The Safest Time to Fly: Pandemic Response in the Era of Fox News*

Maxim Ananyev† Michael Poyker‡ Yuan Tian§

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Abstract

We document a causal effect of conservative Fox News Channel in the United States on physical distancing during COVID-19 pandemic. We measure county-level mobility covering all U.S. states and District of Columbia produced by GPS pings to 15-17 million smartphones and zip-code-level mobility using Facebook location data. Then, using the historical position of Fox News Channel in the cable lineup as the source of exogenous variation, we show that increased exposure to Fox News led to a smaller reduction in distance traveled and smaller increase in the probability to stay home after the national emergency declaration in the United States. Our results show that slanted media can have a harmful effect on containment efforts during a pandemic by affecting people's behaviour.

Keywords: Mobility, Media Bias, Fox News, COVID-19.
JEL codes: J15, N37, Z1

*We thank UNACAST for generously sharing mobility data and Facebook's Data for Good initiative for sharing Facebook users' mobility data. All errors are ours. Correspondence at: Columbia Business School, Uris Hall 126, 3022 Broadway, New York, NY 10027.
†Ananyev: University of Melbourne; e-mail address: maxim.ananyev@unimelb.edu.au
‡Poyker: Columbia University; e-mail address: mp3780@columbia.edu
§Tian: Carnegie Mellon University; e-mail address: ytian2@andrew.cmu.edu

1 Introduction

Media play many important roles in people's lives by transmitting information and shaping beliefs.[1] Such beliefs include trust in government, trust in science, and perception of threat, which can have behavioural implications in many contexts including public health. In such high-stakes cases as pandemics, the influence on how people comply with policies that promote safe behaviors and limit spread of a contagious disease are especially important.

In this paper, we investigate the causal impact of slanted news media on public behaviour during the COVID-19 crisis. COVID-19 is a contagious disease of respiratory system that caused a pandemic in the early 2020. One of the measures deemed necessary to limit the spread of the disease is physical distancing (limiting travel and person-to-person interactions), because the virus spreads through droplets of infected persons (Hatchett, Mecher and Lipsitch, 2007; Anderson et al., 2020; Hsiang et al., 2020). Fox News Channel (hereafter, FNC), the leading cable channel in the United States, has a well-documented conservative bias in its programming (Groseclose and Milyo 2005 and Martin and Yurukoglu 2017). During the initial days of the COVID-19 pandemic, FNC's commentators concentrated on delivering three messages: (i) emphasizing potential culpability of China and Chinese government in the pandemic; (ii) downplaying potential dangers of the virus and suggesting untested medical procedures; (iii) alleging that Democrats use the pandemic to undermine President Trump before the election. These messages could potentially affect people's evaluation of the risk and thus their willingness to self-isolate during the crisis.

Using an exogenous variation in the exposure to Fox News Channel, we document a statistically significant and economically sizable effect of FNC on physical distancing. Following Martin and Yurukoglu (2017), we exploit the exogeneity of the historical position of FNC in cable lineup. This variable has been shown to be (i) unrelated to the socio-demographic and political condition prior to the introduction of FNC, and (ii) strongly predictive of actual FNC viewership once the channel is introduced. Our effects can come from three channels. First, FNC viewership directly feeds people with the three aforementioned messages. Second, the build-up of the conservative ideology can make people less willing to adopt drastic changes in their behavior and living habits. Third, conservative population may be more susceptible to FNC's messages.

We use internet-based location data to measure social distancing behaviour. It is generally hard to directly observe people's actions. In our case, however, we measure the county-level changes in distance traveled using location data of 15-17 million smartphones provided by UNACAST, and zip-code-level measures of mobility using GPS pings of smartphones of Facebook users.

In our main specification, we regress the change in physical-distancing measures on FNC exposure — the standardized position of FNC in a cable lineup. Our hypothesis is that after the declaration of national emergency on March 13, people are likely to adopt social distancing practices; less

[1] Scholars have shown that slanted media have an impact on voting and political preferences (DellaVigna and Kaplan, 2007; Enikolopov, Petrova and Zhuravskaya, 2011; Adena et al., 2015), collective actions (Zernike, 2010), political polarization (Prior, 2007; Martin and Yurukoglu, 2017), investment decisions (Friebel and Heinz, 2014), political polarization (Martin and Yurukoglu, 2017), judicial decisions (Ash and Poyker, 2019), city budgets (Galletta and Ash, 2019), and candidate entry (Arceneaux et al., 2020).

so for regions more exposed to FNC. Although states enacted different orders in terms of shelter-in-place practices and business operations at different times, the declaration of national emergency is a salient landmark in governments' campaign against COVID-19 at the national level. We interact time-invariant FNC lineup position with a dummy for post- and pre-national emergency dates. Consistent with our hypothesis, we find that before the national emergency, the mobility was close the levels in the pre-COVID period in *all* areas. After national emergency was announced, one-standard-deviation increase in FNC exposure led to a 0.5-percentage-point larger decline in the county-level average of distance traveled relative to pre-COVID period and 0.1-percentage-point larger decrease in the probability of staying at home.

We conduct various robustness checks. Our results are not driven by a particular set of states and are not explained by alternative explanations, most notably that high-FNC exposed locations are less likely to have employment composition favourable for work-from-home, or be in more rural locations. Controlling for CNN and MSNBC does not affect the FNC estimates, indicating that our effects are not through crowding out of alternative media. Our result are robust to using county-level and zip-code-level Facebook data for 14 states. We also provide an event-study specification that allows us to control for the time path of the effect and estimate weekly coefficients for weeks before and after the national emergency. We find that the effect of Fox News is constant in the weeks after the national emergency was pronounced and did not diminish in the four weeks of the post-emergency period. Finally, we replicate our results using state-specific shelter-in-place orders. While our results hold for periods after the orders were enacted, we find that people started to self-isolate even before that. Thus, overall we think that national emergency was really the starting point of social-distancing.

We interpret our result as the combination of the direct information channel and the indirect effect through the interaction with built-up conservatism. We control for Republican vote shares in the 2016 election, and it does not affect the magnitude and significant of the estimate of FNC exposure effect.

To put the magnitude of our results in context, the biggest decrease in distance traveled per person after March 13 happened in District of Columbia (59 percent), and the smallest one — in Nevada (13 percent). According to the estimates of Martin and Yurukoglu (2017), moving FNC from channel 10 to channel 40 (approximately, two standard deviations) is associated with a 2.5-minutes reduction per week per person in time spent watching FNC. According to our results, when FNC is moved 30 positions higher in the cable lineup, it decreases social-distancing by one percentage point. This effect can explain 2% and 8% of the total reduction in population movement in DC and Nevada, respectively. As for the probability of staying at home, among the 14 states (plus DC) where we have zip-code-level data, the 30-positions change in FNC increases of the probability of staying at home by 0.2 percentage point. This explains 2% and 33% of the increase in probability of staying at home in DC and West Virginia, respectively, which had the biggest and smallest changes.

We also provide evidence that these differences were consequential for mortality. Specifically,

we find that a one-standard-deviation increase in FNC lineup position decreased the number of COVID-related deaths by 2.2 percent by the end of March. This result is consistent with Bursztyn et al. (2020).

Our paper contributes to several strands of literature. First is the literature on the impact of media. Several pieces of work have documented the impact of media on voting outcomes (DellaVigna and Kaplan, 2007; Enikolopov, Petrova and Zhuravskaya, 2011), conflict (Yanagizawa-Drott, 2014), popularity of extreme parties (Adena et al., 2015), among others. Following Martin and Yurukoglu (2017), we add to the literature by showing how biased media can have public health consequences, a usually non-political outcome, through changing people's behavior. We demonstrate that in addition to shaping people's mindsets in the long run, the information conveyed by the biased media on the interpretation of scientific advice and policies can be costly to the society, especially when collective action is needed in the time of public health crises.

Second, we contribute to the literature on using granular real-time individual-level data to study people's behavior. Researchers have used cell phone location data to measure commuting and economic activities (Kreindler and Miyauchi, 2019) and segregation (Athey et al., 2019), cellphones' call data to investigate the impact of social networks on mobility (Büchel et al., 2019; Blumenstock, Chi and Tan, 2019) and job referrals (Barwick et al., 2019), and Facebook friendship data to measure social connectedness (Bailey et al., 2018) and study its impact on disease transmission in the case of COVID-19 (Kuchler, Russel and Stroebel, 2020). This type of data is especially useful in our context, since we can directly observe people's behavior in terms of complying with the social distancing policy and track the real-time changes. In addition to documenting the changes in mobility before and after the declaration of national emergency and the geographically distribution of mobility, we investigate the potential determinants of such geographically variation and highlight the importance of media.

Finally, our paper adds to the rapidly growing literature on the COVID-19 pandemic, especially on determinants of physical distancing and transmission. Wright et al. (2020) shows that shelter-in-place ordinances were effective in reducing mobility and that compliance was correlated with both economic conditions and political opinions. Similarly, Allcott et al. (2020) shows a gap in a physical distancing between places with more Republicans and places with more Democrats and suggests that partisan messaging was one of the mechanisms. We share the features of these two papers by using cellphone location data to measure mobility; however by using a plausibly exogenous variation in exposure to FNC, we causally identify the effect of media on social distancing practices. We emphasize that not only the pre-existing political views but also the flow of information through (politicized) media can shape people's view. Bursztyn et al. (2020) identifies the effect of watching the most popular FNC show, Hannity, on mortality. We instead focus on behavior responses. By using much finer geographically variation (county-level and zip-code-level instead of relatively large Designated Market Area level), the timing of the declaration of national emergency, and direct measures of behavior responses, we show how exactly FNC viewership can affect efforts in combat with the infectious diseases.

