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The safest time to fly: Pandemic response in the era of Fox News

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

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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: D1, D7, I31, Z13.

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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 (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 gen-

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[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).

erally 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 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 similar in the pre-COVID period in areas with different FNC positions. After national emergency was announced, a 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 the most salient 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 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), information transmission about social distancing practices (Tian, Caballero and Kovak, 2020), 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 distanc-

ing 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.

A contemporaneous paper by Simonov et al. (2020) uses the same identifying variation and the SafeGraph data for social-distancing measures (we use UNACAST and Facebook data instead). There are several notable differences between our approach and that of Simonov et al. (2020). First, we use the earliest available data on the FNC position (from 2005), while Simonov et al. (2020) use the data from 2015. This difference is important because cable networks are well aware of the influence that channel position has on the viewership and lobby providers to put their channels "lower on the dial" (Snider and Hall, 1998). This is especially true for FNC: as early as 2007 the movement of the channel from position 46 to position 44 in one of the Time Warner Cable markets was seen as a major win that merited inclusion in a self-congratulatory announcement by FNC.[2] Thus, FNC position in the later years is more likely to be endogenous to the lobbying efforts of FNC leadership. Second, the effect of FNC exposure on social-distancing can be potentially explained by the two types of channels: conservatism and COVID-19 messaging. The conservatism can influence social-distancing directly by making people skeptical of

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[2]BusinessWire. "FOX Business Network to Launch on Channel 43 on Time Warner Cable. FOX News Channel Moves to Channel 44", September 5, 2007. URL: www.businesswire.com/news/home/20070905006114/en/FOX-Business-Network-Launch-Channel-43-Time.

governmental interventions and academic experts. Because we use the historical position of FNC, we are able to control for the built-up conservatism (by including controls for the 2016 election results), thus isolating the effect of COVID-19 messaging and shedding light on the mechanisms. These differences from Simonov et al. (2020) are consequential.[3] While our results are the same in terms of significance and the sign of the effect, the magnitude of our estimates is smaller, while still being economically and epidemiologically important.

This paper proceeds as follows. Section 2 introduces background information about the development of COVID-19 in the United States, policies on social distancing, and its coverage by Fox News. Section 3 describes our data. Section 4 introduces our empirical specification, identifying assumptions, and results. Section 5 concludes.

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.[4] 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.[5] 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."[6]

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[3]There are other notable differences in specification choices (we use a specification with date fixed effects) and they use 2SLS specification with time-invariant FNC viewership as the treatment variable.

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

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

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

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.[7] 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.[8]

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?[9]

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.[10]

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

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

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

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

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

"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."[11] 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.[12]

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."[13] 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.[14]

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.[15] 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).

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

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[11]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.

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

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

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

[15]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.

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U.S., and criticized the Republican administration for lack of testing capacity and other issues.[16] CNN (the third most-watched cable channel) largely focused on reporting facts, with occasional criticism of some of Trump's epidemiological claims.[17]

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).[18] 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 Measurement: 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,

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[16]See msnbc.com/transcripts/rachel-maddow-show/2020-03-09.

[17]See https://edition.cnn.com/2020/04/13/world/cnn-coronavirus-coverage/index.html.

[18]We describe construction of the main variables in the next Section.

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.

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).[19]

We obtain zip-code-level average historical (2005) position of FNC by Nielsen from Ash and Poyker (2019). FNC became increasingly conservative afterwards and started to lobby lower channel positions as early as in 2007. 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.[20] Martin and Yurukoglu (2017) demonstrate that FNC channel position is not predicted by the 1996 Republican voting share or electoral contributions and is not explained predicted voting outcomes and viewership using the 2010 demographics. Here, we provide an array of balance tests in Appendix Table 1, where we also regress 2010 demographic and socio-economic variables on FNC position in cable lineup in 2005. All estimates are not statistically different from zero. On the other hand, FNC exposure is correlated with the Republican vote share in 2012 and 2016, suggesting that the channel positions in 2005 affect conservatism in later years.

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,

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[19]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).

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

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.[21] 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.[22] 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 and a tile is a 10km by 10km ground square.[23] 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.[24] 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 computed county-level shares of employment in workable-at-home industries using data from Dingel and Neiman

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

[22]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.

[23]For details, see https://docs.microsoft.com/en-us/bingmaps/articles/bing-maps-tile-system.

[24]Note that distance traveled is zero if a person stays at the same tile.

(2020). Other county-level measures include voting outcomes in the Presidential elections of 2012 and 2016 and socio-economic and demographics variables in 2010. 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:

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

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. We control for state (μ_s) and date (λ_t) fixed effects. Vector $X_{i(s)}$ includes a set of county-level demographic and economic controls such as population density and poverty rate. Standard errors are clustered at the state level.[25]

The coefficient of interest β_2 captures the effect of FNC on social distancing after national emergency was announced. We expect it to be negative: counties with larger FNC lineup positions have a larger decrease in the daily distance traveled relative to their pre-COVID baseline. β_1 represents the effect of FNC on social distancing before national emergency was announced, and we expect it to be zero, indicating that counties with difference FNC exposure did not exhibit differential social distancing behaviors in the pre-period.[26] Since our FNC lineup is measured in 2005, which is earlier than our study period (2020), we are eventually studying the heterogeneous effect of built-up FNC exposure on people's behavioral choices, given that there is a national policy advocate.

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[25]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.

