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THE VIRUS OF FEAR: THE POLITICAL IMPACT OF EBOLA IN THE U.S.

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ABSTRACT

We study how fear can affect the behavior of voters and politicians by looking at the Ebola scare that hit the U.S. a month before the 2014 midterm elections. Exploiting the timing and location of the four cases diagnosed in the U.S., we show that heightened concern about Ebola, as measured by online activity, led to a lower vote share for the Democrats in congressional and gubernatorial elections, as well as lower turnout, despite no evidence of a general anti-incumbent effect (including on President Obama's approval ratings). We then show that politicians responded to the Ebola scare by mentioning the disease in connection with immigration and terrorism in newsletters and campaign ads. This response came only from Republicans, especially those facing competitive races, suggesting a strategic use of the issue in conjunction with topics perceived as favorable to them. Survey evidence suggests that voters responded with increasingly conservative attitudes on immigration but not on other ideologically-charged issues. Taken together, our findings indicate that emotional reactions associated with fear can have a strong electoral impact, that politicians perceive and act strategically in response to this, and that the process is mediated by issues that can be plausibly associated with the specific fear-triggering factor.

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"Ladies and gentlemen, we've got an Ebola outbreak,
we have bad actors that can come across the border.
We need to seal the border and secure it."

Thom Tillis, Republican Senate candidate [1]
in North Carolina, during the 2014 campaign

1 Introduction

Emotions are widely recognized, both by practitioners and scholars, as a powerful force conditioning voter behavior.[2] Among those emotions, fear stands out as a particularly potent one. The idea that one can mobilize voters around perceived threats – from crime, conflict, terrorism, diseases, and often from people (e.g. immigrants or ethnic minorities) seen as associated with those threats – is a staple of political campaigns and discourse in many different contexts. At the same time, it is often difficult to isolate the impact of "fear itself" – that is, the emotional response – from policy judgments. Are voters indeed changing their behavior as a result of fear, or is the latter simply correlated with policy or ideological views that ultimately guide behavior?[3] If it indeed has an impact, is the strategic exploitation of fear by politicians a channel through which that takes place?

To help answer these questions, we exploit a natural experiment that affected perceptions of threat, while arguably having a negligible impact on the actual risk environment: the Ebola scare episode, as experienced in the US, in the fall of 2014. While the 2014 Ebola outbreak in West Africa was then the largest and most complex since the virus was first discovered in 1976 (WHO, 2017), it was well-understood by public health experts at the time that the likelihood of an outbreak of the disease in the U.S. was extremely low. Still, the episode triggered substantial fear and anxiety in the country, given the gruesome nature of the disease, its associated fatality risk, and the absence of effective prevention or treatment at the time.

The Ebola scare is particularly interesting because it took place during campaign season, on the weeks before the 2014 midterm elections, in which all U.S. House seats, as well as a number of U.S. Senate seats, and state- and local-level positions, were being chosen. Ebola was a prominent topic of media coverage at the time, and the idea that the episode was strategically used and had a political impact in favor of Republicans in those elections has often been mentioned in media reports (e.g. Gertz and Savillo (2014); Yglesias (2018)).[4]

This paper shows causal evidence that Ebola concerns indeed had a significant effect in worsening

[1] The quote is an extract from a televised debate held on October 7, 2014. The video of the debate is available at `https://www.c-span.org/video/?c4510790/user-clip-tillis-ebola&start=1567`.

[2] See for instance Brader (2005), and references therein.

[3] Research in political psychology has documented that threat is associated with political conservatism (e.g. Jost et al. (2003), Thórisdóttir and Jost (2011)), but this has typically been done in a lab via experimental manipulation, leaving open the question of to what extent this translates into practice in the context of an actual campaign with real stakes.

[4] In fact, studies have shown correlational evidence that voter intentions moved towards Republicans in places with more intense concerns about the disease (Beall et al., 2016) and that Republican candidates were more likely to raise the Ebola issue during the campaign (Cormack, 2014), as well as experimental evidence that partisan mentions of the topic were associated with more negative attitudes towards immigrants (Adida et al., 2018).

the electoral performance of Democrats in the 2014 midterm elections. Moreover, it shows that this did not happen because of a general anti-incumbent impact, whereby the perceived crisis may have, for instance, affected the perception of effectiveness of President Obama, either rationally or through misattribution. Instead, the effect seems associated with the strategic use of the crisis by Republicans, who mentioned Ebola in connection with topics typically perceived to be favorable to them. The response of voters in terms of reported attitudes, however, was only present when it comes to anti-immigrant sentiment, suggesting that not all of the attempted associations actually stuck with voters.

Our research design exploits the timing and geographical variation in the salience of the Ebola threat perception. Specifically, between September and October 2014, there were precisely four diagnosed cases of Ebola on U.S. soil. First, a Liberian national visiting the U.S. was diagnosed in Dallas, TX (September 30); then it was two nurses who had treated that patient, one of whom had then traveled to Akron, OH (October 14); and finally, an American doctor returning from Guinea was diagnosed in New York, NY (October 23). We show that distance to these places strongly predicts Ebola concerns, as captured by web searches and social media (Twitter) activity, with the timing consistent with the emergence of the cases, while not systematically associated with previous electoral patterns. This allows us to instrument Ebola concerns with the distance to the closest Ebola location, controlling for those previous patterns as well as a number of demographic characteristics.

We find that a one-standard-deviation increase in Ebola concerns, as expressed in tweets or searches, induced a lower Democratic vote share, by just over four percentage points in the House, and three percentage points in Senate and gubernatorial elections. This corresponds to just over 1/7 of the average margin of victory in House elections. Alternatively, 40 House races would have been swung by such a change – fifteen of which won by Republicans. Flipping those seats would have erased Republican majority gains between 2012 and 2014. It also depressed turnout, with a one-standard-deviation increase in Ebola searches associated with a drop of about 1.4 percentage points. Interestingly, the 2014 midterm elections registered the lowest turnout (36.7%) since 1942, and the percentage points corresponds to about one third of the drop relative to the preceding midterms in 2010 (40.8%) (McDonald, 2010).

In contrast, we find a precisely estimated zero response of presidential approval ratings, as measured by daily Gallup polls, to the timing of and distance to Ebola-related events, as well as no evidence of Republican incumbents being punished. This suggests that the electoral impact did not come from changes in the perception of incumbents and their performance in dealing with the threat of the disease.