2 Background: COVID-19 and Fox News Channel

2.1 COVID-19 and Social-Distancing

COVID-19 is a disease of the respiratory system caused by a new coronavirus (SARS-CoV-2). The first case was reported on December 31 in Wuhan, China, and the first death from the new virus was reported in China on January 7. The virus then rapidly spread to other countries (the first case outside China was reported on January 13, 2020). The WHO declared a pandemic on March 11, 2020.[2] The first confirmed case in the U.S. happened on January 21, 2020. As of April 28, 2020, the Center for Disease Control and Prevention (hereafter, CDC) reported 981,246 total cases in the U.S. and 55,258 deaths related to the illness.[3] Due to its means of transmission, the CDC advised that "limiting face-to-face contact with others" was "the best way to reduce the spread of coronavirus disease."[4]

2.2 Messages of the Fox News Channel

FNC is the leading cable channel in the U.S. with an estimated 3.5 million prime-time viewers.[5] During the initial days of the COVID-19 spread, FNC engaged in three major discussions on the topic: China's culpability, COVID-19's insubstantiality, and Democrats' partisan interests.

First, when President Trump used the term "Chinese coronavirus," some of his critics suggested that this term would fuel prejudice against Chinese nationals in the U.S. and Chinese-Americans. Some of the FNC hosts spent a significant amount of time rebutting this claim. For example, Sean Hannity said on March 12, 2020:

> Over there at fake news CNN, you have fake news Jimmy Acosta, well, he's most worried about the president's terminology, thinking the president's speech was racist because he said the fire started in China.[6]

Another issue was on the credibility of Chinese data. On February, 18, Laura Ingraham, the host of "Ingraham Angle" (the third most-watched FNC show), said:

> All right and speaking of China, as the coronavirus spreads, the flow of reliable information from China is basically trickling to a stop, if it ever existed at all. Now why is that? And what exactly are they hiding from us?[7]

[2] WHO COVID-19 Timeline. URL: who.int/news-room/detail/27-04-2020-who-timeline---covid-19.

[3] CDC. URL: cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html (accessed on 28/04/2020).

[4] CDC. URL: cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html (accessed on 28/04/2020).

[5] Foxnews.com: "Fox News reaches highest viewership...", URL: https://www.foxnews.com/media/highest-viewership-network-history-msnbc-cnn-2020.

[6] Fox News Network Fox Hannity 9:00 pm EST March 12, 2020 Thursday. Source: Nexis Uni database.

[7] Fox News Network Ingraham Angle 10:00 pm EST February 18, 2020 Tuesday. Source: Nexis Uni database.

FNC personalities also discussed a specific hypothesis about the origin of the virus, suggesting that it might come from Wuhan Institute of Virology. In particular, Tucker Carlson, the host of "Tucker Carlson Tonight" (the second most-watched FNC show), said on March 12. 2020:

> In fact, the outbreak may have begun not in a public meat market, but in a poorly run Chinese laboratory. Now, that's not our theory. Anyone who raises that theory on American television is attacked as a conspiracy monger.[8]

Second, many of the FNC hosts either were dismissive towards the potential dangers of the virus or ignored it completely. On March 13 (two days after the WHO had declared a pandemic), "Fox & Friends" host Ainsley Earhardt told the viewers that it was "the safest time to fly" because "the terminals are dead."Another FNC personality, Jeanine Pirro, the host of "Justice with Judge Jeanine," on March 7 said: "All the talk about coronavirus being much more deadly [than seasonal flu] does not reflect reality."[9] In addition, some shows spread misinformation of diagnostics and preventive methods. For example, Correspondent Geraldo Rivera suggested a simple (but lacking any scientific merit) diagnostic procedure:

> If you can't hold your breath for 10 seconds. Everyone should do that. Hold your breath for 10 seconds. If you can hold your breath for 10 seconds then you don't have this disease.[10]

Third, a large amount of air time was devoted to accusation of the Democratic party's "politicizing" the virus and using it opportunistically to harm the reputation of President Trump. On March 9, Fox host Sean Hannity, suggested that opponents of the president were "scaring the living hell out of people."[11] Laura Ingraham, the host of "Ingraham Angle," said on February 25:

> After their politically disastrous impeachment and the fierce intraparty fighting ... Democrats needed to change the subject and fast. So, like the Coronavirus itself, Democrats and friends moved to quickly infect the political discussion with viral recriminations.[12]

After the declaration of national emergency by President Trump on March 13, 2020, the messaging of FNC shifted towards more emphasis on the importance of distancing and other preventive measures, but not entirely.[13] In addition, the initial period of partisan messaging could have influenced the attitudes of FNC viewers in a way that later shifts could not completely revert due to the confirmation bias (Nickerson, 1998).

[8]Fox News Network Tucker Carlson Tonight 8:00 pm EST March 12, 2020 Thursday. Source: transcripts of Tucker Carlson Tonight from Nexi Uni database.

[9]Not everyone at Fox was dismissive of the dangers of COVID-19. For example, Tucker Carlson warned his viewers several times during the early days of the disease and even seemed to criticize his FNC colleagues (though he also spent significant time critically discussing state-level lockdown policies). See, for example, Fox News Network Tucker Carlson Tonight 8:00 pm EST from February 27, 28, and March 11. Source: Nexis Uni database.

[10]Mediaite.com, "Fox & Friends..." URL: www.mediaite.com/tv/fox-friends-churns-out-insane-misinformation-on-coronavirus/.

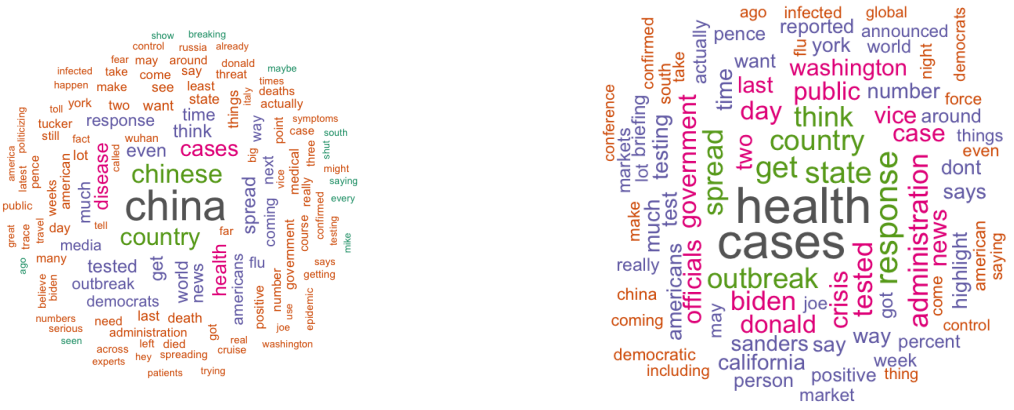
[11]Fox News Network Fox Hannity 9:00 pm EST March 9, 2020 Monday, Source: Nexis Uni database.

[12]Fox News Network Ingraham Angle 10:00 pm EST, Source: Nexis Uni Database.

[13]Washington Post: "How Fox News has shifted its coronavirus rhetoric," www.youtube.com/watch?v=ifKbwDf51bA).

Figure 1: Fox News Messaging and Social Distancing

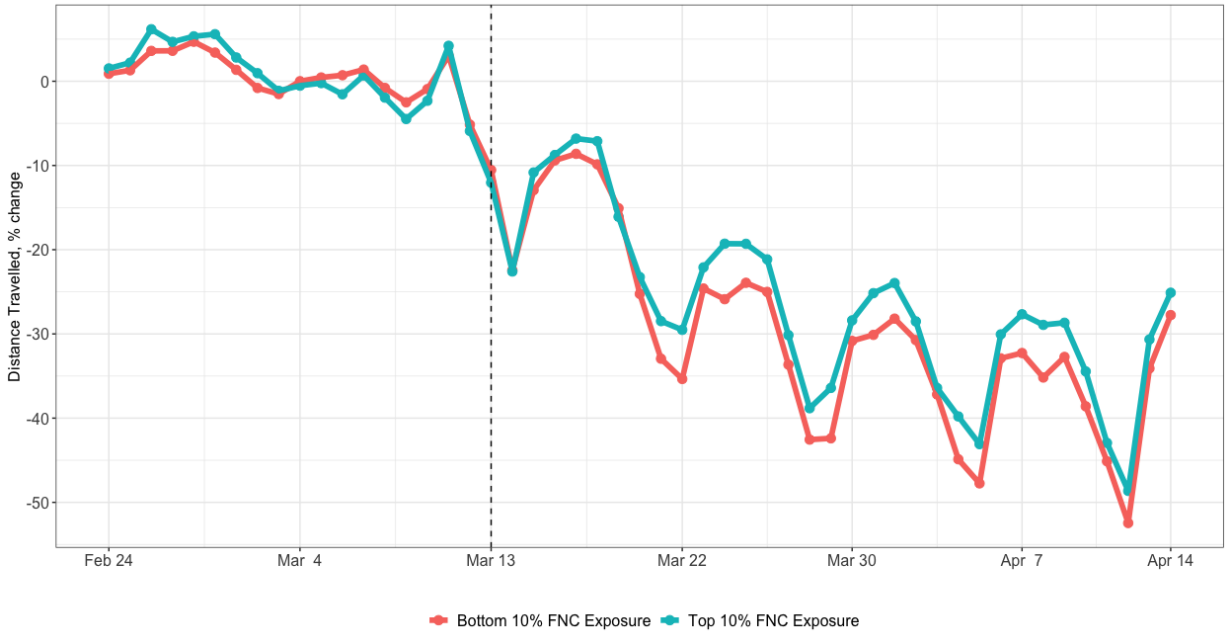
Panel A: Word Clouds of COVID-19 Coverage for Fox News and MSNBC



(a) Fox News Channel

(b) MSNBC

Panel B: Fox News and Social Distancing



Note: (a) Panel A shows word clouds of COVID-19 coverage from three most-watched FNC shows (Hannity, Tucker Carlson Tonight, and Ingraham Angle) on the left and MSNBC on the right. Transcripts are from February 1, 2020, to March 12, 2020, downloaded via LexisNexis. To build the word clouds, we select only paragraphs containing the word "coronavirus" and remove common English stop-words as well three most common words in both FNC and MSNBC ("president," "Trump," and "people"). We also remove non-informative about the tone of the coverage words like "united," "states," "white," and "house." We built word clouds with remaining words. *(b)* Panel B shows the changes in daily distance traveled. The red line show changes in counties in bottom 10% of the FOX News exposure (i.e., higher FOX News Channel number, channel positions 64-to-95). The blue line show changes in counties in top 10% of the FOX News exposure (i.e., lower FOX News Channel number, channel positions 1-to-24). Vertical dashed line represents announcement of national state of emergency on March 13th.