[26]Note that the dummy for Before and After sum up to one, and our specification is equivalent to including the FNC levels and the interaction of FNC with the After dummy. We present the results using our current specification to show the absence of pre-trends more straightforwardly.

In addition to the demographic and economic controls mentioned earlier, we take into account the potential confounding effect of the industrial composition on the relationship between FNC exposure and social distancing behaviors. Regions with more FNC exposure may have a particular employment mix, and as shown in Dingel and Neiman (2020), industries and occupations differ in their workability-at-home. We control for it directly in our regressions.

FNC exposure can affect the degree of conservatism, which can directly affect the social distancing behavior if conservative population has different preferences or different constraint, and indirectly, through the interpretation of the COVID-related messages conveyed by FNC. These effects are on top of direct information feeds by FNC that may affect all of its audience, irrespective of their ideology. To separate (1) conservatism, (2) information, and (3) the interaction of the two, we also experiment with directly controlling for the county-level Republican vote shares in the 2012 and 2016 presidential elections and the 2016 turnout rate, which act as proxies for built-up conservatism. In this case, the remaining effect of FNC on social distancing should be either through the information feed or through the interaction of information and conservatism.[27],[28]

One might be concerned that similar as the FNC exposure, other county-level characteristics also affect the social distancing behaviors differentially *before* and *after* the declaration of national emergency. If the FNC exposure is correlated with these characteristics, omitting this differential impact may bias our estimate of the FNC coefficient. To address this concern, we also consider a specification where we add the interaction of the controls $X_{i(s)}$ with the After dummy.

Although we include a wide variety of county characteristics, there might be unobserved variables that are correlated with FNC exposure and affect the social distancing outcome. Thus, we also present a specification where instead of the state fixed effects, we use county fixed effects. Here, both the FNC interaction with the Before dummy and the levels of county characteristics $X_{i(s)}$ will be absorbed by the fixed effects.

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[27]These political economy outcomes are measured after 2005. Thus, they can be affected by the FNC exposure set in 2005. We use these variables to highlight the mechanism, and we find that adding these controls does not affect the coefficient estimate of the FNC exposure, pointing towards the importance of COVID-related direct information transmission.

[28]In principle, it could be the case that the conservatism ideology can also have an impact on economic outcomes, which affect social distancing behaviors. However, we don't find direct evidence supporting this hypothesis. As shown in Appendix Table 1, the 2005 FNC positions are not correlated with the 2010 demographic and socio-economic conditions.

4.2 Main Results

Table 1 shows the effect of FNC exposure on social distancing using various specifications. In Panel A Column I, we estimate 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 indicates that a one-standard-deviation increase in FNC lineup led to a 0.6-percentage-point larger decline in average distance traveled in a county.

In Columns II–V, we sequentially add controls for demographic and socio-economic variables. As documented in various other studies, higher education levels and higher incomes at the individual and region levels are positively associated with practicing of social distancing (Brzezinski et al., 2020; Fan, Orhun and Turjeman, 2020; Mongey, Pilossoph and Weinberg, 2020; Wright et al., 2020, among others). We control for unemployment rate, urban dummies, economic-dependence county indicator, poverty rate, median income, population, share of population with high-school education, county's land area, share of nonwhite population, and net domestic migration rate. Column VI further adds the employment share in workable-at-home jobs.[29] The coefficient estimate for the FNC effect remains almost identical compared to Column I.

As FNC can affect the general level of conservatism of the local population, it can potentially affect people's response towards recommendations for social distancing. Column VII adds controls for the turnout in 2016 and Republican vote share in the 2012 and 2016 elections. We find that controlling for these conservatism proxies does not affect the coefficient estimate of FNC exposure. It suggests that 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.

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. Panel B replicates Panel A 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.

We show the robustness of our results using alternative specifications in Panel C and Panel D. Panel C adds the interaction terms of the controls with the After dummy to take

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[29]In addition, we show that shares of workable-at-home jobs do not correlate with the FNC channel position (see Appendix Table 1). We show robustness to alternative measures of workable-from-home employment in Appendix Table 2.