We then look at the strategic response by politicians, using data on newsletters sent by members of Congress to their constituents (Cormack, 2017), and on TV campaign advertisement by candidates. We find that Republican members are more likely to mention Ebola and to appeal to fear-based content after the emergence of the U.S. cases. They do so in conjunction with mentions to Obama, and with traditionally Republican issues, such as immigration and terrorism, that can be associated with threats. We also show that the members who respond more strongly are those who are involved in races classified as competitive (as of before the Ebola episode), further establishing the strategic motives behind the increased mentions. The strategic response is not particularly related to distance

to Ebola cases, suggesting that the response of voters is not simply driven by political messaging, and that politicians are not merely responding to the voters' concerns.

Last but not least, we look directly at the attitudes reported by voters, using data from the Cooperative Congressional Election Study (CCES). Compared to respondents interviewed in 2013, exposure to Ebola in 2014 (again, instrumented using geographical proximity) is associated with more negative attitudes towards immigrants. We do not find, however, any evidence of an impact on other kinds of attitudes typically associated with conservatives in the context of the US, such as pro-gun rights or opposed to same-sex marriage, nor on self-reported conservatism.

In sum, we show evidence of fear being strategically exploited and having a meaningful impact on an actual election, but mediated by issues that can be plausibly associated with the specific fear-triggering factor, at least in the mind of the public, as opposed to a general move towards more conservative attitudes, or to the threat being blamed on an incumbent. This could certainly depend on the characteristics of the specific threat in question – for instance, the coronavirus (Covid-19) episode of 2019-20 has meaningfully affected the public health risk environment around the globe, and as such might have a different impact in terms of how voters evaluate the performance of incumbents. Yet our findings suggest that the strategic possibilities available to politicians are constrained by the associations that can be plausibly drawn by voters: they must be able to establish a connection between the threat and a topic that favors them in the minds of voters.[5]

Our paper relates to several strands of literature. A number of papers have studied the political impact of threats such as terrorism in actual elections (Montalvo, 2011; Getmansky and Zeitzoff, 2014). Our context exploits a perceived threat that is not political in nature, and documents the strategic behavior of politicians in exploiting that perceived threat. Others have looked experimentally at the impact of emotions on political behavior (Jost et al., 2003; Brader, 2005; Thórisdóttir and Jost, 2011) or at correlations between emotions such as fear and disgust and conservative ideological views (Inbar et al., 2012; Shook et al., 2017). We show the causal impact of these emotional reactions in an actual election, and that this impact is not necessarily associated with more conservative attitudes in general. A separate strand looks at the impact on incumbents of shocks unrelated to their actual performance, such as lottery winnings (Bagues and Esteve-Volart, 2016) or the death of a spouse (Liberini et al., 2017).[6] Our results very much differ, as we find no evidence of the evaluation of incumbents being affected, or of incumbents being generally punished.

Last but not least, we relate to the contributions that have studied the social, economic, and political effects of the Ebola crisis of 2014 (Beall et al., 2016; Adida et al., 2018; Maffioli, 2018; Kostova et al., 2019; Gonzalez-Torres and Esposito, 2017; Flückiger et al., 2019; Bandiera et al., 2019). To the best of our knowledge, our paper is the first to study the causal electoral impact of that crisis in a country largely unaffected by that outbreak, from an epidemiological perspective.

The remainder of the paper is organized as follows: Section 2 outlines the context and background

[5]Note also that our empirical setting does not allow us to distinguish between the effect of the initial fear-triggering shock – in this case, the Ebola infection cases – and that of its strategic exploitation by politicians. One should interpret our results as identifying the causal impact of a fear shock that is in fact exploited by politicians.

[6]This general idea goes back to a longstanding debate in the literature on the effect of "shark attacks," starting from Achen and Bartels (2004). For a survey, see Healy and Malhotra (2013), as well as the discussions in Fowler and Hall (2018) and Achen and Bartels (2018).

of the Ebola crisis and the 2014 midterm elections, and Sections 3 and 4 present the data and empirical strategy, respectively. Section 5 discusses the results on voting and presidential approval ratings, and Section 6 examines the politicians' strategic response. Section 7 considers the impact on reported attitudes. Section 8 concludes.

2 Background

2.1 Ebola outbreak

The 2014-15 Ebola outbreak, the largest ever recorded for this virus, can be traced back to December 2013 when in a village in rural Guinea a 18-month boy suffered a bat-related infection. Following several additional cases, and after the disease reached the capital city Conakry, on March 13, 2014 the Guinea's Ministry of Health issued an official alert about an unidentified pathogen which would later be confirmed to be Ebola. Over the following months, the epidemic grew exponentially expanding to the rest of Guinea, Liberia and Sierra Leone. On August 8, the World Health Organization (WHO) declared the outbreak an international public health emergency (WHO, 2014). The vast majority of the Ebola-related deaths recorded worldwide were in Guinea (2,543), Liberia (4,809), and Sierra Leone (3,956 deaths). Yet, over the following months the virus spread to various other countries - including Italy, Mali, Nigeria, Senegal, Spain, and the UK - where, however, the death toll was much lower (i.e., between 3 and 20) (CDCP, 2019).

The first case of Ebola in the U.S. was confirmed on September 30, 2014 when the Centers for Disease Control and Prevention (CDC) announced that Thomas Eric Duncan, a Liberian national visiting the United States from Liberia, had been diagnosed in Dallas, Texas. Following an initial misdiagnosis, Duncan's conditions quickly deteriorated until he died on October 8. Two nurses that had assisted Duncan were later diagnosed with Ebola: Nina Pham, confirmed on October 11, and Amber Joy Vinson, confirmed on October 14. Vinson's case was particularly alarming since days before being diagnosed she had flown from Dallas to Cleveland, Ohio and visited her family in Akron, Ohio. Both nurses were declared Ebola free after a few days. The fourth case was diagnosed in New York city on October 23 and concerned Dr. Craig Spencer a physician who had just returned to the U.S. from working with Doctors Without Borders in Guinea. Dr. Spencer was declared Ebola free and released on November 11 (Bell et al., 2016).[7]

Despite the limited number of cases, the presence of Ebola in the U.S. caused a major public reaction. The issue rapidly attracted massive news coverage. In the five weeks following the first case, over 3,000 news segments mentioning Ebola were aired on the top five cable TV networks alone.[8] Indeed, according to a report by the Pew Research Center,[9] the Ebola outbreak generated more news interest than any previous public health crisis (including SARS, swine flu, and anthrax), and

[7]Seven additional people, mostly medical workers, became ill while in West Africa but were transported and cared for in the US. Six of them made full recovery, one passed away.