The coronavirus coverage by FNC was different from that by other major cable channels. The most popular host of MSNBC (the second most-watched cable channel in the U.S.), Rachel Maddow covered the spread of the virus, both internationally and in the U.S., and criticized the Republican administration for lack of testing capacity and other issues.[14] CNN (the third most-watched cable channel) largely focused on reporting facts, with occasional criticism of some of Trump's epidemiological claims.[15]

To illustrate some of the distinct features of FNC coronavirus coverage, Panel A of Figure 1 plots the word-cloud of paragraphs including the word "coronavirus" constructed from LexisNexis transcripts of top-3 FNC shows ("Hannity," "Tucker Carlson Tonight," and "Ingraham Angle") as well as a similar word cloud of MSNBC transcripts from February 1 to March 12. For both networks, we excluded the three most common terms: "President," "Trump," and "people." We see that the most common words in MSNBC coverage were "health" and "cases," while for the top FNC commentators, two most common words were "China" and "Chinese."

2.3 The Effect of Fox News Channel on the Compliance with Social-Distancing

As a preview of our main result, we present a visual evidence on how exposure to FNC affected the compliance with social-distancing. Panel B of Figure 1 plots changes in daily distance traveled for the top 10 percentile of U.S. counties in terms of channel position of FNC (blue line) and that of the bottom 10 percentile (red line).[16] There are three observations from the graph. First, before national emergency (vertical dashed line), both types of counties did not change the patterns of mobility compared to the pre-COVID period. Second, after March 13, both groups reduced mobility. Third, afterwards, counties with lower channel positions (red) experienced a larger decline in the daily distance traveled than those in with the higher channel position, highlighting the role of FNC exposure.

3 Data and Measures: Fox News Exposure and Social Distancing

3.1 Exogenous Variation in Fox News Exposure

We first construct the measure of exposure to FNC. FNC viewership is correlated with political preferences, which can potentially bias our estimate of the effect of FNC viewership on social distancing. For example, since many of the FNC hosts are conservative, its viewers might be inherently more likely to view government measures with suspicion, which might reduce their compliance. Also, given the well-documented urban/rural ideological divide in the U.S., it is likely the people from rural counties watch FNC more and are more limited in how much travel they can avoid.

[14] See msnbc.com/transcripts/rachel-maddow-show/2020-03-09.
[15] See https://edition.cnn.com/2020/04/13/world/cnn-coronavirus-coverage/index.html.
[16] We describe construction of the main variables in the next Section.

Instead of using actual viewership, we use an exogenous variation in exposure to FNC: the position of FNC in the cable lineup. FNC was launched in 1996 and quickly expanded its geographic coverage through bilateral negotiations with local cable providers. As a result of those negotiations, those providers started offering FNC as a part of their packages usually replacing one of their channels with the goal to minimize the change in the existing lineup and not to disrupt the experience of the viewers. This process created quasi-experimental variation in FNC exposure. When FNC has a larger number in the cable lineup position, people are less likely to watch it because it takes more efforts to move to this channel. See detailed discussions in Martin and Yurukoglu (2017).[17]

We obtain zip-code-level average historical (2005) position of FNC by Nielsen from Martin and Yurukoglu (2017). County-level measures of exposure are aggregates of zip-code-level ones using population weights. FNC channel positions varies from 1 in cable lineup to 95, and its standard deviation is about 15 channels.[18] We provide an array of balance tests in Appendix Table 1, where we regress demographic and socio-economic variables on FNC position in cable lineup in 2005. All estimates are not statistically different from zero, indicating that FNC position is uncorrelated with the initial conditions.

3.2 Smartphones Data on People's Mobility

The county-level estimates of reductions in mobility come from the New York-based technology company UNACAST, inc (Unacast, 2020). Using the GPS locations, an identifier (smartphone) is assigned to a county with the largest total duration of stay. There are 15-17 million identifiers for each day in the dataset, from February 24, 2020 to April 14, 2020, and the total distance traveled per device is then averaged at the county level. To take into account the baseline differences in mobility across regions, each weekday is assigned a baseline distance traveled, using the same weekday during the four weeks before March 8, 2020 (a date that is coded as the start of COVID-19 outbreak in the U.S.). Then, the reduction in distance traveled in a day is measured as the percent reduction between the current date and the baseline weekday. Appendix Figure 2 plots the raw variation in average changes in daily distance traveled (post-March 13, 2020).

The zip-code-level mobility measure is constructed using data from Facebook's Data for Good.[19] In contrast to the UNACAST dataset, the Facebook data starts on March 10, 2020 and covers only 327 counties on the east coast and west coast of the United States, located in District of Columbia and 14 states.[20] There are about 4.8 million devices per day. With information from people using Facebook on their mobile phones with Location History enabled, a person's movement between two time windows is measured as tile-to-tile movements, where a time-window is a 8-hour period

[17] The first-stage relationship between channel lineup and FNC viewership on the zip-code level is in Table 2 of Martin and Yurukoglu (2017). County-level relationship can be seen in Appendix Figure 1 of Ash and Poyker (2019).

[18] Appendix Figure 1 shows the distribution of the FNC channel positions on the county-level.

[19] https://dataforgood.fb.com/docs/covid19/.

[20] The 14 states include Arizona, California, Delaware, Idaho, Maryland, Montana, Nevada, New Jersey, Oregon, Pennsylvania, Utah, Virginia, Washington, and West Virginia. Some of these states are only partially in the data. E.g., we only have east of Pennsylvania, from Harrisburg to the border with New Jersey.

and a tile is a 10km by 10km ground square.[21] After assigning tiles to zip codes/counties, we construct two measures using these movement vectors: (i) the probability of staying in the same tile, which we call "staying at home," and (ii) total distance traveled.[22] Since there are three time windows per day, we take the mean of the three observations. Pre-COVID period is defined as the 45 days prior to March 10, 2020, and both measures are constructed for this baseline period. Although the baseline data is constant at each tile-to-tile vector, mobility measures at different dates can still have different baseline values since a vector is only recorded if more than 10 users made the move. In addition to the mobility information, we also construct the total Facebook population at the zip code and at the county level.

3.3 Other Factors Affecting Mobility

There are several factors other than media viewership that could potentially affect the extent of social distancing practices. Importantly, some jobs can be more easily switched to the online mode than others. Thus, depending on the industry where people work, a region's compliance with social distancing policy can vary. We obtain MSA-level shares of employment in workable-at-home industries from Dingel and Neiman (2020) to capture this factor. We get additional county-level measure from various sources: voting, socio-economic conditions, the share of non-white population. The details of the data sources and summary of statistics can be found in Appendix Table 1.

4 Empirical Specification and Results

4.1 Empirical Specification

The objective of the empirical exercise is to identify the effect of exposure to FNC on social distancing after the National Emergency was announced on March 13th. The pre-March 13th observations are used to test pre-trends. Our main specification is the following county-date panel regression:

$$SD_{i(s)t} = \beta_1 FNCP_{i(s)} \times \text{Before}_t + \beta_2 FNCP_{i(s)} \times \text{After}_t + X_{i(s)}\Gamma + \mu_s + \lambda_t + \epsilon_{i(s)t}, \qquad (1)$$

where $SD_{i(s)t}$ is a measure of social-distancing in a county i located in state s on date t, $FNCP_{i(s)}$ is the 2005 FNC position in channel lineup, and Before_t (After_t) is a dummy equal to one for dates before (after) the national emergency. $FNCP_{i(s)}$ is normalized to have a mean of zero and a standard deviation of one, and a larger $FNCP_{i(s)}$ is associated with a smaller exposure to Fox News. The coefficient of interest β_2 captures the effect of FNC on social distancing after national emergency is announced. We expect it to be negative: counties with larger FNC lineup positions have

[21] For details, see https://docs.microsoft.com/en-us/bingmaps/articles/bing-maps-tile-system.
[22] Note that distance traveled is zero if a person stays at the same tile.

a larger decrease in the daily distance traveled relative to their pre-COVID baseline. We control for state (μ_s) and date (λ_t) fixed effects. Vector $X_{i(s)}$ includes a set of county-level controls (population, population density, land area, nonwhite population share, urban dummy, unemployment rate, poverty rate, migrant share, voting turnout, and Trump's 2016 vote share). Standard errors are clustered at the state level.[23]

4.2 Main Results

Table 1 reports the main results with various sets of county-level controls and fixed effects. In Panel A Column I, we estimates Equation 1 with only state and date fixed effects. The estimand $\widehat{\beta}_1$ is statistically insignificant, indicating that counties did not have differential patterns in social distancing before national emergency. The point-estimate of interest $\widehat{\beta}_2$ is negative and significant. It suggests that a one-standard-deviation increase in FNC lineup led to a 0.6-percentage-point larger decline in average distance traveled.