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

	I	II	III	IV	V	VI	VII
	Dependent variable: Difference in daily distance traveled						
Panel A: baseline							
Fox News channel position	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)
Fox News channel position	-0.006**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**	-0.005**
x After National Emergency	(0.0027)	(0.0025)	(0.0024)	(0.0023)	(0.0023)	(0.0024)	(0.0023)
R-squared	0.669	0.678	0.681	0.688	0.688	0.689	0.692
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876
Panel B: ~ with other channels							
Fox News channel position	0.002	0.002	0.002	0.002	0.002	0.002	0.002
x Before National Emergency	(0.0020)	(0.0019)	(0.0019)	(0.0022)	(0.0022)	(0.0022)	(0.0021)
Fox News channel position	-0.005*	-0.005*	-0.005**	-0.005*	-0.005*	-0.005**	-0.005**
x After National Emergency	(0.0028)	(0.0026)	(0.0024)	(0.0023)	(0.0023)	(0.0024)	(0.0023)
CNN channel position	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001
	(0.0019)	(0.0017)	(0.0016)	(0.0017)	(0.0017)	(0.0017)	(0.0017)
MSNBC channel position	-0.001	-0.000	0.000	0.001	0.001	0.001	0.001
	(0.0018)	(0.0016)	(0.0015)	(0.0014)	(0.0014)	(0.0014)	(0.0013)
R-squared	0.687	0.696	0.699	0.706	0.706	0.707	0.710
Observations	104,400	104,400	104,400	104,400	104,400	104,400	104,400
Panel C: ~ w post-national-emergency controls							
Fox News channel position	0.002	0.002	0.002	0.002	0.002	0.002	0.002
x Before National Emergency	(0.0019)	(0.0016)	(0.0016)	(0.0015)	(0.0015)	(0.0015)	(0.0015)
Fox News channel position	-0.006**	-0.005**	-0.005**	-0.004*	-0.004*	-0.004*	-0.004*
x After National Emergency	(0.0027)	(0.0024)	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
R-squared	0.669	0.683	0.685	0.696	0.697	0.698	0.706
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876
Panel D: ~ w county FEs & post-national-emergency controls							
Fox News channel position	-	-	-	-	-	-	-
x Before National Emergency	-	-	-	-	-	-	-
Fox News channel position	-0.008**	-0.008**	-0.008**	-0.007**	-0.006**	-0.006**	-0.007**
x After National Emergency	(0.0033)	(0.0030)	(0.0030)	(0.0027)	(0.0026)	(0.0026)	(0.0027)
FEs: County	✓	✓	✓	✓	✓	✓	✓
R-squared	0.756	0.763	0.763	0.770	0.770	0.771	0.774
Observations	119,876	119,876	119,876	119,876	119,876	119,876	119,876
FEs: State	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓
Urban			✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓
Share nonwhite & migrant					✓	✓	✓
Workable-from-home emp.						✓	✓
Repub. vote share controls							✓

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, economic-dependence county indicator, poverty rate, and median income. Urban controls include eight dummies for urban-rural continuum. Population controls include population, share of population with high-school education, and county's land area. Share nonwhite and migration controls include share of nonwhite population and net domestic migration rate. Workable-from-home employment control includes employment share in workable-from-home industries (according to Dingel and Neiman 2020). Republican vote share controls include Republican vote share in 2012 and 2016 presidential elections, and 2016 turnout rate. *(d)* In parentheses we report standard errors clustered on state level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

into account differential effects of socio-economic and political characteristics on social distancing. Panel D uses county fixed effects instead of state fixed effects to account for additional unobserved factors. The results are very similar to Panel A.

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).

Figure 2: Results are Not Driven by a Particular State

Coefficients for Fox News Channel Position
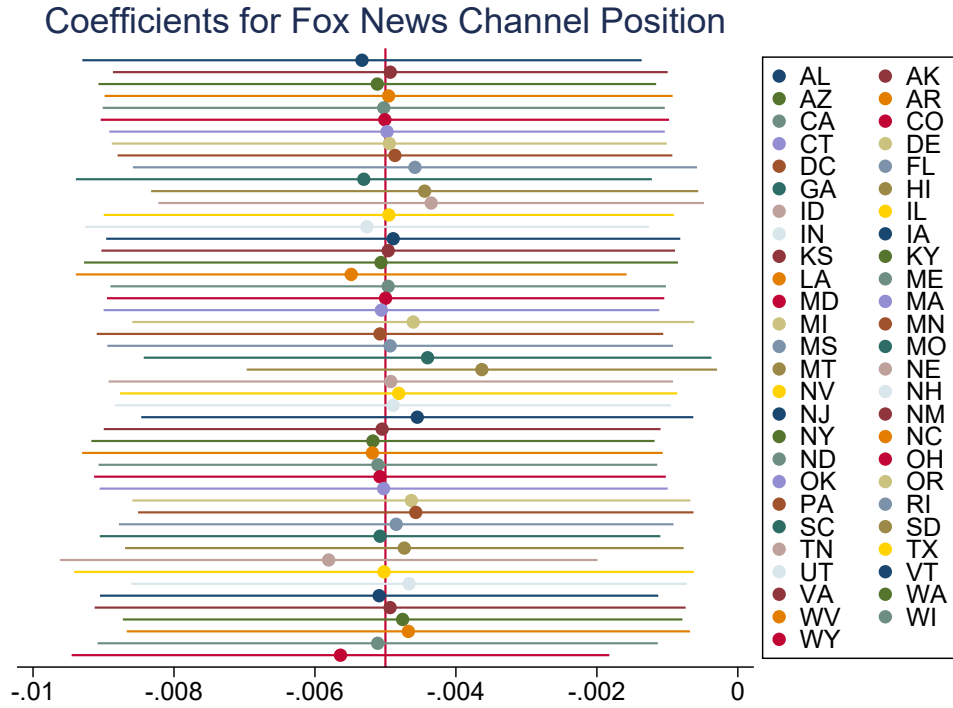
Note: This figure reports on the point-estimate and 90th-percent confidence band that results when re-estimating the specification in Column VII of Panel A of Table 1, dropping one state at a time. The (red) vertical line is the baseline point estimate. The results are sorted top-to-bottom in alphabetical 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 announced. Alternatively, we allow separate point-estimates for weeks from February 24th to April 14th as follows:

$$
SD_{i(s)t(w)} = \underbrace{\sum_{l=-4}^{-1} \gamma_l \cdot FNCP_{i(s)} \cdot \mathrm{D}(w = l)}_{\text{pre-event period}} + \underbrace{\sum_{l=0}^{4} \gamma_l \cdot FNCP_{i(s)} \cdot \mathrm{D}(w = l)}_{\text{post-event period}} + \tag{2}
$$
$$
+ X_{i(s)}\Gamma + \lambda_{t(w)} + \mu_s + \varepsilon_{i(s)t(w)},
$$

