town before the entry of Fox News, r , plus the percent of exposed Democrats who were persuaded, fe_jd , plus the share of the mobilized voters that turn out for the Republicans, $me_jf_m(1 - r - d)$.

The denominator in expression (5.1) is the turnout in town j :

$$t_j = r + d + me_j(1 - r - d). \quad (5.2)$$

The turnout in town j is affected by the entry of Fox News through the mobilization effect m on non-voters.

Using expression (5.2) for the turnout t_j , we can compute the mobilization rate m . Subtracting t_C from t_T and re-arranging, we obtain

$$m = \frac{t_T - t_C}{(e_T - e_C)(1 - r - d)}.$$

This expression is easily interpretable. The percent of those mobilized by Fox News to vote is equal to the difference in turnout across treatment and control towns, divided by the differential in the number of treated individuals (the differential exposure rate multiplied by the size of the non-voting population).

We can calculate the persuasion rate f given the mobilization rate m of Fox News, provided that we make assumption about f_m . The other variables v_j , t_j , r , d , and e_j are observed. We report the solution for f in Appendix.

Persuasion Results. We now provide results for the mobilization rate m and the persuasion rate f for different specifications. In particular, we estimate mobilization and persuasion rates for both Presidential elections and US Senate elections, using the specifications with district fixed effects (Panel A of Table II) and the specifications with county fixed effects (Panel B). This provides a broad array of estimates of the impact of the media.

To obtain these estimates, we need measures for the parameters v_T , v_C , t_T , t_C , r , d , e_T , and e_C . We use the specifications in Table II and summary statistics reported in Table II of DellaVigna and Kaplan, 2007 to estimate the vote shares v_T and v_C and the turnout rates t_T and t_C . We estimate the pre-Fox News share of Democrats and Republicans r and d using the average voting patterns in the data. Finally, we document the audience rates e_T and e_C using measures of the audience of Fox News according to Scarborough Research data. According to the benchmark audience measure (recall audience) and using the estimates with District fixed effects, the exposure to Fox News e is 8.9 percentage points in the control towns and 21.7 percentage point in the treatment towns. The availability of Fox News via cable thus increased the Fox News audience by about 12.8 percentage points. The estimated increase in audience is of about 8.6 percentage points for the specification with County fixed effects. We document further the estimates of these parameters in the Appendix.

We estimate the persuasion rates and the mobilization rates under three different scenarios, and report the results in Table III. The first scenario, which we label

‘Mobilization=Persuasion’, assumes that the persuasion rate f and the mobilization rate m are equal. That is, the effect of Fox News on non-voters is the same as the effect on Democratic voters. This is the assumption used for the estimates in DellaVigna and Kaplan (2007). For Presidential elections, these assumptions imply that Fox News persuaded 3.4 percent of voters (in the specification with District fixed effects) or 8.4 percent of voters (in the specification with county fixed effects) to vote Republican. Intuitively, to obtain the estimate of the persuasion rate we re-scale the effect on the vote share (.42 and .69 percentage points) by the 12.8 percentage point differential audience rate.⁴ For US Senate elections, the estimates imply persuasion rates of 5.4 percent for district fixed effects and 7.9 percent for county fixed effects. These estimates indicate sizeable persuasive effects of the media.

A drawback of this first approach is that it predicts an increase in turnout due to Fox News that is significantly smaller than the observed (large) increase in the specifications with county fixed effects (Column (5) in Table II, Panel B). The larger impact on turnout may be due to higher mobilization rates m compared to the persuasion rates f . In addition, the newly mobilized voters may have in part voted for the Democratic party, implying that f_m is smaller than 1. In this section, we extend our previous work to separate out a mobilization effect on non-voters from a persuasive effect on Democrats⁵. In the second scenario that we consider, which we label ‘Mobilization 100% for Rep.’, we allow for different persuasion rate f and mobilization rate m . We also assume that all the non-voters that Fox News mobilize vote Republican, that is, $f_m = 1$. The results are quite similar for Presidential and US Senate election, but differ depending on the unit of the fixed effects (district or county). The estimated mobilization rates m are large with county fixed effects (26.3 for President and 19.6 percent for Senate) and sizeable with district fixed effects (4.6 percent for President and 4.5 percent for Senate). The estimates of the mobilization rates in turn affect the estimates

⁴A more restrictive audience measure implies that availability of Fox News via cable increased the Fox News audience by 2.5 to 3.7 percentage points. These audience numbers imply persuasion effects between 11 and 28 percent. We report results using these measures in DellaVigna and Kaplan (2007).