In Columns II–VII, we sequentially add controls for demographic and socio-economic variables. Population and urban controls are important determinants of peoples' mobility as was shown in Chen and Pope (2020). Poverty, median income, and unemployment rates are important because areas that watch FNC for 24 years may become poorer and have to go to work even after the national emergency is announced. Inclusion of aforementioned controls does not affect the size or significance of our coefficient of interest.

Finally, in Column VIII, we control for the turnover and Republican share at the 2016 elections. As FNC affected general level of conservatism of local population, it can potentially affect people's response towards recommendations for social distancing. We find that controlling for these conservatism proxies does not affect the coefficient estimate of FNC exposure. Thus, our results are not driven by the accumulated FNC effect but by its immediate reaction to COVID-19, and possible by the interaction of the two.

The results are similar when we re-estimate Equation 1 without pre-trends:

$$SD_{i(s)t} = \beta FNCP_{i(s)} \times \text{After}_t + X_{i(s)}\Gamma + \mu_s + \lambda_t + \epsilon_{i(s)t}, \tag{2}$$

as shown in Panel B reports.

We also want to test if the FNC effect come from crowding out viewership of other media. If people watch less FNC and at the same time watch more of other channels such as CNN and MSNBC, our coefficient estimates may reflect the positive effect of other media instead of the negative effect of FNC.[24] Panel C replicates Panel B but adds controls for the channel positions of CNN and MSNBC. Neither of them appears to be significant and the coefficient for the FNC position lineup remains unchanged.

[23] Results hold if we cluster by county or double-cluster by state and date or county and date. Clustering by state yield the most conservative standard errors.

[24] Martin and Yurukoglu (2017) demonstrate that CNN is the least biased channel of the three, while MSNBC is more left-skewed.

Table 1: Effects of Fox News Channel Position on Reductions in Mobility

	I	II	III	IV	V	VI	VII	VIII
Panel A:baseline	Dependent variable: Difference in daily distance traveled							
Fox News channel position	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003
x Before National Emergency	(0.0019)	(0.0018)	(0.0019)	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)
Fox News channel position	-0.006**	-0.006**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
x After National Emergency	(0.0027)	(0.0026)	(0.0024)	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
R-squared	0.669	0.675	0.679	0.687	0.687	0.687	0.688	0.692
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876	119,876
Panel B: ~no pre-trends								
Fox News channel position	-0.006**	-0.006**	-0.006**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
x After National Emergency	(0.0027)	(0.0026)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0023)
R-squared	0.669	0.675	0.679	0.687	0.687	0.687	0.688	0.692
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876	119,876
Panel C: ~ with other channels								
Fox News channel position	-0.005*	-0.005*	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
	(0.0028)	(0.0027)	(0.0025)	(0.0024)	(0.0024)	(0.0024)	(0.0023)	(0.0024)
CNN channel position	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001
	(0.0019)	(0.0018)	(0.0017)	(0.0018)	(0.0018)	(0.0018)	(0.0017)	(0.0017)
MSNBC channel position	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.001	0.001
	(0.0019)	(0.0017)	(0.0016)	(0.0015)	(0.0014)	(0.0014)	(0.0014)	(0.0013)
R-squared	0.687	0.691	0.695	0.703	0.703	0.703	0.704	0.708
Observations	104,400	104,400	104,400	104,400	104,400	104,400	104,400	104,400
FEs: State	✓	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓	✓
FEs: Urban			✓	✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓	✓
Share nonwhite					✓	✓	✓	✓
Migration controls						✓	✓	✓
Poverty controls							✓	✓
Republican vote share								✓

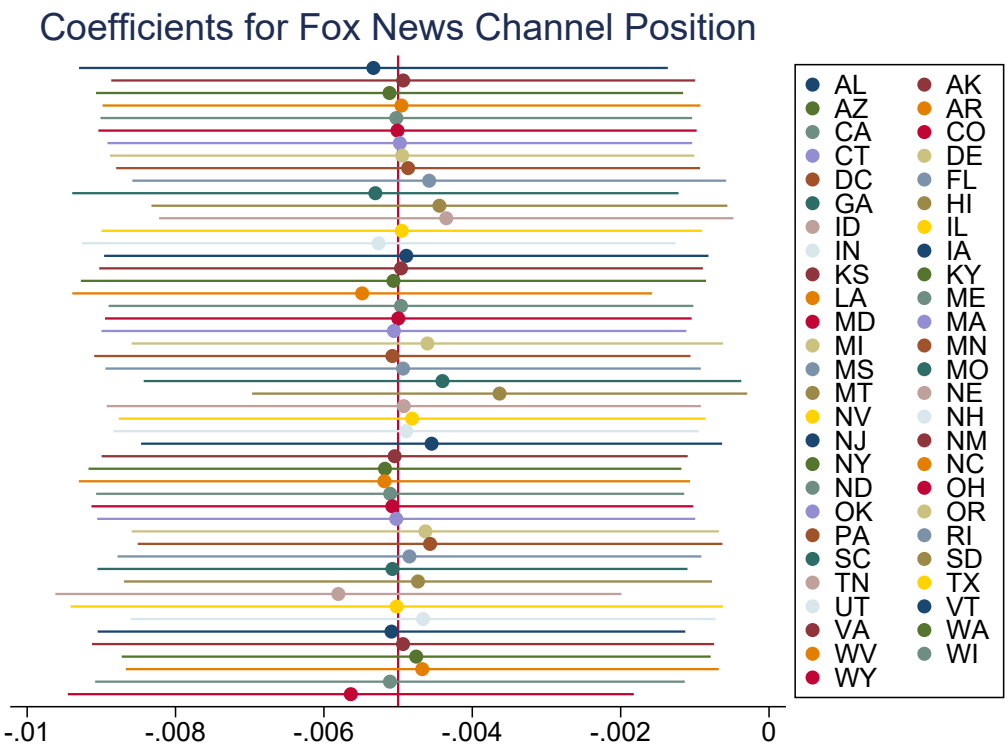
Note: (a) The explanatory variable in all Panels is normalized to mean zero and standard deviation of one. *(b)* The dependent variable is the difference in daily distance traveled. *(c)* All regressions include state and date fixed effects. Economic controls include unemployment rate in 2015 and economic-dependence county indicator. Population controls include population, population density, and county's land area. Poverty controls include poverty rate and median income. Migration controls include net domestic migration rate. Republican vote share includes vote share in 2016 presidential elections. *(d)* In parentheses we report standard errors clustered on state level. *** p<0.01, ** p<0.05, * p<0.1

People's ability to practice social distancing can be comprised if they work in industries where jobs cannot be done remotely. If exposure to FNC overtime resulted in changes in industrial composition (e.g., through voting for Republicans in local elections) and these locations have more jobs that are not doable from home, then people in these locations will decrease their mobility less. To check that our results are not driven by industrial compositions, we control for different measures of the share of employment workable at home (Columns II–V of Appendix Table 2). The FNC effect remains the same.[25]

We also check if our results are driven by some specific regions. We find that urban and rural areas did not respond differentially to the FNC exposure (Columns VI–VII of Appendix Table 2). In addition, it was not driven by some particular state (Figure 2).

[25]In addition, we show that shares of workable-at-home jobs do not correlate with the FNC channel position (see Appendix Table 1).

Figure 2: Results are Not Driven by a Particular State



Note: This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VIII of Panel B of Table 1, dropping one state at a time. The (red) vertical line is the baseline point estimate. The results are sorted top-to-bottom in alphabetical order, i.e., omit AL, then AK, then AZ, etc. Dropping Montana increases the coefficient the most. Dropping Tennessee decreases the point-estimate the most.

An alternative way to define the start of people's awareness of the policy recommendation of social distancing is using states' shelter-in-place orders rather than the national emergency. Suppose that states where voters had been more exposed to FNC also voted for the government that was later in issuing stay-at-home order. In addition, people follow these state-level shelter-in-place orders. Then our effect can be explained by people with more exposure to FNC decreasing their movement less because of the lagged timing of shelter-in-place policies. We find similar results of FNC using the shelter-in-place order timings, suggesting that people are paying attention to both federal and state recommendations and that the state order timings are not endogenous with respect to FNC channel positions (Appendix Table 3).

4.3 Event Study Evidence

In the previous Section, we show results for non-dynamic specifications, where there is only one coefficient estimate for the FNC exposure for all dates after national emergency was an-

nounced. Alternatively, we allow separate point-estimates for weeks from February 24th to April 14th as follows:

$$SD_{i(s)t(w)} = \underbrace{\sum_{l=-4}^{-1} \gamma_l \cdot FNCP_{i(s)} \cdot \mathrm{D}(w=l)}_{\text{pre-event period}} + \underbrace{\sum_{l=0}^{4} \gamma_l \cdot FNCP_{i(s)} \cdot \mathrm{D}(w=l)}_{\text{post-event period}} + X_{i(s)}\Gamma + \lambda_{t(w)} + \mu_s + \varepsilon_{i(s)t(w)}, \tag{3}$$

where $SD_{i(s)t(w)}$ is social-distancing outcome of county i in state s at date t in week w. Week $w = 0$ is the week of March 13 to March 20. Week indices run from -4 to 4 and represent the position of weeks relative to Week $w = 0$. $\mathrm{D}(w = l)$ is a dummy equal to one if week $w = l$. Here, $\lambda_{t(w)}$ are date fixed effects and μ_s are state fixed effects. Coefficients γ_l with $l \geq 0$ capture the FNC exposure effect in the post national emergency period, and the ones with $l < 0$ capture pre-trends.