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 (2) 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.[30]

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. Results also hold if we add county fixed effects (Appendix Figure 4, which is
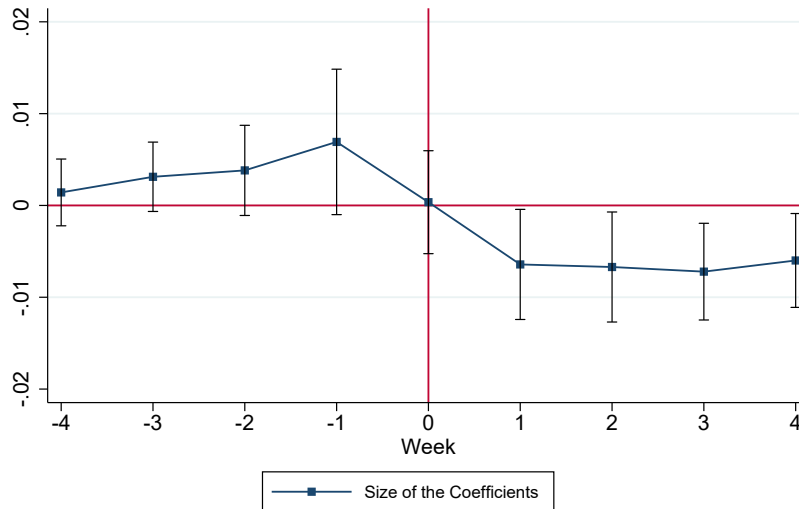
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[30]These specifications correspond to Column I and Column VIII of Table 1. Point estimates for Figure 3 are reported in Appendix Table 4.

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

Panel A: Equation (2) with no controls
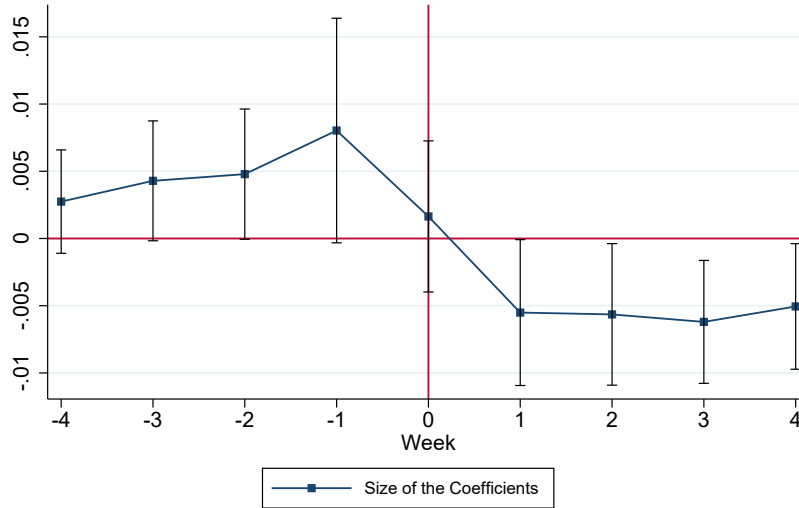
Panel B: Equation (2) with full set of controls

Note: This Figure graphs the results of estimating equation (2) for specification (in Panel A of Table 1) without controls and with the full set of controls. The former is corresponding to the specification in Column I of Table 1. The latter is corresponding to the specification in Column VII 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). This figure reports 90th-percent confidence bands.

a similar specification to one in Panel D of Table 1), using week $t = -1$ as the baseline.

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 5 shows the residual plots of the regression of UNACAST's changes in distance traveled on Facebook's distance traveled (Panel 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 baseline 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:

$$M_{j(s)t} = \beta FNCP_{j(s)} + \phi M_{j(s)t-45} + X_{j(s)}\Gamma + \mu_s + \lambda_t + \epsilon_{j(s)t}, \tag{3}$$

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.

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.

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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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. 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 increasing 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 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.[31]

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.

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[31]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