⁵Note that the mobilization effect on non-voting Republicans could also be a persuasive effect on latent non-voting Democrats.

of the persuasion rates. In the specification with county fixed effects the large mobilization rates render the persuasion rates small, or even slightly negative. If Fox News had a large effect of convincing non-voters to vote Republican, this fully explains the vote share results, even without any effect of Fox News on converting Democratic voters. The estimates of persuasion rates with district fixed effects are less affected by this scenario, since the estimated mobilization rates are lower.

This second scenario, while allowing for a separate turnout and conversion effect, requires the turnout effect to benefit only the Republican party. However, it is possible that a fraction of the non-voters that Fox News mobilizes vote Democratic. To quantify this, in the third scenario, ‘Mobilization 56% for Rep.’, we assume that 56 percent of mobilized non-voters vote for the Republicans and 44 percent for Democrats, that is, we assume $f_m = .56$. This break-down, while arbitrary, is based on the observation that, according to Scarborough data, 56 percent of the Fox News audience is a self-declared Republican. We assume that this break-down also holds for the newly mobilized voters. Under this scenario, we obtain persuasion rates that are typically higher than under the other scenarios (ranging from 5.4 percent in Presidential elections with district fixed effects to 12.2 percent in Senate elections with county fixed effects). The reason is that under these assumptions, the increase in Republican vote share due to Fox News cannot be due to the effect on non-voters, since non-voters divide themselves fairly evenly across parties. The effect, therefore, has to be due to a large conversion effect of Democrats into Republicans.

Exposure to more conservative coverage had a sizeable, and possibly large, effect on political choices of voters. Most scenarios imply a substantial role of the media in persuading Democratic voters to vote Republican. However, if we take at face value the estimates indicating large turnout effects (and hence high mobilization rates), the data is also consistent with pure mobilization and no persuasion. While our best guess based on the different estimates is that exposure to Fox News affected both margins, we leave fully differentiating between persuasive impacts of the media and mobilizing impacts of the media to future research.

6. Conclusions

The study on the impact of Fox News overviewed in this article provides evidence on the extent to which the political content of a media source persuades and mobilizes potential voters.

We have compared this study to other studies in the literature that take different approaches to answering a similar question. We have argued that natural experiments in media exposure provide a combination of two desirable features, (quasi-)random assignment of the media and a natural setting. In comparison, surveys also examine voting in the field, but cannot separate sorting from causal effect. Laboratory experiments provide a clean randomization, but at the cost of an artificial setting. Field experiments can also provide randomization in the context of a real election, but it is often difficult to map the outcomes to real election variables.

Other papers use natural experiments to address the impact of the media on voting. Expansions of the New York Times in the 1990s (George and Waldfogel 2006) and of television between 1940 and 1972 (Gentzkow 2006) decrease turnout, while radio entry between 1920 and 1940 increases turnout (Stromberg 2004). These papers analyze the link between media and voting from other vantage points.

A number of important questions are left unanswered, or only partially answered, by this and other studies on the impact of the media. We outline a few which we think are particularly important.

First, does the media mostly mobilize the ‘already convinced’ or does it persuade voters to switch party? We find evidence that at least partly the effect of Fox News was due to increased turnout of latent Republicans, the ‘already convinced’, but we cannot precisely estimate the extent of this channel.

Second, does media bias affect other behavior beyond voting? It would be interesting to consider the impact on other politically-charged decisions such as the degree of political activism, the propensity to contribute money to political causes, or military conscription rates.

Third, who is most likely to be persuaded by the media? A large literature in political science tries to determine when political preferences are formed, including

whether the young are most affected by political messages. In this paper, we did not have access to individual data and hence could not test these hypotheses.

Fourth, does exposure to the media change policy? We have not directly examined the impact on policy-making.

Fifth, why does the media have an effect on voting? We have provided some evidence to distinguish rational updating from non-rational persuasion, but we cannot draw firm conclusions. Understanding the exact channels of media influence is important both from a policy perspective and from a research perspective.