Figure 3 plots the resulting coefficients of Equation (3) for the specification without controls (Panel A) and with the full set of controls (Panel B). The first noteworthy feature is that neither specification exhibits pre-trends. There is an increase in the coefficient for the week prior to March 13th; however, the point estimate is insignificant. We fail to reject the joint F-test that the pre-event γ_ls are zero. This suggests that the exact timing of the national emergency is not related to trends in social distancing in more-FNC-exposed counties and that social distancing behaviour did not start to change before the national emergency was announced.[26]

The second noteworthy feature is that while we do not observe any effect at the week zero (γ_0), four point estimates for four weeks after March 13th have almost the same magnitude as the point estimate of $\widehat{\beta}_2$ from the baseline specification in Table 1. Thus the effect is constant across all weeks and our baseline specification (1) captures the full time path of the effect.

We also replicate similar event-study graphs for the shelter-at-home orders (see Appendix Figure 3). Here, each state had its own relative time as Week 0 started at the date when the state issued the order. While we see negative effects of the FNC channel position in the post period, there are evident (while insignificant) downward pre-trends. This suggests that people might have started to decrease their mobility after the national emergency was announced but before their state officially ordered them to stay home.

4.4 Zip-Code-Level Results

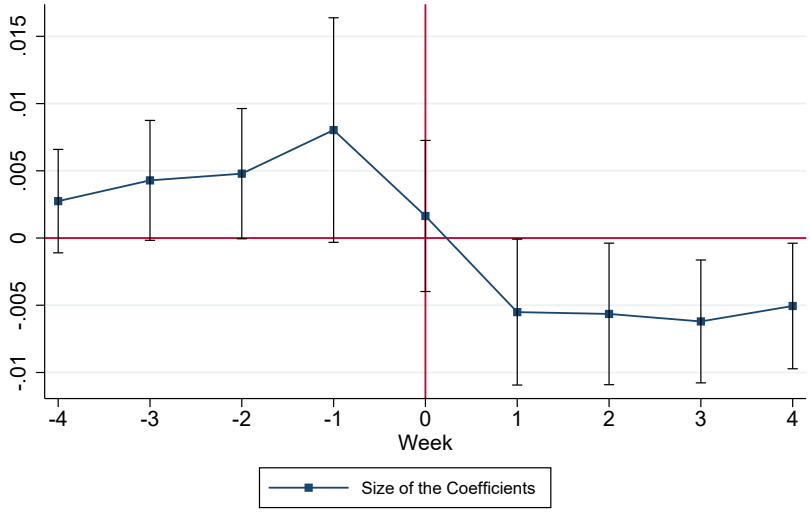
Thanks to Facebook's "Data for Good" project, we are able to investigate effect of slant media on zip-code-level data for the subsample of 14 states and DC. Since the channel positions are initially on the zip-code level, we decrease potential measurement error.

We first confirm that county-level social distancing measures using Facebook data are highly correlated with measures using UNACAST data. Appendix Figure 4 shows the residual plots of the regression of UNACAST's changes in distance traveled on Facebook's distance traveled (Panel

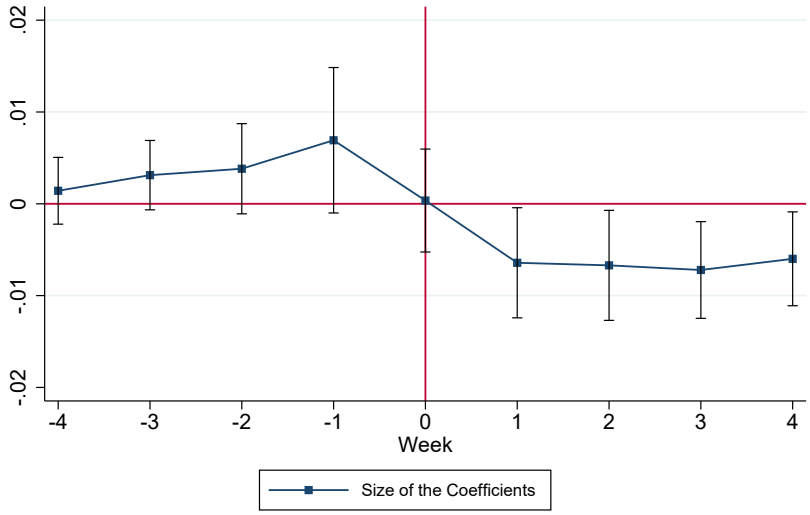
[26] These specifications correspond to Column I and Column VIII of Table 1. Point estimates for Figure 3 are reported in Appendix Table 4.

Figure 3: Event Study Analysis: No Changes in Distanced Traveled Before Week 0 and Large Reductions Afterwards

Panel A: Equation (3) with no controls



Panel B: Equation (3) with full set of controls



Note: This Figure graphs the results of estimating equation eqt:eventstudy for specification without controls (in Panel A) and with the full set of controls (in green). The former is corresponding to the specification in Column I of Table 1. The latter is corresponding to the specification in Column VIII of Table 1. Point estimates are reported in Appendix Table 4. P-values for the joint significance of the pre-trend's coefficients are equal to 0.4034 for Panel A and 0.4480 for Panel B. Following best practice, we bin the end-points, so that the fourth to the fifth week before and after March 13th each share a coefficient (Borusyak and Jaravel 2016; Schmidheiny and Siegloch 2019).

A) and Facebook's probability of staying at home (Panel B). In both graphs, the measures are strongly correlated. We also show that our baseline results in Table 1 hold if we use county-level Facebook measures (Appendix Table 5).

Because Facebook's data start on March 10th, we can't estimate pre-trends as we did in the specification. In addition, instead of the changes in mobility, we observe the levels of mobility in the Facebook data. Thus, we control for the pre-COVID mobility more flexibly using the following equation:

$$M_{j(s)t} = \beta FNCP_{j(s)} + \phi M_{j(s)t-45} + X_{j(s)}\Gamma + \mu_s + \lambda_t + \epsilon_{j(s)t}, \tag{4}$$

where $M_{j(s)t}$ is the mobility measure of zip code j in state s and date t and $M_{j(s)t-45}$ is the corresponding mobility measure in the 45 days before March 10. $FNCP_{j(s)}$ is the FNC lineup position in zip-code j in state s. We again control for state and time fixed effects. Vector $X_{j(s)}$ now contains zip-code-level controls, including the number of Facebook bing tiles covered, number of Facebook users, population, population density, number of housing units, and land area.

Table 2: Zip-Code-Level Evidence: More Fox News Exposure, Longer Distance Traveled, and Smaller Probability of Staying at Home

	I	II	III	IV	V	VI	VII
Panel A:	Dependent variable: Probability staying at home						
Fox News channel position	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
R-squared	0.909	0.914	0.915	0.924	0.924	0.924	0.925
Observations	85,511	83,004	83,004	83,004	83,004	83,004	83,004
Panel B:			Dependent variable: Distance traveled				
Fox News channel position	-0.005	-0.005*	-0.008**	-0.007*	-0.007*	-0.008**	-0.008**
	(0.0032)	(0.0031)	(0.0037)	(0.0037)	(0.0038)	(0.0038)	(0.0037)
R-squared	0.921	0.924	0.926	0.943	0.943	0.943	0.944
Observations	84,818	82,311	82,311	82,311	82,311	82,311	82,311
Pre-COVID baseline Y	✓	✓	✓	✓	✓	✓	✓
# tiles & Facebook population	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓				
Population density		✓	✓	✓	✓	✓	✓
FEs: State			✓				
FEs: Date x state				✓	✓	✓	✓
Population					✓	✓	✓
Housing units						✓	✓
Land area							✓

Note: (a) The explanatory variable in both Panels is normalized to mean zero and standard deviation of one. All regressions include date fixed effects, the number of tiles used to construct the dependent variable at date t, number of counties' Facebook users, and the baseline (pre-COVID) dependent variable constructed using corresponding tiles for date t. *(c)* In parentheses we report standard errors clustered on zip-code level. *** p<0.01, ** p<0.05, * p<0.1

Here, we use two measures of mobility: (i) probability of staying at home (Panel A of Table 2) and (ii) daily distance traveled (Panel B). In Panel A Column I, we only control for baseline probability of staying at home, number of tiles, Facebook's population, and date fixed effects. FNC

lineup position has positive effects on staying home: one standard deviation increase in channel position results in a 0.1-percentage-point larger probability of staying at home. Columns II and III add controls for Facebook's measure of population density and state fixed effects. Column IV allows for state-and-date fixed effects. Finally, Columns V–VII add controls for population, number of housing units, and land area. The coefficient of interest remains unchanged and highly significant throughout all columns.

Panel B reports results for the distance traveled. We, also find results consistent with our findings on the county-level: a one-standard-deviation increase in channel lineup explains 2.5 percent of differences in distance traveled between crisis and baseline measures.[27] Overall, we find consistent evidence that FNC negatively affected social distancing responses both at the county and at the zip-code level.

5 Conclusion

During an outbreak of a contagious disease, public behavior is extremely important, since every policy and each piece of advice from experts can only make a difference if they are followed, and followed by a substantial amount of people. The messages conveyed by media can either help or hinder these practices. In this paper, we estimate the effect of exposure to one popular media source (FNC) — that spread controversial partisan opinions and some unscientific medical advice during the early days of the COVID-19 pandemic — on mobility reduction and social distancing.