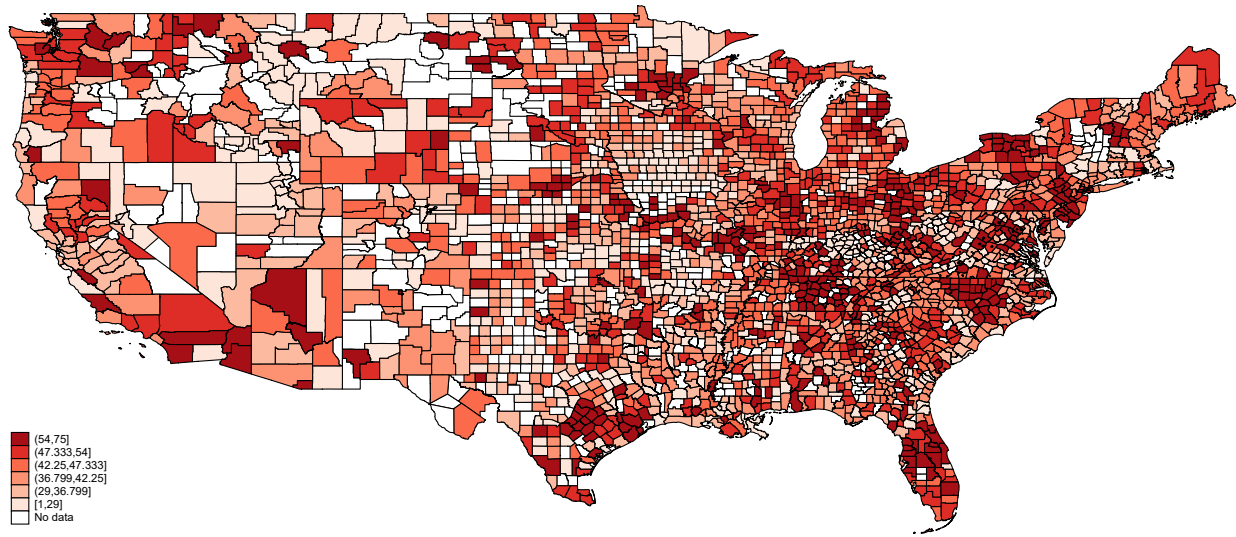## *"The Safest Time to Fly:*

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]
Republican Vote Shares:			
Presidential election Republican vote share, 2016	-0.684**	(0.3185)	[0.0368]
Presidential election Republican vote share, 2012	-0.787*	(0.4185)	[0.0662]
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. None 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)

■	(-.201,.256]
■	(-.247,-.201]
■	(-.282,-.247]
□	(-.319,-.282]
□	(-.371,-.319]
□	[-.673,-.371]
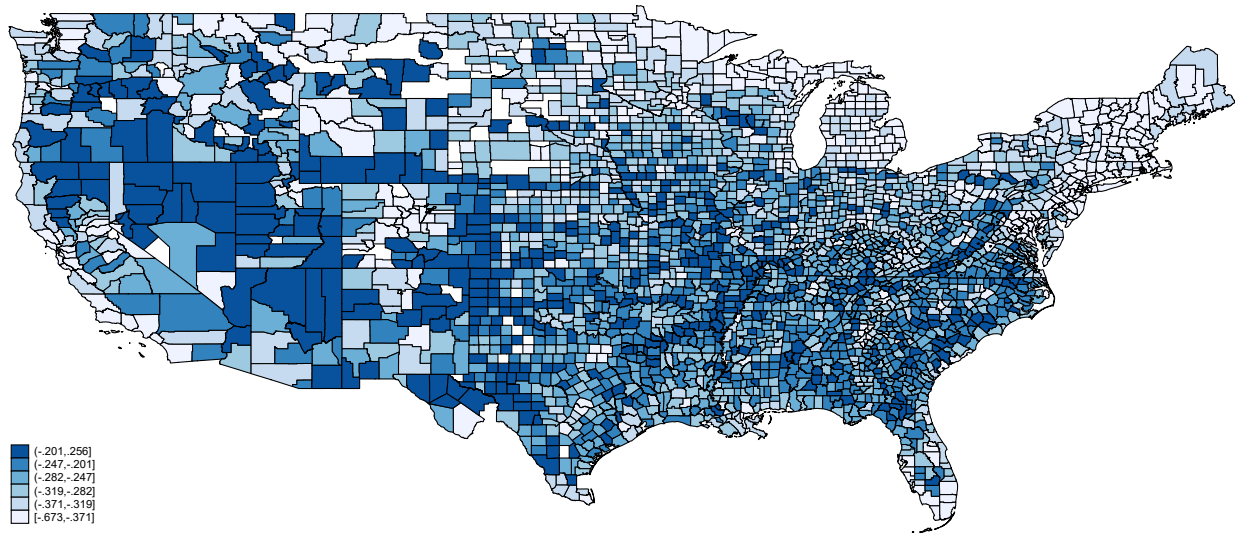
Note: This map shows spatial distribution for the differences in the average distance (in percentages) traveled based on UNACAST data. Averaged on post-national emergency sample (March 13th, 2020 — April 14th, 2020).

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

	I	II	III	IV	V	VI
	Dependent variable: Difference in daily distance traveled					
	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	0.003	0.003	0.003	0.003	0.003	0.004
x Before National Emergency	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)	(0.0021)
Fox News channel position	-0.005**	-0.005**	-0.005**	-0.005**	-0.007*	-0.005*
x After National Emergency	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0038)	(0.0024)
Fox News channel position					0.004	
x Urban					(0.0050)	
Workable-at-home jobs, share	0.003	0.002	0.003	0.002		
	(0.0125)	(0.0099)	(0.0144)	(0.0110)		
FEs: State x urban						✓
R-squared	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

Note: (a) This Table uses the baseline specification in Column VII of Panel A 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

Columns II–IV contain baseline results using alternative measures of workable-from-home industries from Dingel and Neiman (2020). Our results hold.

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 add population controls and urban dummies in Table 1 and show that they are not correlated with the FNC channel position, in Appendix Table 2 we provide additional checks. In Column V of Appendix Table 2, we add interaction of FNC channel position with an urban dummy.[32] The result appears to be insignificant while the main coefficient remains negative and significant. In Column VI, 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. The results are nearly identical if we use specifications from the other panels of Table 1.

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[32]Here we split urban-rural continuum variable into a dummy equal zero if it has value of 1,2,3, or 4 and equal to one if it has value of 5, 6, 7, or 8.