7. Appendix

Using expressions (5.1) and (5.2), we can derive the difference in the vote shares $v_T - v_C$ as

$$v_T - v_C = \frac{r + fe_Td + me_Tf_m(1 - r - d)}{t_T} - \frac{r + fe_Cd + me_Cf_m(1 - r - d)}{t_C}.$$

Multiplying by $t_T t_C$ and subtracting off $r(t_C - t_T)$, we get:

$$(v_T - v_C)t_T t_C - r(t_C - t_T) = fe_T d t_C + me_T f_m (1 - r - d) t_C - fe_C d t_T - me_C f_m (1 - r - d) t_T$$

Now subtracting off the terms involving f_m and dividing by $d(e_T t_C - e_C t_T)$, we get:

$$f = \frac{(v_T - v_C)t_T t_C}{d(e_T t_C - e_C t_T)} - \frac{r(t_C - t_T)}{d(e_T t_C - e_C t_T)} - \frac{mf_m(1 - r - d)}{d}$$

Finally, using the definition of t_j , we note that $e_T t_C - e_C t_T = (e_T - e_C)(r + d)$. Substituting this expression in, we can simplify, combine terms and solve for the influence rate f as:

$$f = \frac{(v_T - v_C) \frac{t_T t_C}{r+d}}{d(e_T - e_C)} - \frac{m(1 - r - d) \left(f_m - \frac{r}{r+d}\right)}{d}. \quad (7.1)$$

Expression (7.1) has two components, and is roughly interpretable as the effect of Fox News on vote share $v_T - v_C$ per exposed democrat, minus the increase due to Republican turnout. The first term says that the higher the impact of Fox

News on the vote share per exposed Democrat, the higher the influence rate f . The second term subtracts off the mobilized non-voters which can be positive or negative depending upon how mobilization is biased (i.e., whether $f_m - r / (r + d)$ is greater or less than zero and how large its magnitude is).

Note that, as mentioned in the text, if we restrict $f_m = 1$ and impose $f = m$, we can simplify (7.1) to the formula we used in DellaVigna and Kaplan (2007), which also corresponds to our ‘*mobilization = persuasion*’ case in Table III. This formula is

$$f = \frac{(v_T - v_C) t_T t_C}{d(e_T - e_C)}$$

Estimation. We now compute mobilization and persuasion rates for different specifications and using different assumptions. We measure $v_T - v_C$ as the impact of Fox News on the two party Republican vote share. In our county fixed effects specifications, we use 0.0069 for Presidential elections and 0.0071 for Senate elections. In our US House district fixed effects specification, we use 0.0042 for Presidential elections and 0.0072 for Senate elections. We measure T_C , turnout in the control towns, as 0.5600 for the Presidential elections and 0.5167 for the Senate elections. We measure T_T , turnout in the treatment towns, as the turnout in the control town plus the turnout effect of Fox News. For presidential elections, it is $(1+0.0178)*0.56 = 0.5700$ for county fixed effect specifications and $(1+0.0046)*0.56 = 0.5626$ for district fixed effects specifications. Similarly, for Senate elections, this is $(1+0.0158)*0.5167 = 0.5247$ for county fixed effect specifications and for district fixed effect specifications, it is $(1+0.0054)*0.5167 = 0.5195$.

The exposure rates e_T and e_C do not depend upon whether we are looking at Senate elections or elections for President. The exposure rate for control towns e_C was $0.0262*3.43=0.089866$ whereas the exposure rate for treatment towns e_T is $(0.0262+0.0371)*3.43=0.2171$ with district fixed effects and $(0.0262+0.0251)*3.43=0.1760$ with county fixed effects.

We take our estimates of Republicans (r) and Democrats (d) from the population-weighted average of Republicans and Democrats in our sample. The variable d is the share of Democrats in the population before Fox News enters, computed as the two party-vote share of Democrats multiplied by turnout. The same is true for calculating r , the share of Republicans in the population. In presidential

elections, d is equal to $0.547*0.56=0.2537$ and r is equal to $0.453*0.56=0.3063$. Thus, $1 - r - d$ is equal to the percentage of eligible voters not turning out which is equal to 0.44. In Senate elections, d is equal to $0.5469*.0.5167=0.2826$ and r is equal to $0.4531*0.5167=0.2341$. Thus. $1 - r - d$ is equal to the percentage of eligible voters not turning out which is equal to 0.4833.