Using county-level mobility data from smartphone locations and the historical position of Fox News Channel in the cable lineup, we show that increased exposure to Fox News led to a smaller reduction in distance traveled and smaller increase in the probability to stay home after the national emergency declaration in the United States. We find that the results are not driven by the conservatism itself, measures as the Republican vote share, but come from the COVID-19-related information conveyed by FNC and its potential interaction with the built-up conservative ideology. We also document that locations more exposed to FNC experienced larger mortality rates from COVID-19 (Appendix Table 6), consistent with Bursztyn et al. (2020). This suggests that the FNC exposure can have important public health consequences through behavioral responses.

Our findings are especially important in the era of increasingly affective polarization (Rogowski and Sutherland 2016 and Boxell, Gentzkow and Shapiro 2020). As Iyengar et al. (2019) write:

> Ordinary Americans increasingly dislike and distrust those from the other party. Democrats and Republicans both say that the other party's members are hypocritical, selfish, and closed-minded, and they are unwilling to socialize across party lines.

In this highly-charged environment, any criticism of current Republican administration from their Democratic opponents is often perceived as not being done in good faith regardless of its

[27] Although, point-estimate in Panel B only becomes significant when we control for the zip-code's population density in Column II.

merits, triggering a defensive reaction from conservative media. None other than FNC host Tucker Carlson explained, on March 10, 2020, the logic of some of conservative politicians and media personalities:

> Maybe they're just not paying attention, or maybe they believe they're serving some higher cause by shading reality. ... Best not to say anything that might help the other side.[28]

This alleged desire *not to say anything that might help the other side* may impact politics, economic growth, and lives, which are all highly interconnected as we have witnessed in the current COVID-19 pandemic and expect to see in its aftermath.

[28] Foxnews.com: "Tucker Carlson: The Coronavirus Will Get Worse...," URL: foxnews.com/opinion/tucker-carlson-the-coronavirus-will-get-worse-our-leaders-need-to-stop-lying-about-that.

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Online Appendix

to

"The Safest Time to Fly:

Pandemic Response in the Era of Fox News"

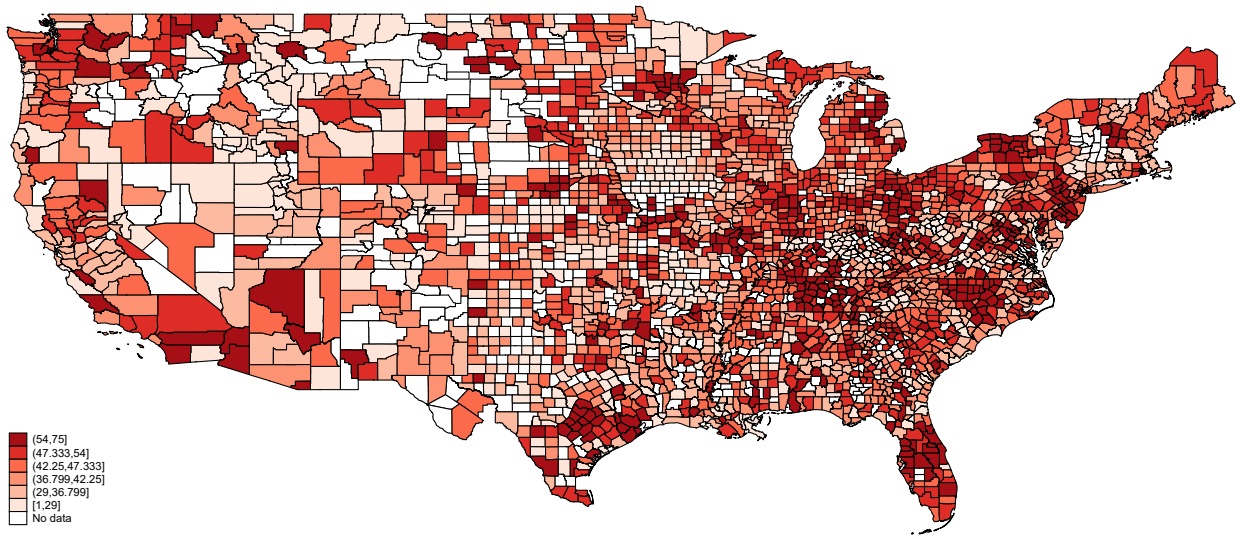
Online Appendix A Additional Results

Table Appendix Table 1: Balance Tests

	I	II	III
	Coefficient	St.er.	P-value
Socio-Demographic Controls:			
Population	0.244	(0.1461)	[0.1010]
Poverty	-0.013	(0.0094)	[0.1888]
Urban/rural	0.030	(0.0184)	[0.1138]
Share nonwhite	0.155	(0.3849)	[0.6896]
Dom. migration	0.356	(0.3198)	[0.2713]
No high school	0.046	(0.1386)	[0.7389]
Median income	0.011	(0.0067)	[0.1005]
Workable-at-home jobs, share	0.007	(0.0078)	[0.3944]
Workable-at-home jobs, share (wage weights)	0.008	(0.0098)	[0.4132]
Workable-at-home jobs alt., share	0.006	(0.0068)	[0.4137]
Workable-at-home jobs alt., share (wage weights)	0.007	(0.0089)	[0.4540]
Pre-COVID Social Distancing:			
Differences in daily distance traveled	0.001	(0.0647)	[0.9820]

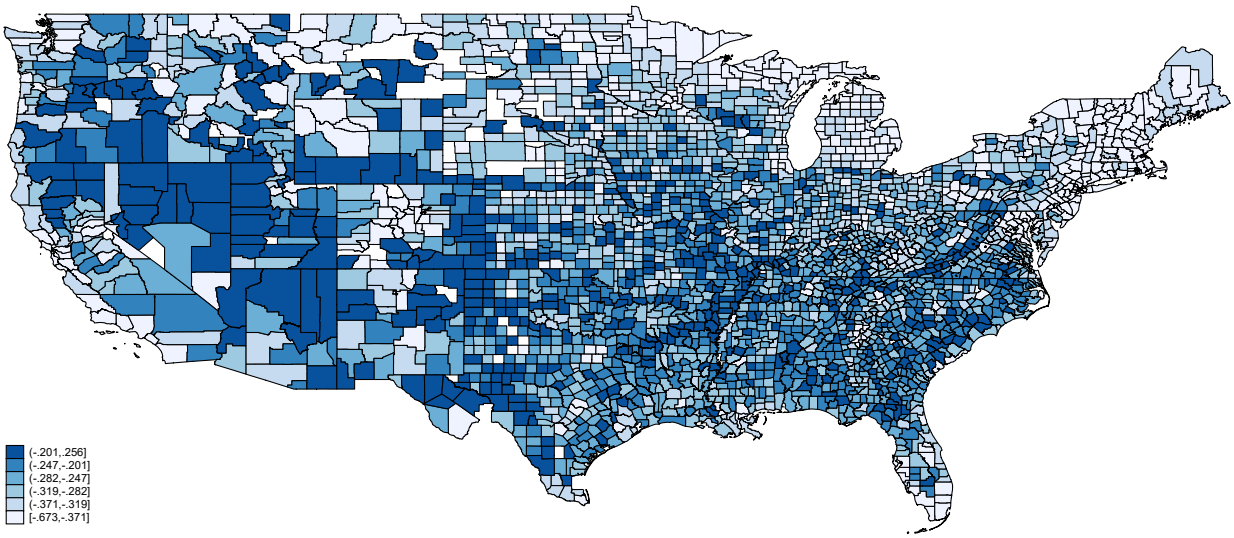
Note: *(a)* Column I contains coefficient of the bivariate regression of Fox News channel position on various outcomes. All regressions include state fixed effects. *(b)* Column II reports standard errors clustered on state level. *(c)* Column III reports p-values. Non of the regressions are significant at any conventional level. *(d)* Data on workable-at-home jobs is from Dingel and Neiman (2020). County-level voting data is from https://github.com/tonmcg/County_Level_Election_Results_12-16. Socio-economic data (except for "nonwhite" variable) is from https://www.ers.usda.gov/data-products/county-level-data-sets/county-level-data-sets-download-data/. The share of nonwhite population is from http://library.duke.edu/data/collections/popest.

Figure Appendix Figure 1: Map of FOX News Channel Positions



Note: This map shows spatial distribution for the FOX News channel position in 2005. Source: zip-code data is from Martin and Yurukoglu (2017). Aggregated on the county-level using zip-code-level population weights.

Figure Appendix Figure 2: Map of Changes in Daily Distance Traveled (UNACAST)



Note: This map shows spatial distribution for the differences in the average distance (in percentages) traveled based on UNACAST data. Averaged on post-national emergency sample (March 13th, 2020 — April 14th, 2020).

Table Appendix Table 2: Robustness for the Core Results in Table 1

	I	II	III	IV	V	VI	VII
	Dependent variable: Difference in daily distance traveled						
	Baseline	Workable-at-home jobs, share		Workable-at-home jobs, share (alt. classification)		Urban interaction	State x Urban FEs
			w wage weights		w wage weights		
Fox News channel position	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.007*	-0.004*
	(0.0023)	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0038)	(0.0024)
Fox News channel position x Urban						0.004	
						(0.0049)	
Workable-at-home jobs, share		-0.038	-0.024	-0.037	-0.027		
		(0.0354)	(0.0280)	(0.0376)	(0.0291)		
FEs: State x urban							✓
R-squared	0.692	0.692	0.692	0.692	0.692	0.692	0.692
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876

Note: (a) This Table uses the baseline specification in Column VIII of Panel B of Table 1. *(b)* Data on shares of workable-at-home jobs in Columns II–V is from Dingel and Neiman (2020). *(c)* In parentheses we report standard errors clustered on state level. *** p<0.01, ** p<0.05, * p<0.1

If FNC position is correlated with rural/urban status of the area, our results could also be explained by difference in mobility patterns between difference types areas. For example, even for their essential needs, people in rural areas often need to travel further thus limiting the potential reduction in mobility that could be sustainable during the pandemic. While we control for population density and urban dummy in Columns III and IV of Table 1 and show that they are not correlated with the FNC channel position, in Appendix Table 2 we provide additional checks. In Column VI of Appendix Table 2, we add interaction of FNC channel position with an urban dummy. The result appears to be insignificant while the main coefficient remains negative and significant. In Column VII, we allow each state to have separate intercepts for rural and urban counties; i.e., we use state-urban fixed effects instead of state and rural fixed effects. However, our estimate holds.