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

|	I	II	III	IV	V	VI	VII
	Dependent variable: Difference in daily distance traveled						
Panel A: baseline w shelter-in-place orders							
Fox News channel position	0.002	0.002	0.002	0.002	0.002	0.002	0.003
x Before National Emergency	(0.0022)	(0.0021)	(0.0021)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Fox News channel position	-0.008*	-0.009**	-0.009**	-0.008*	-0.008*	-0.008*	-0.008*
x After National Emergency	(0.0043)	(0.0042)	(0.0041)	(0.0041)	(0.0041)	(0.0042)	(0.0042)
R-squared	0.699	0.712	0.714	0.722	0.722	0.723	0.726
Observations	87,722	87,722	87,722	87,722	87,722	87,722	87,722
Panel B: ~ with other channels							
Fox News channel position	-0.000	0.001	0.001	0.001	0.001	0.001	0.002
x Before National Emergency	(0.0025)	(0.0022)	(0.0022)	(0.0024)	(0.0024)	(0.0025)	(0.0024)
Fox News channel position	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*	-0.008*
x After National Emergency	(0.0045)	(0.0044)	(0.0043)	(0.0043)	(0.0043)	(0.0044)	(0.0044)
CNN channel position	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001
	(0.0023)	(0.0019)	(0.0019)	(0.0020)	(0.0020)	(0.0019)	(0.0019)
MSNBC channel position	-0.002	-0.001	-0.001	0.000	0.000	0.000	0.001
	(0.0022)	(0.0020)	(0.0019)	(0.0016)	(0.0016)	(0.0016)	(0.0014)
R-squared	0.716	0.725	0.727	0.736	0.736	0.737	0.740
Observations	80,592	80,592	80,592	80,592	80,592	80,592	80,592
Panel C: ~ w post-national-emergency controls							
Fox News channel position	0.002	0.002	0.002	0.002	0.002	0.002	0.002
x Before National Emergency	(0.0022)	(0.0020)	(0.0020)	(0.0019)	(0.0018)	(0.0019)	(0.0018)
Fox News channel position	-0.008*	-0.007*	-0.007*	-0.007*	-0.007**	-0.007**	-0.007**
x After National Emergency	(0.0043)	(0.0041)	(0.0040)	(0.0037)	(0.0033)	(0.0033)	(0.0032)
R-squared	0.699	0.714	0.716	0.729	0.731	0.733	0.738
Observations	87,722	87,722	87,722	87,722	87,722	87,722	87,722
Panel D: ~ w county FEs & post-national-emergency controls							
Fox News channel position	-	-	-	-	-	-	-
x Before National Emergency	-	-	-	-	-	-	-
Fox News channel position	-0.009*	-0.008*	-0.008*	-0.007*	-0.007**	-0.007**	-0.007**
x After National Emergency	(0.0052)	(0.0044)	(0.0044)	(0.0042)	(0.0035)	(0.0035)	(0.0034)
FEs: County	✓	✓	✓	✓	✓	✓	✓
R-squared	0.780	0.791	0.791	0.793	0.795	0.795	0.796
Observations	87,722	87,722	87,722	87,722	87,722	87,722	87,722
FEs: State	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓
Urban			✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓
Share nonwhite & migrant					✓	✓	✓
Workable-from-home emp.						✓	✓
Repub. vote share controls							✓

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, economic-dependence county indicator, poverty rate, and median income. Urban controls include eight dummies for urban-rural continuum. Population controls include population, share of population with high-school education, and county's land area. Share nonwhite and migration controls include share of nonwhite population and net domestic migration rate. Workable-from-home employment control includes employment share in workable-from-home industries (according to Dingel and Neiman 2020). Republican vote share controls include Republican vote share in 2012 and 2016 presidential elections, and 2016 turnout rate. *(d)* 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. *(e)* 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 (2) with no controls
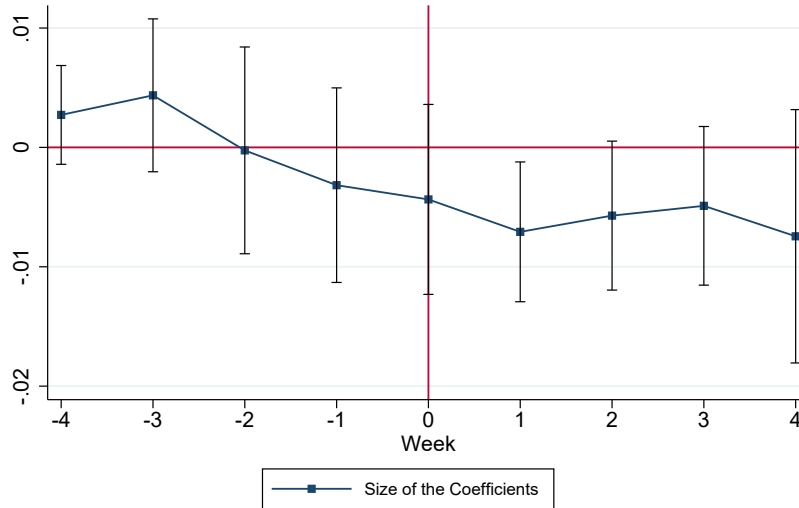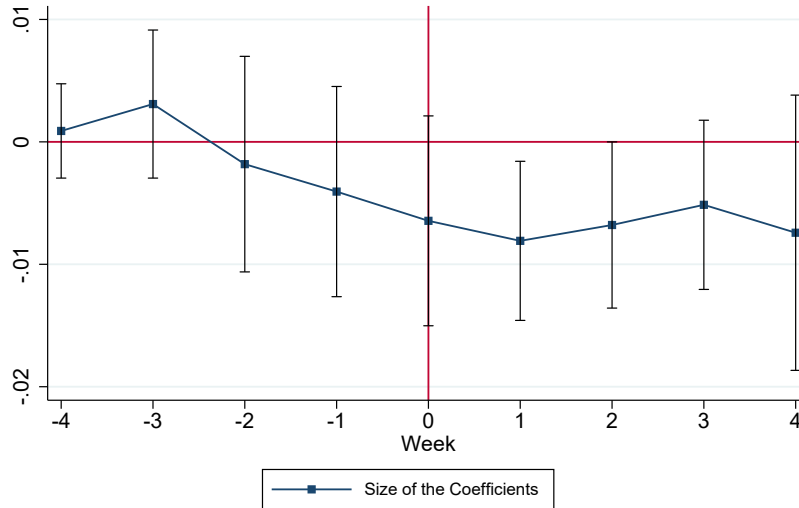
Panel B: Equation (2) with full set of controls