References

- [1] Ansolabehere, Stephen, and Shanto Iyengar, *Going Negative: How Attack Ads Shrink and Polarize the Electorate*. (New York, NY: Free Press, 1995).
- [2] Bray, Margaret and David Kreps. "Rational Learning and Rational Expectations" in G. Feiwel, *Arrow and the Ascent of Modern Economic Theory*, (London, Macmillan, 1987).
- [3] DellaVigna, Stefano and Ethan Kaplan. "The Fox News Effect: Media Bias and Voting" NBER Working Paper W12169, 2006.
- [4] DellaVigna, Stefano and Ethan Kaplan. "The Fox News Effect: Media Bias and Voting", *Quarterly Journal of Economics*, 2007.
- [5] DeMarzo, Peter, Dimitri Vayanos, and Jeffrey Zwiebel, "Persuasion Bias, Social Influence, and Uni-Dimensional Opinions", *Quarterly Journal of Economics*, 118, 909-968, 2003.
- [6] Gentzkow, Matthew. "Television and Voter Turnout," *Quarterly Journal of Economics*, CXXI, 2006, 931–972.
- [7] Gentzkow, Matthew and Jesse Shapiro. "Media, Education, and Anti-Americanism in the Muslim World," *Journal of Economic Perspectives*, Summer 2004.
- [8] George, Lisa and Joel Waldfogel, "The New York Times and The Market For Local Newspapers," *American Economic Review*, 2006.
- [9] Gerber, Alan S., Karlan, Dean, and Daniel Bergan. "Does The Media Matter? A Field Experiment Measuring The Effect of Newspapers on Voting Behavior and Political Opinions", mimeo, 2006.
- [10] Groseclose, Timothy and Jeff Milyo, "A Measure of Media Bias", *Quarterly Journal of Economics*, Vol. 120, pp. 1191-1237, 2005.
- [11] Hamilton, James T. *All the News That's Fit to Sell*, Princeton: Princeton University Press, 2004.

- [12] Herman, Edward and Noam Chomsky. *Manufacturing Consent: The Political Economy of the Mass Media*. Pantheon Books, 1998.
- [13] Kull, Steven, Clay Ramsay, and Evan Lewis. "Misperceptions, The Media, And The Iraq War." *Political Science Quarterly*, Vol. 118, pp. 569-598, 2003.
- [14] Lakoff, George. *Women, Fire and Dangerous Things*, Chicago, IL, University of Chicago Press, 1987.
- [15] Lazarsfeld, Paul, Bernard Berelson, and Hazel Gaudet, *The People's Choice*, Duell, Sloan & Pearce, New York, 1944.
- [16] Mullainathan, Sendhil, and Andrei Shleifer. "The Market for News", *American Economic Review*, 95, 1031–1053, September 2005.
- [17] Puglisi, Riccardo. "Being the New York Times: the Political Behavior of a Newspaper", mimeo, 2004.
- [18] Stromberg, David. "Radio Impact on Public Spending," *Quarterly Journal of Economics*, 119, 189-221, 2004.

TABLE I
SURVEY OF STUDIES ON EFFECT OF MEDIA BIAS ON POLITICAL DECISIONS

Variable: Persuasion Rate f (Share of Listeners Convinced by Media)										
Paper	Treatment	Election type or question	Variable t	Year	Place	Sample size	Control group t_T	Treatment group t_C	Exposure rate $e_T - e_C$	Persuasion rate f
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>Surveys</u>										
Kull et al. (2003)	Respond. watches Fox News	Did US find WMD in Iraq?	Share of Yes Answers	2003	USA	N = 8,634	0.220	0.330	1.000	0.141
Gentzkow and Shapiro (2004)	Respondent watches CNN	Did Arabs do 9/11 attack?	Share of Yes Answers	2002	Arab Countries	N = 2,457	0.215	0.280	1.000	0.083
	Respond. watches Al Jazeera			2002		N = 2,457	0.215	0.133	1.000	0.105
<u>Laboratory Experiments</u>										
Ansolabehere and Iyengar (1995)	Laboratory Exposure to 30-Second Political Ad	Governor Elect. Senate Elect. Mayor Elect.	Vote Share for Party Sponsoring Ad	1990 1992 1993	Southern California	N = 1,716	0.530	0.568	1.000	0.082
<u>Field Experiments</u>										
Gerber, Karlan, and Bergan (2006)	Free subscription to Washington Post	Governor Elect.	Dem. Share of Votes	2005	Washington	N = 1,011	0.291	0.363	0.940	0.109
<u>Natural Experiments</u>										
DellaVigna and Kaplan (2007)	Fox News Exposure, District f.e.	Presidential Election	Republican Vote Share	2000	28 US States	N = 66,372,804	0.556	0.560	0.127	0.034
	Fox News Exposure, County f.e.						0.556	0.563	0.086	0.084