[8]According to data from the Internet TV News Archive (https://archive.org/details/tv), precisely 3,148 distinct news segments containing the word Ebola were aired between October 1, 2014 and November 4, 2014 on ABC, CBS, CNN, Fox News, and NBC.

[9]Link: http://pewrsr.ch/1t4aEFI

was comparable to some of the most important stories featured on U.S. media since 2010, such as the killing of Osama Bin Laden and Hurricane Sandy (Motel, 2014). Media coverage of the Ebola outbreak was criticized by many as excessively alarmist and even hysterical (Ihekweazu, 2017; Kelly et al., 2015).

Popular concern about the possible spread of the virus also raised rapidly. Polls conducted in late October indicated that 36% of Americans were worried or very worried that they or their family members might be exposed to the virus (SteelFisher et al., 2015), and that a staggering 16% perceived the probability of contracting the virus within six months to be above 10% (Carman et al., 2015). Furthermore, when asked to identify the most urgent health problem affecting the nation, respondents would rank Ebola above other diseases such as obesity, cancer, and diabetes, which are three of the main causes of death in the U.S. (SteelFisher et al., 2015). Fear of contagion was fueled by widespread misinformation about the way the disease spreads. Indeed, according to another poll, 85% of Americans believed that Ebola could be transmitted through sneezing or coughing and 48% that asymptomatic carriers could be contagious (SteelFisher et al., 2015), both claims with no scientific base.

2.2 The 2014 U.S. midterm elections

The 2014 elections were held on Tuesday November 4, 2014, halfway through Barack Obama's second presidential term. American voters were called to elect 435 House representatives, 36 senators in 36 states (including three special elections), and the governors of 36 states and three territories. According to data from the United States Elections Projects, nationwide turnout – computed as the ratio of total ballots cast to eligible voters – was 36.7%. This was about five percentage points lower than the previous midterm elections held in 2010, and arguably the lowest since 1942.[10] The 2014 election resulted in a large victory for the Republican party. In the House elections, Republicans won 247 seats (a net gain of 13 seats) against 188 for the Democrats, winning the popular vote by almost 6 percentage points and obtaining the largest House majority since 1928. Republicans also regained control of the Senate winning 24 of the 36 available seats, a net gain of 9 seats and the largest Senate gain in a midterm election since 1958. Similarly, in the gubernatorial elections, Republicans won 24 of the 36 state governorships, for a net gain of two seats, and two out of three in the territories.

The Ebola outbreak, and the way federal authorities responded to it, also generated a heated political debate, just a few weeks before the 2014 midterm elections. Republicans harshly criticized the Obama administration for not preventing the virus to enter the country, and demanded the President to ban all flights from affected West African countries, a measure that the administration opposed and that public health experts deemed as ineffective and even potentially harmful (Ferrel and Agarwal, 2018). Anecdotally, there has been a widespread perception that Ebola was an important campaign theme in the weeks leading up to the 2014 election (e.g. Gertz and Savillo (2014); Yglesias (2018)), backed up by correlational evidence that Republican candidates were more likely to raise the Ebola issue during the campaign (Cormack, 2014).

[10] Data are from the United States Elections Project available at: `http://www.electproject.org/2014g`.

3 Data

In what follows we describe the data used in the various parts of our empirical analysis.

3.1 Ebola concerns

We use two measures of popular concern about Ebola based on users' online activity. The first one is the volume of Google searches for the search topic "Ebola," available from the Google Trends website. We collect data by media Designated Market Area (DMA) and by week for the 5-week period between the first Ebola case and the elections, as well as for the month of August 2014 - i.e., when the World Health Organization declared Ebola as an International health crisis but prior to the first case in the U.S. - which we use for a placebo exercise. For each DMA, Google provides a measure of the search volume defined between 0 and 100 relative to the highest point in the time series. The second measure is the weekly number of messages containing the word "Ebola" or the hashtag "#Ebola" published on the Twitter platform over the five weeks before the elections and over the months between March and August 2014, which we use for a placebo exercise. Data were collected via the Twitter API. We focus on tweets that are geo-located, which we can attribute to a specific DMA, and divide their number by the DMA population.

Figure 1 shows the evolution of the volume of Google searches about Ebola between January to December 2014, and of the aggregate number of Ebola-related tweets from September to December 2014. The three vertical lines represent respectively: i) the day when the WHO declared Ebola an international public health emergency (August 8), (ii) the day when CDC announced the first Ebola case in the U.S. (September 30), and (iii) the day of the 2014 midterm elections (November 4). It is evident how both searches and tweets are extremely responsive to Ebola-related events, with a local peak after the WHO's declaration and global peak right after the first case. Furthermore, Ebola-related online activity remained relatively high in the weeks before the elections, losing intensity immediately afterwards.

3.2 Electoral results and presidential disapproval

For the analysis of the impact of Ebola concerns on voting, we use county-level data on turnout and candidates' vote share for all elections held on November 4th 2014 – i.e., House, Senate, and Governors – available from the Dave Leip's Electoral Atlas. To control for pre-trends in political preferences, we also use similar data for previous elections, i.e., 2012, 2010, 2008, 2006, and 2002 for the House, 2012, 2008, 2006, and 2002 for the Senate elections, and 2010, 2006 and 2002 for governors - available from the same source.

To explore the hypothesis that concerns for Ebola may have influenced voters' opinions about the incumbent president, we use daily data on president Obama's (dis)approval ratings, available from the Gallup daily tracking. Specifically, we construct a dummy variable equal to 1 for all respondents that reported disapproving of the way Obama was handling his job as president at the time of the interview. Exploiting the daily nature of these data, we look at the evolution of Obama's disapproval