Note: This Figure graphs the results of estimating equation (2) for specification (in Panel A of Table 1) without controls and with the full set of controls. The former is corresponding to the specification in Column I of Table 1. The latter is corresponding to the specification in Column VII 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. This figure reports 90th-percent confidence bands.

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	119,876	119,876	87,722	87,722
FEs: State	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓
Economic controls		✓		✓
Urban		✓		✓
Population controls		✓		✓
Share nonwhite & migrant		✓		✓
Workable-from-home emp.		✓		✓
Repub. vote share controls		✓		✓

Note: (a) This Table estimates event-study specification 2. 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 VII 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. *(c)* 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). *(d)* In parentheses we report standard errors clustered on state level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Figure Appendix Figure 4: Event Study Analysis with County Fixed Effects

### Panel A: Equation (2) with no controls
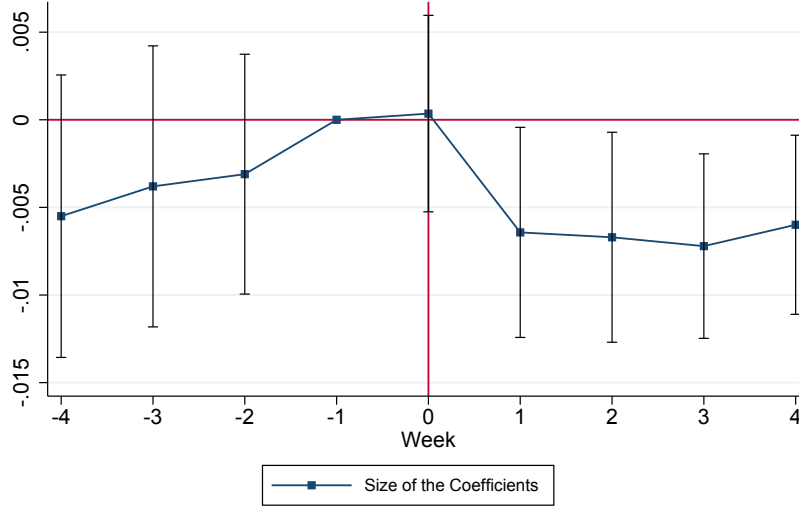
### Panel B: Equation (2) with full set of controls
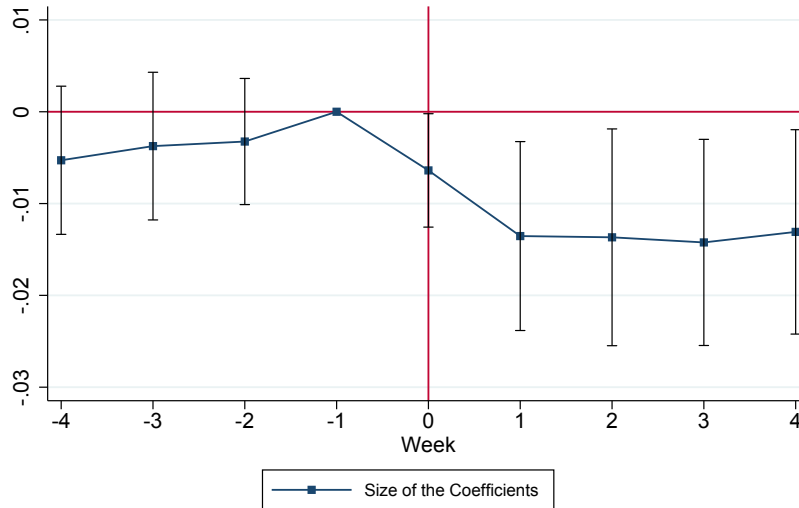
Note: This Figure graphs the results of estimating equation (2) for specification (in Panel D of Table 1) without controls and with the full set of controls. The former is corresponding to the specification in Column I of Table 1. The latter is corresponding to the specification in Column VII of Table 1. Week $t = -1$ is omitted as collinear to county fixed effects. P-values for the joint significance of the pre-trend's coefficients are equal to 0.523 for Panel A and 0.599 for Panel B. This figure reports 90th-percent confidence bands.