Table Appendix Table 3: Robustness with Day of the Shelter-in-Place Order for Table 1

	I	II	III	IV	V	VI	VII	VIII
Panel A: Shelter-in-place	Dependent variable: Difference in daily distance traveled							
Fox News channel position	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003
x Before National Emergency	(0.0021)	(0.0022)	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Fox News channel position	-0.008*	-0.009**	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*
x After National Emergency	(0.0043)	(0.0042)	(0.0042)	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0042)
R-squared	0.708	0.712	0.717	0.721	0.721	0.721	0.722	0.726
Observations	87,722	87,722	87,722	87,722	87,722	87,722	87,722	87,722
Panel B: ~no pre-trends								
Fox News channel position	-0.009*	-0.009**	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*
x After National Emergency	(0.0043)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0043)
R-squared	0.708	0.712	0.717	0.721	0.721	0.721	0.722	0.726
Observations	87,722	87,722	87,722	87,722	87,722	87,722	87,722	87,722
Panel C: ~ with other channels								
Fox News channel position	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*
	(0.0045)	(0.0044)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0044)
CNN channel position	-0.003	-0.002	-0.002	-0.003	-0.003	-0.003	-0.002	-0.002
	(0.0021)	(0.0020)	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0020)	(0.0020)
MSNBC channel position	-0.002	-0.001	-0.001	0.000	0.000	0.000	0.000	0.001
	(0.0021)	(0.0019)	(0.0018)	(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0015)
R-squared	0.719	0.723	0.729	0.733	0.733	0.733	0.734	0.738
Observations	78,840	78,840	78,840	78,840	78,840	78,840	78,840	78,840
FEs: State	✓	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓	✓
FEs: Urban			✓	✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓	✓
Share nonwhite					✓	✓	✓	✓
Migration controls						✓	✓	✓
Poverty controls							✓	✓
Republican vote share								✓

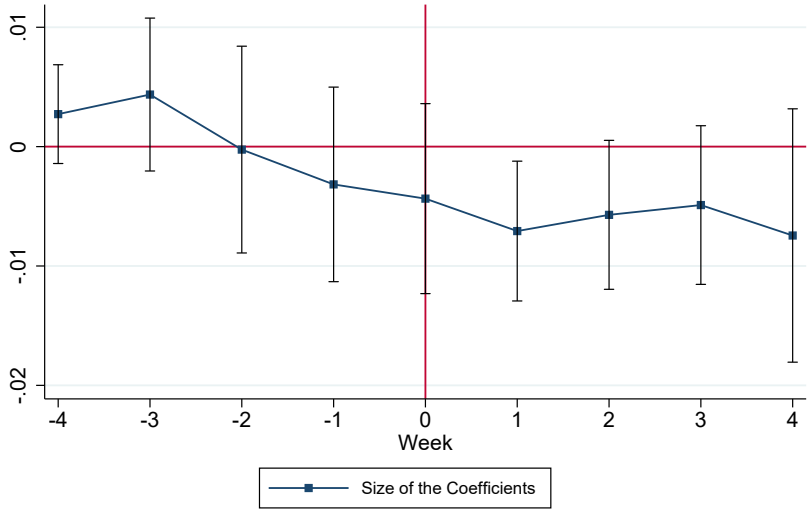
Note: (a) The explanatory variable in all Panels is normalized to mean zero and standard deviation of one. *(b)* The dependent variable is the difference in daily distance traveled. *(c)* All regressions include state and date fixed effects. Economic controls include unemployment rate in 2015 and economic-dependence county indicator. Population controls include population, population density, and county's land area. Poverty controls include poverty rate and median income. Migration controls include net domestic migration rate. Republican vote share includes vote share in 2016 presidential elections. *(d)* In parentheses we report standard errors clustered on state level. *** p<0.01, ** p<0.05, * p<0.1

The first order was issued in California on March 19th, 2020. The last order was issued by South Carolina on April 7th. Eleven states (Arkansas, Connecticut, Iowa, Kentucky, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming) never issued shelter-in-place orders. We exclude them in Appendix Table 3. All shelter-in-place order dates were collected by Raifman et al. (2020).

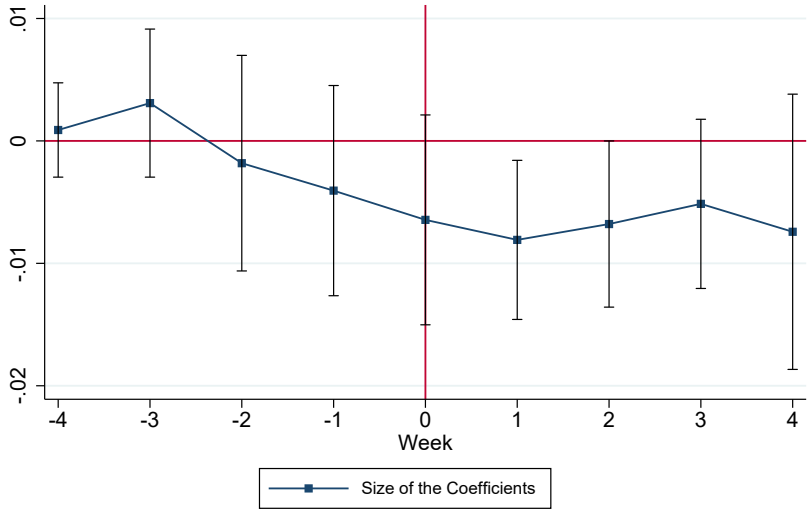
In Appendix Table 3, we replicate Table 1 but instead of the national emergency use the state-specific date of the "shelter-in-place" order. Here variables Before_{st} and After_{st} are state-specific, and, e.g., After_{st} is a dummy equal to one for dates after state s imposed shelter-in-place order at date t. Across all Panels and specifications the coefficient of interest appears to be negative and significant. Nevertheless, we consider this specification not preferable, because people started to decrease their traveled distances even before shelter-in-place orders in their states after the national emergency was issued. We discuss it in greater detail in Section 4.3.

Figure Appendix Figure 3: Event Study Analysis with the day of State's Shelter-in-Place Order

Panel A: Equation (3) with no controls



Panel B: Equation (3) with full set of controls



Note: This Figure graphs the results of estimating equation eqt:eventstudy for specification without controls (in Panel A) and with the full set of controls (in green). The former is corresponding to the specification in Column I of Table 1. The latter is corresponding to the specification in Column VIII of Table 1. Point estimates are reported in Appendix Table 4. P-values for the joint significance of the pre-trend's coefficients are equal to 0.6366 for Panel A and 0.6837 for Panel B.

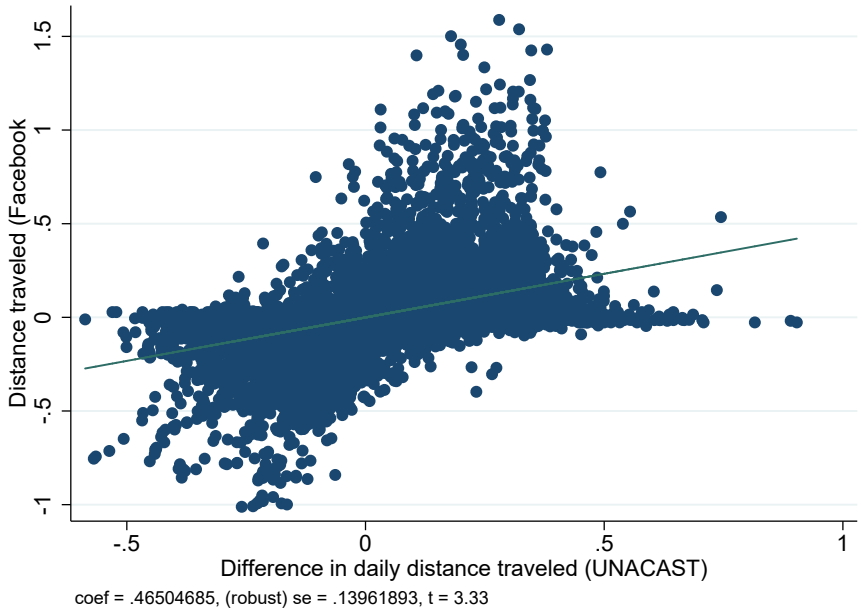
Table Appendix Table 4: Event-Study Coefficients for Figure 3