Calculations of media effect by the authors based on data from the papers cited. Columns (7) and (8) report the share of Republican voters in the Control and Treatment group. Column (9) reports the Exposure Rate, that is, the difference between the Treatment and the Control group in the share of people exposed to the Treatment. Column (10) computes the estimated persuasion rate f as $(t_T - t_C) / ((e_T - e_C) * (1 - t_C))$, except in the first row (see Text). The persuasion rate denotes the share of the audience that was not previously convinced and that is convinced by the message. The data for this paper refer to the estimates obtained using the (predicted) recall audience measure and the diary audience measure, respectively. The data for the Gerber, Karlan, and Bergan (2006) study is courtesy of the authors. For the Ansolabehere and Iyengar (1995) study, we use the data in Tables B1.1 and B2.4 neglecting voters that state the intention not to vote. We obtain the baseline share of voters t_C from Table B1.1 as the weighted average share of the subjects with the same party affiliation as the sponsoring party: $(50/(50+38)) * 46/(46+18) + (38/(50+38)) * 18/(46+18)$.

TABLE II
IMPACT of FOX NEWS on VOTING

Dep. Var.	Vote Share			Turnout		
	Main Result -- Presidential		Persistence	Senate	Presidential	US Senate
	Change in Pres. Rep. 2-party vote share: 2000-1996	Pres. Rep. 2-party vote share in 2000	Pres. Rep. 2-party vote share 2004 - 2000	US Senate Rep. 2-party vote share in 2000	Log Change in Pres. Turnout: 2000-1996	Log Change in Senate Turnout: 2000-1996
Panel A: US House Fixed Effect	(1)	(2)	(3)	(4)	(5)	(6)
Availability of Fox News via cable in 2000	0.0042 (0.0015)***	0.0041 (0.0016)***	0.0021 (0.0020)	0.0072 (0.0026)***	0.0046 (0.0039)	0.0054 (0.0044)
Republican vote share in 1996 1996 presidential race		0.9362 (0.0079)***		0.8295 (0.0111)***		
Fox News in 2000 * (New York Race)				0.0039 (0.0067)		
Control Variables:						
Census controls: 1990 and 2000	X	X	X	X	X	X
Cable system controls	X	X	X	X	X	X
US House District fixed effects	X	X	X	X	X	X
Log change in voting-age pop.: 2000-1996					X	X
R ²	0.7533	0.9824	0.6281	0.9768	0.6151	0.6993
N	N = 9256	N = 9256	N = 8605	N = 8192	N = 9256	N = 8186
Panel B: County Fixed Effects	(1)	(2)	(3)	(4)	(5)	(6)
Availability of Fox News via cable in 2000	0.0069 (0.0014)***	0.0068 (0.0014)***	0.0019 (0.0024)	0.0071 (0.0028)**	0.0178 (0.0051)***	0.0158 (0.0056)***
Republican vote share in 1996 1996 presidential race		0.9432 (0.0092)***		0.8432 (0.0146)***		
Fox News in 2000 * (New York Race)				-0.0017 (0.0060)		
Control Variables:						
Census controls: 1990 and 2000	X	X	X	X	X	X
Cable system controls	X	X	X	X	X	X
County fixed effects	X	X	X	X	X	X
Log change in voting-age pop.: 2000-1996					X	X
R ²	0.8119	0.9865	0.6941	0.9829	0.6863	0.7474
N	N = 9256	N = 9256	N = 8605	N = 8192	N = 9256	N = 8186

An observation in the OLS regressions in columns (1) - (3) and (5) is a town in one of the 28 U.S. states in the sample. Panel A is estimated with US House district fixed effects and Panel B is estimated with county fixed effects. In columns (4) and (6), an observation in the OLS regression is a town in one of the US states with a Senate election in the year 2000. In column (1), the dependent variable is the change in the two-party Republican vote share for the 2000 presidential election. In columns (2), the dependent variable is the two-party Republican vote share in 2000. In column (3), the dependent variable is the 2-party Republican vote share for the 2004 presidential election minus the same variables for the 2000 election. In column (4), the dependent variable is the two-party Republican vote share for Senate in 2000. In column (5), the dependent variable is the log of turnout in Presidential elections in 2000 minus log of turnout in 1996. In column (6), the dependent variable is the log of turnout in US Senate elections in 2000 minus log of turnout in in Presidential elections in 1996. The specification in Column (6) drops 6 outliers (observations with a change in log turnout larger than 1 in absolute value).