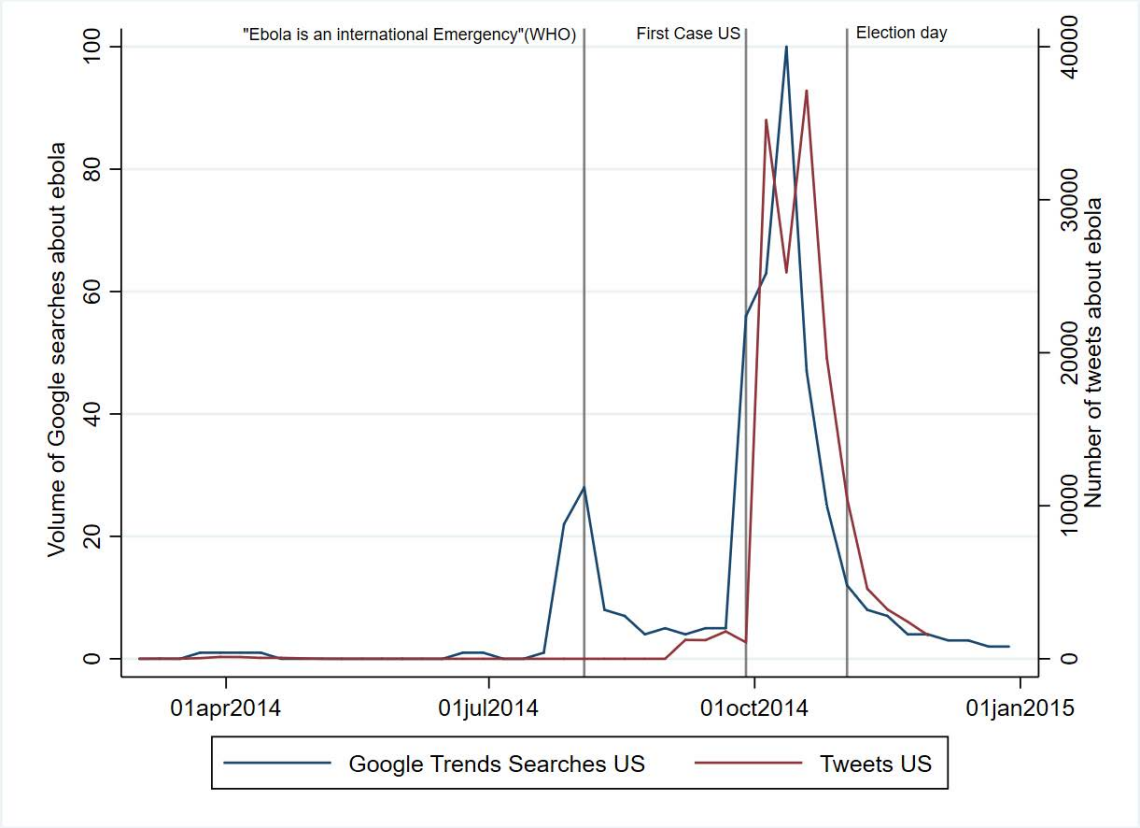

Figure 1: Google Searches and Three Crucial Locations

in the 15 days before and after the occurrence of the three Ebola cases. We also perform our analysis for the entire period between September 1 and the day of the elections.

3.3 Newsletter, ads, and race competitiveness

To investigate whether and how candidates reacted strategically to Ebola, we analyze the content of the electronic newsletters sent by members of Congress and the campaign ads aired by candidates in all the three races. Data on members' e-newsletters come from the DCinbox dataset assembled by (Cormack, 2017). The data include every official e-newsletter sent by every sitting representative and senator to her/his constituents. For each newsletter, the data report: the name of the politician, the state of origin, the party affiliation, the congressional district, and the subject and the full text of the newsletter. We use data on all e-newsletters sent between August and December 2014, for a total of over 2,300 newsletters. We identify as Ebola-related all newsletters that contain the term "Ebola" either in the subject or in the body of the newsletter, which represent about 10% of the total. Based on this information we construct both an indicator variable for whether a given politician on a given week sent at least one Ebola-related newsletter and a variable for the number of newsletters.

Comprehensive data on the campaign ads aired on broadcast TV across 210 media markets by all the candidates running in the 2014 elections are available from Kantar Media through the Wesleyan Media Project (WMP). The data cover over 5,550 ads accounting for over 2.6 million airings. For each

airing the data reports the following information: date, time, media market, channel, length, sponsor (i.e., candidates, parties, or interest groups) and the estimated cost. The data also include several qualitative variables - coded by the WMP staff through a semi-automated procedure - regarding the content of each ad, namely the issue(s) mentioned in it and the tone used. Crucially for the purpose of our analysis, some of these variables indicate whether an ad - through its script, images, and music - appeals to specific sentiments such as fear, anger, sadness.

Finally, to examine whether candidates competing in closes races are more likely to use the issue of Ebola in their campaign, we use information on the competitiveness of elections available from the Cook Political Report (CPR). In particular, for each congressional or senatorial race, the Cook Partisan Voting Index (PVI) indicates whether the election is likely to be close (i.e, "Toss Up", "Lean Republican" or "Lean Democrat") or not (i.e., "Likely Republican" or "Likely Democrat"). To make sure the measure of competitiveness is not itself affected by the Ebola episode, we use data from September 19, 2014, i.e., before the first case.

3.4 Other variables

In all regressions, we also control for a wide range of variables both at the county and at the DMA level. County-level controls includes: population density, median age, the share of white population, the share of population with a college degree, income per capita, and unemployment rates all available from the U.S. Census Bureau. DMA-level controls include instead: the level of cable penetration in 2010 (Sood, 2016), and the volume of Google searches for the terms "virus" and "anxiety," which is meant to capture the general attitudes of the local population on issues related to infectious diseases. Finally, for our empirical analysis we compute the shortest-path distance of each county or DMA from the three locations of Ebola cases (i.e., Dallas, Cleveland/Akron, and New York City) as well as the distance to the nearest one of the three.

4 Empirical Strategy

In order to unpack the political impact of the Ebola crisis, we start by asking how it affected voting behavior. For that, we first implement the following basic specification:

$$Vote_{c,d}^{2014} = \alpha + \beta Ebola_d + \gamma Vote_{c,d}^{2010-06} + \lambda' X_c + \theta' D_d + \Lambda_r + \epsilon_{d,c}, \tag{1}$$

where $Vote_{c,d}^{2014}$ is the Democratic vote share in county c, located in DMA d. $Ebola_{d,}$ is the proxy for Ebola concerns (Google searches or tweets per capita) in DMA d, during the five weeks immediately before the 2014 election – that is, starting from the report of the first case diagnosed in the US. The vector $Vote_{c,d}^{2012-10}$ includes the Democratic vote share in 2010 house (midterm) election and its change between 2010 and 2006 elections. The vectors X_c and D_d include county- and DMA-level control variables, as described in the data section, and Λ_r stands for Census region dummies. Finally, $\epsilon_{d,c}$ is a heteroskedasticity-robust error term, clustered at the DMA level.