	I	II	III	IV
	Dependent variable: Difference in daily distance traveled			
Event	National emergency (March 13, 2020)		Shelter-in-place order (state-specific)	
Fox News channel position x				
4 weeks before	0.001	0.003	0.001	0.003
	(0.0022)	(0.0023)	(0.0023)	(0.0025)
3 weeks before	0.003	0.004	0.003	0.004
	(0.0023)	(0.0027)	(0.0036)	(0.0038)
2 weeks before	0.004	0.005	-0.002	-0.000
	(0.0029)	(0.0029)	(0.0052)	(0.0051)
1 week before	0.007	0.008	-0.004	-0.003
	(0.0047)	(0.0050)	(0.0051)	(0.0048)
week of national emergency/	0.000	0.002	-0.006	-0.004
or state's shelter-in-place order	(0.0033)	(0.0034)	(0.0051)	(0.0047)
1 week after	-0.006*	-0.006*	-0.008**	-0.007**
	(0.0036)	(0.0032)	(0.0039)	(0.0035)
2 weeks after	-0.007*	-0.006*	-0.007*	-0.006
	(0.0036)	(0.0031)	(0.0040)	(0.0037)
3 weeks after	-0.007**	-0.006**	-0.005	-0.005
	(0.0031)	(0.0027)	(0.0041)	(0.0039)
4 weeks after	-0.006*	-0.005*	-0.007	-0.007
	(0.0030)	(0.0028)	(0.0067)	(0.0063)
Joint F-test for pre-trend coef., p-value	[0.4034]	[0.4480]	[0.6366]	[0.6837]
R-squared	0.691	0.714	0.698	0.732
Observations	130,550	130,300	105,160	104,885
FEs: State	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓
Economic controls		✓		✓
FEs: Urban		✓		✓
Population controls		✓		✓
Share nonwhite		✓		✓
Migration controls		✓		✓
Poverty controls		✓		✓
Republican vote share		✓		✓

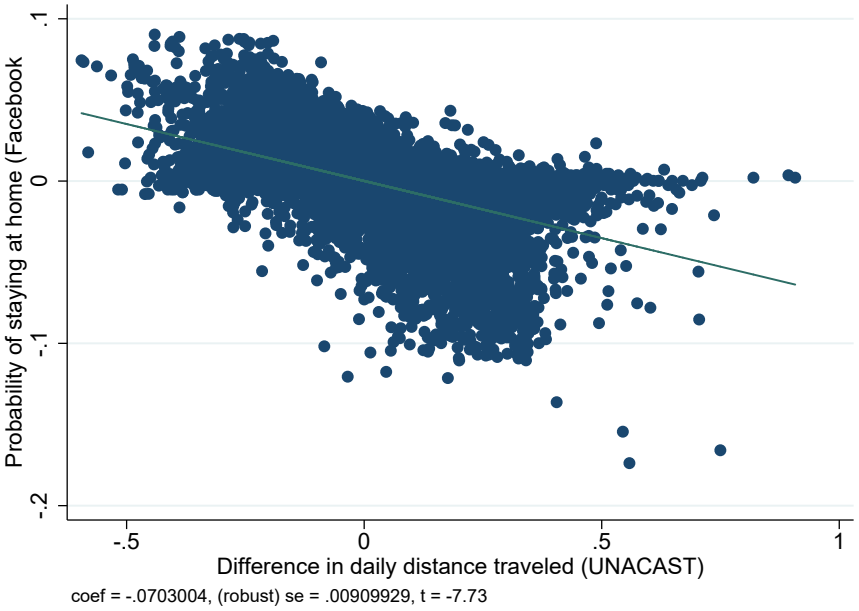
Note: (a) This Table estimates event-study specification 3. Columns I and II report results for the no controls specification. Columns II and IV report results for the specification with the full set of controls. We use the same (most demanding) set of controls as in Column VIII of Table 1. *(b)* The event in Columns I and II is the announcement of national emergency on March 13th, 2020. Events in Columns III and IV are state-specific announcements of shelter-in-place (stay-at-home) orders. Thus all weeks there are in relative terms. In Columns III and IV we exclude 11 states (Arkansas, Connecticut, Iowa, Kentucky, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming) that had never issued shelter-in-place orders. All shelter-in-place order dates are from Raifman et al. (2020). *(c)* In parentheses we report standard errors clustered on state level. *** p<0.01, ** p<0.05, * p<0.1

Figure Appendix Figure 4: Correlation of UNACAST's and Facebook's Data

Panel A: Residual Plot of Facebook's Distance Traveled and UNACAST's Differences in Distance Traveled



Panel B: Residual Plot of Facebook's Probability of Staying at Home and UNACAST's Differences in Distance Traveled



Note: (a) Panel A depicts residual plots of from the county-level regression of UNACAS's differences in distance traveled and Facebook's distance traveled (conditional on Facebook's pre-COVID baseline and state and date fixed effects). *(b)* Panel B depicts residual plots of from the county-level regression of UNACAS's differences in distance traveled and Facebook's probability of staying home (conditional on Facebook's pre-COVID baseline and state and date fixed effects).

Table Appendix Table 5: Effect of Fox News Channel Position on Policy Compliance: Core Results using Facebook (County-Level) Data

	I	II	III	IV	V	VI	VII	VIII
Panel A:	Dependent variable: Probability staying at home							
Fox News channel position	0.001**	0.001**	0.001**	0.001**	0.001***	0.001***	0.001**	0.001***
x After National Emergency	(0.0005)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
R-squared	0.926	0.927	0.927	0.928	0.928	0.928	0.928	0.929
Observations	14,827	14,827	14,827	14,827	14,827	14,827	14,827	14,827
Panel B:	Dependent variable: Distance traveled							
Fox News channel position	-0.012*	-0.013*	-0.015**	-0.015**	-0.016**	-0.016**	-0.016**	-0.013*
x After National Emergency	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0063)	(0.0065)
R-squared	0.952	0.952	0.954	0.954	0.954	0.954	0.954	0.954
Observations	12,765	12,765	12,765	12,765	12,765	12,765	12,765	12,765
FEs: State	✓	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓	✓
# tiles & Facebook pop.	✓	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓	✓
FEs: Urban			✓	✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓	✓
Share nonwhite					✓	✓	✓	✓
Migration controls						✓	✓	✓
Poverty controls							✓	✓
Republican vote share								✓

Note: (a) The explanatory variable in all Panels is normalized to mean zero and standard deviation of one. *(b)* The dependent variable in Panel A is the probability that a person stays home at day t. The dependent variable in Panel B is the daily distance traveled. *(c)* All regressions include state and date fixed effects, the number of tiles used to construct the dependent variable at date t, number of counties' Facebook users, and the baseline (pre-COVID) dependent variable constructed using corresponding tiles for date t. Economic controls include unemployment rate in 2015 and economic-dependence county indicator. Population controls include population, population density, and county's land area. Poverty controls include poverty rate and median income. Migration controls include net domestic migration rate. Republican vote share includes vote share in 2016 presidential elections. *(d)* In parentheses we report standard errors clustered on state level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table Appendix Table 6: Effect of FOX News Channel Position on the COVID-19 Deaths

	I	II	III	IV
Panel A:	Dependent variable: Log # of COVID-19 deaths			
	March 6	March 13	March 20	March 27
Fox News channel position	-0.001	-0.002	-0.010*	-0.022*
	(0.0006)	(0.0018)	(0.0054)	(0.0113)
R-squared	0.058	0.129	0.284	0.456
Observations	2,605	2,605	2,605	2,605
Panel B:	Dependent variable: Fatality rate			
	March 6	March 13	March 20	March 27
Fox News channel position	-	0.002	-0.000	-0.004*
	-	(0.0123)	(0.0021)	(0.0021)
R-squared	-	0.186	0.096	0.060
Observations	-	270	832	1,562
Panel C:	Dependent variable: Log # of COVID-19 cases			
	March 6	March 13	March 20	March 27
Fox News channel position	-0.004	-0.023	-0.016	-0.014
	(0.0039)	(0.0163)	(0.0251)	(0.0328)
R-squared	0.346	0.463	0.636	0.682
Observations	2,605	2,605	2,605	2,605

Note: (a) The dependent variable in Panel A is the inverse hyperbolic sin of the cumulative number of COVID-19-related deaths by a specific date. The dependent variable in Panel B is the fatality rate $= \frac{\text{\# of COVID-19 deaths}}{\text{\# of COVID-19 cases}}$. The dependent variable in Panel C is the inverse hyperbolic sin of the cumulative number of COVID-19 cases. *(b)* All regressions include the full set of controls from the most conservative specification in Column VIII of Table 1 but without date fixed effects. In Panel B, the number of observation is smaller for earlier dates because the denominator has more zeroes. *(c)* COVID-related deaths and number of cases data is from `https://coronavirus.jhu.edu/data`. *(d)* Here we use $\log(\cdot)$ as shorthand for the inverse hyperbolic sin which can be interpreted in the same way as the log function but allows us to keep zero values in number of COVID-19 deaths and cases (see Burbidge, Magee and Robb 1988; Card and DellaVigna 2017). *(e)* Number of observations in Panel B changes because the denominator has many zeroes in earlier dates. Hence, there are not enough observations to estimate regression in Column I of Panel B. *(f)* In parentheses we report standard errors clustered on state level. *** p<0.01, ** p<0.05, * p<0.1

One of the important questions is whether the results of this magnitude were consequential for the spread of disease. Our estimations suggest that they were: Appendix Table 6 shows the effect of FNC lineup position on the (county-level) log of cumulative number of COVID-relates deaths, fatality rate, and log of COVID-19 cases.[29] We find that one standard deviation increase in FNC lineup position decreased the number of COVID-related deaths by 2.2 percent and fatality rate by 0.6 percentage points by the end of March.[30] Our findings on the causal effect of FNC on county-level mortality corroborate findings in Bursztyn et al. (2020).

[29]Here we use $\log(\cdot)$ as shorthand for the inverse hyperbolic sin which can be interpreted in the same way as the log function but allows us to keep zero values in the number of COVID-19 cases and deaths (See Burbidge, Magee and Robb 1988; Card and DellaVigna 2017).

[30]Of course, given that mortality data is inevitably noisy and the well-documented problem of causal attribution in mortality (Korolev 2020), these mortality-related results should be treated with caution. We find no effect on the number of cases. Note that the number of cases is measured with even larger error than the number of deaths, and, most importantly, the number of tests is likely correlated with the FNC exposure. Unfortunately, to our knowledge, there is yet no available county or zip-code level data on the number of COVID-19 tests.