In columns (4) and (6), the change in log voting-age population between 1996 and 2000 is an (unreported) control variable. The variable "Availability of Fox News via Cable in 2000" is a binary variable that equals one if Fox News was part of the town's local cable package in 2000. The Census controls are 12 demographic variables from the Census, present both in the 2000 values and in differences between 2000 and 1990. The Cable system controls are deciles in the number of channels provided and in the number of potential subscribers. Robust standard errors clustered by local cable company in parentheses. The observations are weighted by total votes cast in the 1996 presidential election.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

TABLE III
PERSUASION AND MOBILIZATION RATES

Assumptions for Calibration	Geographic Controls (Fixed Effects) Used for the Estimates	Estimated Effect of Fox News on Vote Share	Estimated Effect of Fox News on Turnout	Implied Persuasion Rate f of the Media	Implied Mobilization Rate m of the Media
	(1)	(2)	(3)	(4)	(5)
Panel A: Presidential Elections					
<i>Mobilization = Persuasion</i>	District fixed effects	0.0042	0.0046	0.034	X
<i>Mobilization 100% for Rep.</i>	District fixed effects	0.0042	0.0046	0.025	0.046
<i>Mobilization 56% for Rep.</i>	District fixed effects	0.0042	0.0046	0.054	0.046
<i>Mobilization = Persuasion</i>	County fixed effects	0.0069	0.0178	0.084	X
<i>Mobilization 100% for Rep.</i>	County fixed effects	0.0069	0.0178	-0.052	0.263
<i>Mobilization 56% for Rep.</i>	County fixed effects	0.0069	0.0178	0.115	0.263
Panel B: US Senate Elections					
<i>Mobilization = Persuasion</i>	District fixed effects	0.0072	0.0054	0.054	X
<i>Mobilization 100% for Rep.</i>	District fixed effects	0.0072	0.0054	0.062	0.045
<i>Mobilization 56% for Rep.</i>	District fixed effects	0.0072	0.0054	0.096	0.045
<i>Mobilization = Persuasion</i>	County fixed effects	0.0071	0.0158	0.079	X
<i>Mobilization 100% for Rep.</i>	County fixed effects	0.0071	0.0158	-0.025	0.196
<i>Mobilization 56% for Rep.</i>	County fixed effects	0.0071	0.0158	0.122	0.196

This Table reports the estimated *persuasion rate* and *mobilization rate* of the media implied by the Fox News estimates. The *persuasion rate* is defined as the share of Democratic voters that are convinced to vote Republican due to exposure to Fox News. The *mobilization rate* is defined as the share of non-voters that are convinced to vote due to exposure to Fox News. The Table presents the result for three types of estimates. The first estimate, "*Mobilization=Persuasion*", assumes that mobilization rates equal persuasion rates (that is, the effect of Fox News on non-voters is the same as the effect on Democrats). The second estimate, "*Mobilization 100% for Rep.*", assumes that mobilization rates can differ from persuasion rates, and that all mobilized non-voters vote for the Republicans. The third estimate, "*Mobilization 56% for Rep.*", assumes that mobilization rates can differ from persuasion rates, and that 56% of mobilized non-voters vote for the Republicans and 44% for Democrats (this is based on the composition of the Fox News audience). The formulas and parameters used to calculate the implied mobilization rate and the implied persuasion rate are detailed in the Appendix.

In Panel A, the estimated effect of Fox News on the vote share is the coefficient on the Fox News variable in the Presidential vote share regression (Column (1) in Table II), and the estimated effect on turnout is the coefficient on the Fox News variable in the Presidential turnout regression (Column (5) in Table II). We present separate estimates using US House district fixed effects (Panel A in Table II) and county fixed effects (Panel B in Table II). In Panel B, the estimated effect of Fox News on the vote share is the coefficient on the Fox News variable in the US Senate vote share regression (Column (4) in Table II) and the estimated effect on turnout is the coefficient on the Fox News variable in the US Senate turnout regression (Column (6) in Table II).