We are interested in the coefficient β, describing the impact of Ebola concerns on the Democratic

vote share. Simply estimating (1) via OLS is not enough, however, as the coefficient of interest may still be biased for multiple reasons, even after conditioning on our control variables. First, Ebola concerns are not randomly assigned: searching information about Ebola on the Internet, or tweeting about it, are evidently endogenous decisions that may be affected by things such as access to information, susceptibility to biased news, or beliefs that may also shape voting preferences. This is not to mention the potential (arguably classical) measurement error in the main independent variable, which could introduce attenuation bias in the estimated effect of Ebola concerns on electoral results. To address these issues, we turn to the geographically uneven spread of Ebola cases, as a source of variation in the perception of potential exposure to the threat of the disease.

4.1 Proximity to Ebola Cases as a Source of Variation

We identify the three key locations within the US, as described in Section 2: (1) Dallas, TX, (2) the Cleveland-Akron area, in Ohio, and (3) New York City, NY. These were the only areas where the CDC and state public health officials implemented contact-tracing procedures to surveil 458 individuals who potentially had close personal contact with Ebola patients diagnosed in the U.S. (CDC 2014).

It seems natural that people living closer to those key locations would display a heightened concern with the potential threat. Figure 2, depicting the geographic variation in Ebola searches and the location (in red dots) of the aforementioned three critical locations, suggests that this was indeed the case. It is easy to see from inspection that Ebola concerns are associated with proximity to Dallas, Cleveland, and New York.

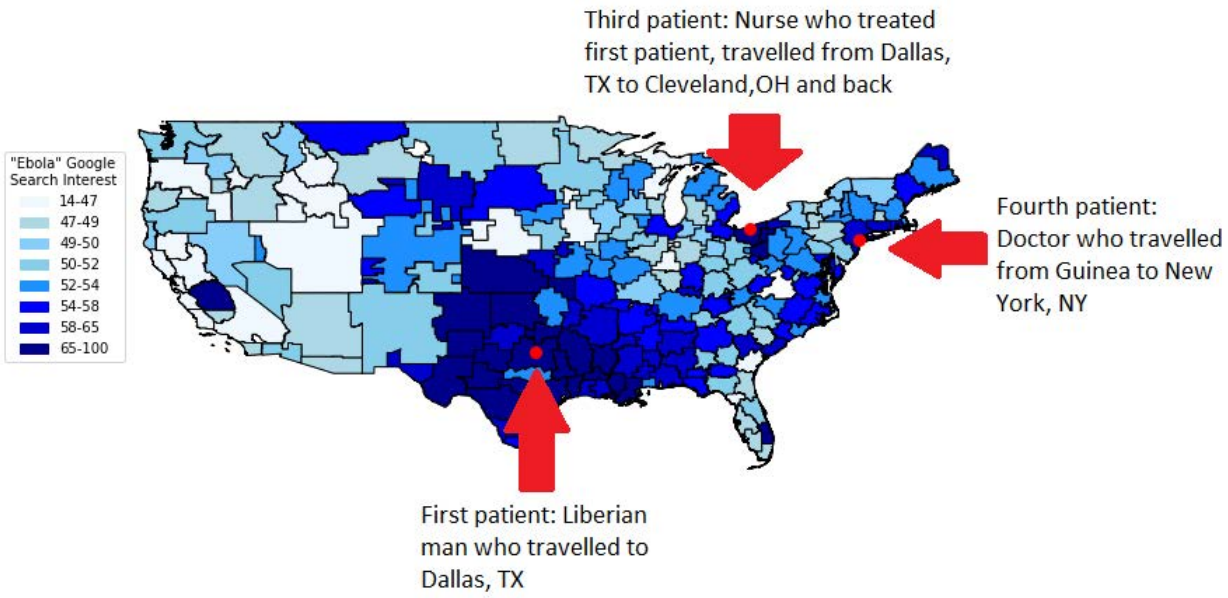

Figure 2: Google Searches and Three Crucial Locations

The point is underscored by Figure 3, showing the evolution of Ebola-related Google searches and Twitter activity over time, for the three locations. The timing of the reactions to each case being

public should mitigate concerns that the association suggested in Figure 2 was due to mere chance, or to other confounding factors unrelated to the perceived threat due to proximity.

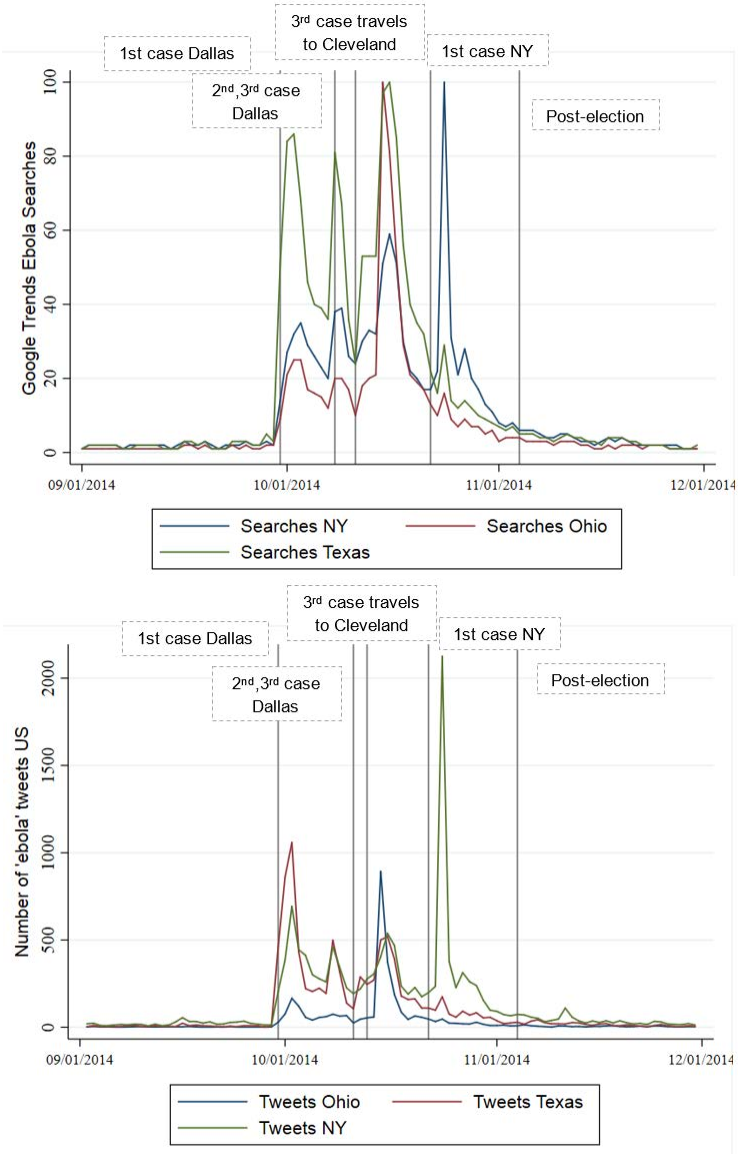

Figure 3: Timing of Ebola-Related Google Searches and Tweets

We can show this pattern more systematically, for our entire sample, by estimating the following equation, exploiting the daily variation in Ebola-related tweets:

$$Tweets_{d,t(c)} = \gamma Post - Onset_{t(c)} \times ln(Dist.Ebola_c)_d + \lambda_d + \theta_t + \Gamma_t \times \lambda_d + \epsilon_{d,t}, \tag{2}$$

where $Tweets_{d,t(c)}$ are Ebola-related tweets (per 1,000 inhabitants) sent from DMA d, on date t. $Post-Onset_t(c)$ is an indicator taking the value of 1 after the diagnosis of Ebola case $c \in TX, OH, NY$. The variable $ln(Dist.Ebola_c)_d$ is the (log) distance (in miles) of DMA d from the location of Ebola case c. (λ_d and θ_t are DMA and day fixed effects, respectively, and Γ_t is a linear trend.) We will cluster the standard errors at the DMA-level.

Table 1 presents the main results. In columns 1 to 3, we first focus on the eve of each case, by looking at 15 days before and after the diagnosis of each case (i.e., Dallas, Cleveland, and NYC, following their chronological order). In each case, the coefficient for γ closely mirrors the usual interpretation in a standard multiple-period differences-in-differences (DD) specification with a continuous treatment. In all cases, the volume of Ebola-related tweets increases with the proximity to the case, upon its detection.[11] Column 4 then displays a staggered DD model, estimating the three coefficients together without restricting the sample to the eve of each case. Results suggest that the occurrence of and proximity to the first two cases strongly predicts the increase in Ebola tweeting.

Table 1: Ebola Tweets and Distance to Reported Ebola Cases

	Ebola Tweets				
	(1)	(2)	(3)	(4)	(5)
Post-Onset Dallas * Distance (in logs) to Dallas	-0.101***			-0.062***	
	(0.026)			(0.022)	
Post-Onset Cleveland * Distance (in logs) to Cleveland		-0.031***		-0.040***	
		(0.010)		(0.008)	
Post-Onset NYC * Distance (in logs) to NYC			-0.022**	0.020***	
			(0.010)	(0.007)	
Post-Onset First Case * Distance (in logs) to Closest Case					-0.068***
					(0.013)
Day FE	Yes	Yes	Yes	Yes	Yes
DMA FE	Yes	Yes	Yes	Yes	Yes
DMA-specific Linear Trends	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.61	0.50	0.49	0.55	0.56
Observations	6177	6177	6177	19596	19596
Number of Clusters (DMA)	213	213	213	213	213

Notes: the table reports the coefficient of the interaction between the distance (in logs) to an Ebola Case and a dummy indicating the post-onset of that case. The dependent variable is the number of ebola related tweets per 10,000 inhabitants in DMA (using 2010 census population). The unit observation is a DMA-day. The coefficients are estimated from separate regressions in which we control for DMA fixed effect, day fixed effect, and DMA-specific linear trends while restricting the sample as a function of the proximity each Ebola Case. The sample includes daily data by DMA 15 days before and 15 days after the ebola diagnosis of the case. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses.

To summarize the association between geographical proximity and Ebola concerns, we compute the distances (in miles) between the centroid of each DMA to each of the three locations, and then take the minimum value to compute a variable we refer to as *Distance to Nearest Case*. We will use it as an instrumental variable in the main regressions. As with any valid instrument, our variable must be correlated with Ebola concerns but, conditional on our full set of controls, uncorrelated with any unobserved characteristic of a locality that may affect voting behavior in a systematic way.

We can examine the strength of the relationship between our instrument and the measures of Ebola concerns, by estimating the first-stage regression:

$$Ebola_{c,d} = \pi_0 + \pi_1 ln(DistanceNearestCase)_d + \pi_2 Vote_{c,d}^{2010-06} + \pi_3' X_c + \pi_4' D_d + \Lambda_r + \epsilon_{d,c}. \quad (3)$$

Table 2 presents different specifications estimating equation (3) and shows that, indeed, proximity to the nearest reported Ebola case is a strong predictor of Ebola concerns. Column 1 establishes the

[11] Figures A.1, A.2, and A.3 in the appendix show how point estimates in columns 1, 2, and 3 of Table 1 become even more negative as we constrain our regressions in terms of the proximity to Dallas, Cleveland, and NYC respectively.

basic result using the search measure. Adding the full set of DMA controls (column 2), pre-trends in voting (column 3), or regional dummies (column 4) does not substantially change the point estimate for the instrument. The implied Kleibergen-Paap F-statistics for the first stage suggest that our setting is not subject to a weak instrument problem: all F-statistics are substantially larger than the standard Stock-Yogo critical values. Further, removing population weights in column 5 does not alter our results. Columns 6 and 7 of Table 2 then confirm the results using the Twitter measure.

Table 2: Ebola Concerns and Distance to Nearest Case (First-Stage)

	Ebola Searches					Ebola Tweets	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Distance (in logs) to Nearest Case	-6.020**	-8.474***	-7.964***	-7.759***	-6.223***	-1.869***	-1.320***
	(2.424)	(2.186)	(1.681)	(1.652)	(1.540)	(0.317)	(0.409)
County-Level Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	No	No	Yes	Yes	Yes	Yes	Yes
Previous Election Controls	No	No	No	Yes	Yes	Yes	Yes
Population Weights	Yes	Yes	Yes	Yes	No	Yes	No
Region FE	No	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.38	0.57	0.61	0.63	0.44	0.80	0.56
Observations	3030	3029	3024	3004	3004	3006	3006
Number of Clusters (DMA)	203	203	202	202	202	203	203

Notes: The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. The variable Ebola Tweets accounts for the number of tweets about 'ebola' per 10,000 inhabitants in DMA during the same period. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches/Tweets before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013. Previous election controls include the Democratic vote share for House in the midterm election of 2010 and its change with respect to the 2006 midterm election.