Figure Appendix Figure 5: Correlation of UNACAST's and Facebook's Data

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

coef = .46504685, (robust) se = .13961893, t = 3.33
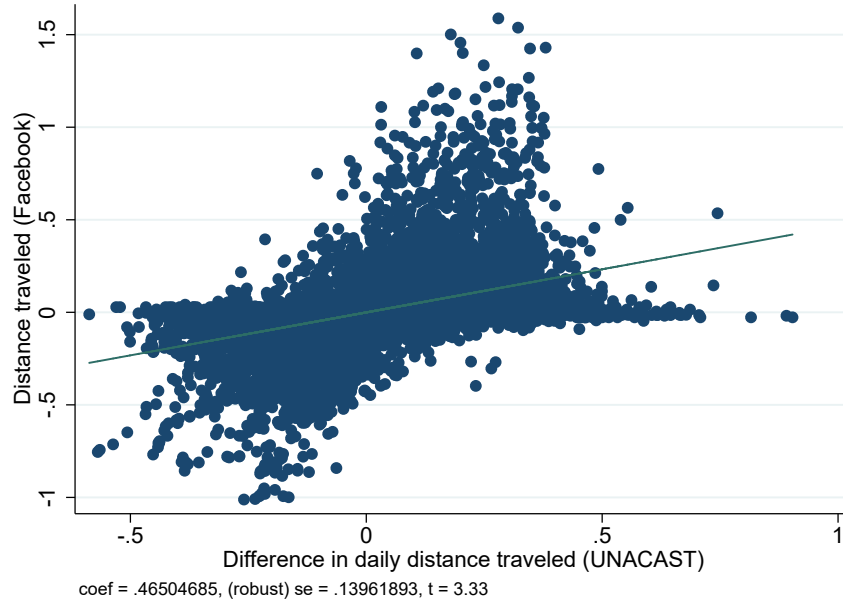
Panel B: Residual Plot of Facebook's Probability of Staying at Home and UNACAST's Differences in Distance Traveled

coef = -.0703004, (robust) se = .00909929, t = -7.73
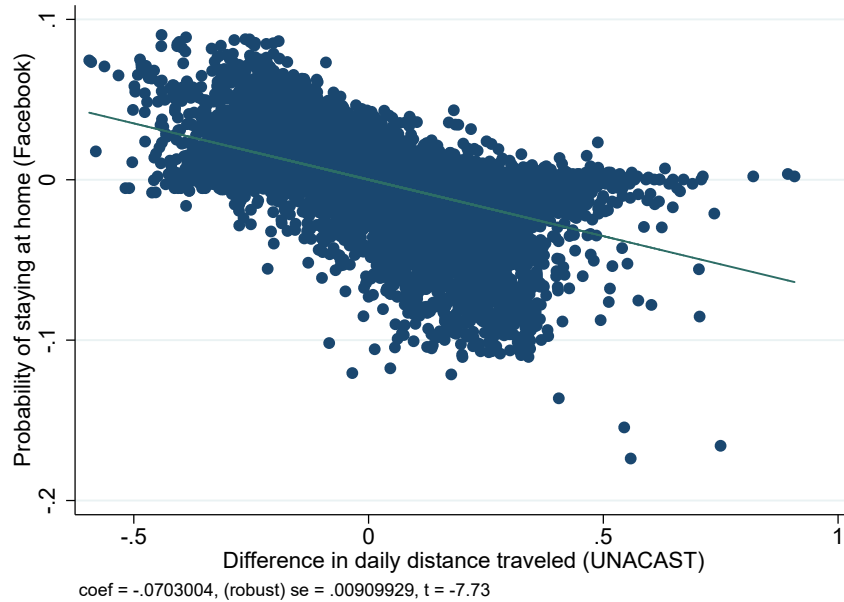
Note: (a) Panel A depicts residual plots of from the county-level regression of UNACAS's differences in distance traveled and Facebook's distance traveled (conditional on Facebook's pre-COVID baseline and state and date fixed effects). $R^2 = 0.899$. *(b)* Panel B depicts residual plots of from the county-level 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). $R^2 = 0.883$.

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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
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***
x After National Emergency	(0.0005)	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
R-squared	0.924	0.926	0.926	0.927	0.927	0.927	0.928
Observations	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**
x After National Emergency	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0063)
R-squared	0.952	0.952	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
FEs: State	✓	✓	✓	✓	✓	✓	✓
FEs: Date	✓	✓	✓	✓	✓	✓	✓
# tiles & Facebook pop.	✓	✓	✓	✓	✓	✓	✓
Economic controls		✓	✓	✓	✓	✓	✓
Urban			✓	✓	✓	✓	✓
Population controls				✓	✓	✓	✓
Share nonwhite & migrant					✓	✓	✓
Workable-from-home emp.						✓	✓
Repub. vote share controls							✓

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, economic-dependence county indicator, poverty rate, and median income. Urban controls include eight dummies for urban-rural continuum. Population controls include population, share of population with high-school education, and county's land area. Share nonwhite and migration controls include share of nonwhite population and net domestic migration rate. Workable-from-home employment control includes employment share in workable-from-home industries (according to Dingel and Neiman 2020). Republican vote share controls include Republican vote share in 2012 and 2016 presidential elections, and 2016 turnout rate. *(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 VII of Table 1 but without date fixed effects. In Panel B, the *(c)* COVID-related deaths and number of cases data is from *(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

Declarations

Funding Not applicable.

Conflicts of interest/Competing interests We have no non-disclosure obligations.

Availability of data and material The UNACAST, Facebook, and Nielsen data are not publicly available; however, one can request that data from UNACAST, Facebook, and Nielsen and merge it to the rest of our dataset. We are happy to provide the code for the merging.

Code availability The data and programs used to compute the estimates in the paper are available to you or the referees upon request, should they be needed

Conflicts of interest/Competing interests No conflict of interest

Ethics approval No need for IRB