As for the exclusion restriction, Table 3 presents a few checks. We can see that distance to the nearest Ebola case does not predict Ebola-related searches before the first diagnosed case in the U.S. (column 1), and its correlation with Ebola tweets before the first case is a precisely estimated zero (column 2). Nor does it predict Google searches during the swine flu pandemic of 2009. In short, our instrument does not seem to be picking up some general interest in Ebola unrelated to the perception of threat, or geographical variation in some persistent characteristic related to reactions to infection-related risky situations in general.[12] Similarly, and importantly, it does not predict political outcomes prior to 2014: it is uncorrelated with the vote share of Democratic candidates for the preceding House, Senate, or gubernatorial elections (columns 4-7).

5 The Political Impact of Ebola

5.1 Ebola and Voting: Baseline OLS Results

We first look at the basic correlation patterns, by estimating (1) via OLS. Table 4 presents the results for U.S. House election outcomes, in order to maximize coverage and sample size, since not all states

[12]This is an important check since there is evidence that psychological mechanisms that have evolved to promote disease-avoidance may encourage the endorsement of socially conservative beliefs (Terrizzi et al., 2013).

Table 3: Distance to Ebola Cases and Selected Outcomes

	Pre-treatment		Swine flu	Previous Elections: Democratic Vote Share			
	Ebola Searches	Ebola Tweets	Searches	House 2010	House 2012	Senate 2012	Gubern. 2010
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Closest Distance to a Reported Ebola Case	1.265	-0.002***	-0.274	0.569	0.553	0.223	0.480
	(2.429)	(0.001)	(0.441)	(0.552)	(0.656)	(0.773)	(0.700)
Effect of Std Dev Δ in Distance	1.56	-0.00	-0.34	0.70	0.68	0.31	0.61
County-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Previous Election Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.41	0.45	0.42	0.75	0.70	0.77	0.68
Observations	3004	3006	3004	3057	3016	1863	2134

Notes: The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. The variable Ebola Tweets accounts for the number of tweets about 'ebola' per 10,000 inhabitants in DMA during the same period. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches/Tweets before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013. Previous election controls vary depending on the corresponding election for each outcome variable: For House 2010 it includes the Democratic vote share for the 2006 midterm House election and its change with respect to the 2002 midterm election. For House 2012 it includes the Democratic vote share for the previous House election (i..e, 2010) and its change with respect to the previous house election (i.e., 2008). For Senate 2012 it includes the Democratic vote share for the previous Senate election (i..e, 2006) and its change with respect to the previous senatorial election (i.e., 2000). For 2010 Gubernatorial election it includes the Democratic vote share for the 2006 Gubernatorial election and its changes from the 2002 election.

had Senate or gubernatorial elections that year. (We will discuss those elections later.) We weigh regressions by DMA population, which does not qualitatively affect the results, as we will show, but generally improves the precision of our estimates.

We start by showing, in Column 1, that Ebola searches before the first case in the U.S. do not predict the Democratic vote share in the 2014 midterm election. In contrast, column 2 shows a strong unconditional correlation between Ebola concerns after the first case and the vote share for Democratic candidates. This remains true even after controlling for possible confounding factors, captured by regional dummies and by our county- and DMA-level variables (columns 3 and 4), which include demographic characteristics, as well as media access (cable TV) and intensity of Google searches for "anxiety" and "virus" (as of 2013), all of which might correlate with Ebola concerns and information, as well as political views. The point estimate suggests that Democratic vote share is significantly negatively associated with Ebola concerns: a one-standard-deviation increase in Ebola searches is associated with a decrease in vote share of one fifth of a standard deviation (about four percentage points).

Democrats thus did poorly in areas that display greater Ebola concerns. This, however, could be partly explained by selection: it could be that areas where Democrats had been doing poorly would also be disproportionately concerned about Ebola. Column 5 suggests that this is indeed the case: the coefficient of interest drops substantially once we control for the Democratic vote share in 2010 (the previous midterm election), as well as the change between 2006 and 2010.[13] A similar pattern is

[13]Results are remarkably similar if we look at presidential election years as well, namely controlling for 2012 vote share and the change between 2010 and 2012.

Table 4: Ebola Concerns and Democratic Vote Share (OLS)

	Democratic Vote Share in 2014 House Reps. Election						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ebola Searches before First Case US	-0.006						
	(0.182)						
Ebola Searches		-0.354**	-0.360***	-0.313***	-0.170***		
		(0.168)	(0.101)	(0.089)	(0.057)		
Ebola Tweets						-1.270***	-0.892***
						(0.337)	(0.173)
Std Dev Vote Share	20.64	20.64	20.64	20.65	20.65	20.65	20.65
Std Dev Ebola (Searches or Tweets)	14.19	11.92	11.92	11.92	11.87	2.75	2.75
Effect of Std Dev Δ in Searches/Tweets	-0.09	-4.22	-4.29	-3.73	-2.02	-3.49	-2.46
County-Level Controls	No	No	Yes	Yes	Yes	Yes	Yes
Region FE	No	No	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	No	No	No	Yes	Yes	Yes	Yes
Previous Elections Controls	No	No	No	No	Yes	No	Yes
Adjusted-R^2	-0.00	0.04	0.50	0.56	0.74	0.55	0.74
Observations	3025	3025	3024	3018	2998	3020	3000
Number of Clusters (DMA)	204	204	204	202	202	203	203

Notes: All specifications are weighted by DMA population. The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. The variable Ebola Tweets accounts for the number of tweets about 'ebola' per 10,000 inhabitants in DMA during the same period. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches/Tweets before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013.

present, if somewhat less starkly, when it comes to Ebola concerns as measured by tweets (columns 6-7).

In sum, the basic OLS results show a correlation between Ebola concerns and the electoral performance of Democrats, but also that selection on pre-existing political patterns is an important issue. In order to establish a causal effect, we need a source of variation in Ebola concerns that does not suffer from such selection. Table 3 has shown that the geographical patterns of Ebola cases provide us with such a source.

5.2 Ebola and Voting: Instrumental Variable Results

The nature of the variation behind our IV strategy is quite apparent from Figure 4, which plots the residuals of the Democratic share of the House vote in 2014 (regressed on our full set of control variables described in equation (1)) on a map of U.S. counties marked with our three key Ebola locations. It is apparent that Democrats seem to have performed relatively poorly in the areas around the latter, especially for the Texas and Ohio cases.

This basic intuition is confirmed by Table 5, which presents the main IV results for U.S. House elections. Columns 1-2 show the reduced-form results, with distance to the nearest Ebola case strongly predicting Democratic electoral performance. Columns 3-6 then show the population-weighted and unweighted IV estimates, implying a negative and highly significant effect of Ebola concerns on the

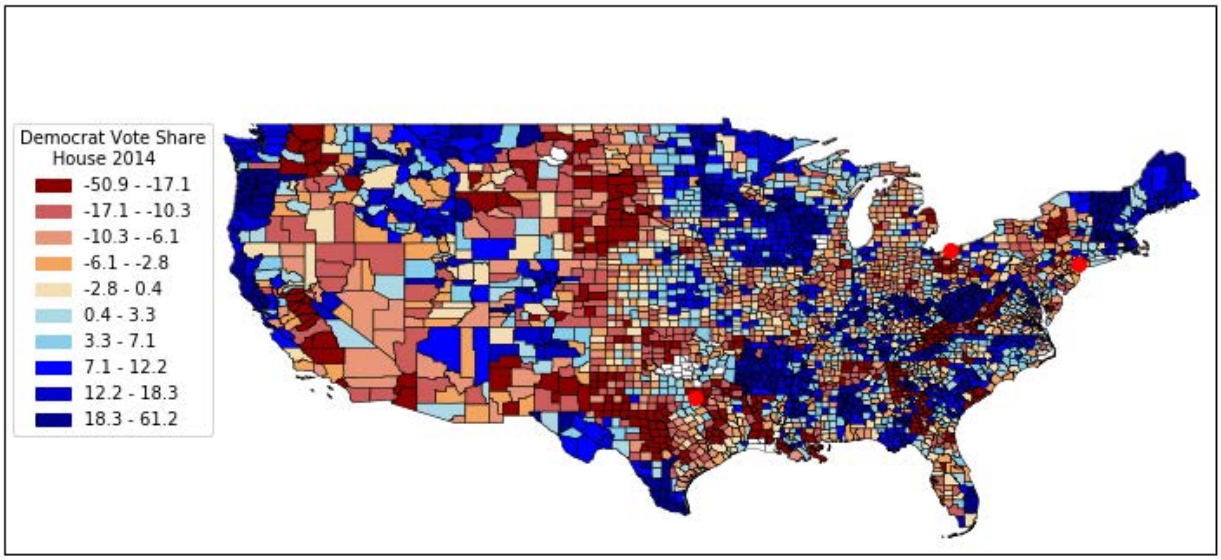

Figure 4: Democrat Vote Shares in House Election

Note: The figure shows the geographical distribution of the residuals obtained from a regression of Democratic vote share in 2014 House election on the full set of controls described in equation (1). Red dots denote the location of Dallas, Cleveland, and New York.

Democratic vote share, whether they are measured by Google searches or tweets. Broadly speaking, we estimate a quantitatively large impact of Ebola concerns on Democratic vote shares: from column 3, a one-standard-deviation increase in Ebola concerns leads to a decrease in vote share of about 4.5 percentage points (just over one fifth of a standard deviation). This is indeed a meaningful effect: 40 House of Representatives races were defined by a margin of nine percentage points or less, which would have been flipped by that change. Fifteen of those were won by the Republican candidate, and flipping those seats to the Democratic column would have completely wiped out the Republican majority's increase relative to 2012.[14]

We can also look at the impact of Ebola on other electoral outcomes. Table 6 shows results for senatorial and gubernatorial races, as well as overall turnout rates, with odd (even) columns using the Google search (Twitter) measure. We find that Democrats are also negatively affected by Ebola concerns in the senatorial and gubernatorial races. The magnitude of the standardized effects is again quite substantial: a one-standard-deviation increase in Ebola concerns reduces the Democratic vote share by just about one fifth of a standard deviation. Put differently, those increases in Ebola concerns translate into a 3.1 percentage-point (3.3 p.p.) decrease in vote share for the Senate (gubernatorial) election. Extrapolating the results for the gubernatorial election can convey this magnitude quite starkly: this hypothetical loss in vote share would have been decisive in eight gubernatorial elections in which Republican candidates won by less than six percentage points.[15].

Finally, columns 5 and 6 of Table 6 showcase a substantial negative impact of Ebola concerns on total voter turnout. In fact, the magnitude is such that a one-standard-deviation increase in Ebola

[14]The Republican majority went from 234-201 in 2012 to 247-188 in 2014.

[15]These eight toss-up races were (vote margin for Republican candidate in parenthesis): Florida (1%), Illinois (5%), Kansas (4%), Massachusetts (1%), Maryland (5%), Maine (5%), Michigan (4%), and Wisconsin (5%),

Table 5: Ebola Concerns and Democratic Vote Share (IV)

	Democratic Vote Share in 2014 House Reps. Election					
	(1)	(2)	(3)	(4)	(5)	(6)
Distance (in logs) to Nearest Case	2.928***	2.633***				
	(0.447)	(0.646)				
Ebola Searches			-0.380***	-0.426***		
			(0.097)	(0.121)		
Ebola Tweets					-1.582***	-2.030***
					(0.393)	(0.677)
Std Dev Vote Share	20.65	18.74	20.65	18.74	20.65	18.73
Std Dev Main Indep. Variable	1.23	0.81	11.87	10.41	2.75	2.11
Effect of Std Dev Δ in Main Indep. Variable	3.60	2.13	-4.51	-4.43	-4.35	-4.29
County-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Previous Election Controls	Yes	Yes	Yes	Yes	Yes	Yes
Population Weight	Yes	No	Yes	No	Yes	No
Adjusted-R^2	0.74	0.64	0.73	0.61	0.73	0.62
Observations	2998	2998	2998	2998	3000	3000
Number of Clusters (DMA)	202	202	202	202	203	203

Notes: The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. The variable Ebola Tweets accounts for the number of tweets about 'ebola' per 10,000 inhabitants in DMA during the same period. All regressions but those on columns (4) and (6) are weighted by DMA population. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches/Tweets before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013. Previous election controls include the Democratic vote share for House in the midterm election of 2010 and its change with respect to the 2006 midterm election.

searches would have led to a drop of about 1.4 percentage points. Interestingly, the 2014 midterm elections registered the lowest turnout (36.7%) since 1942, and the 1.4 percentage points corresponds to about one third of the drop relative to the preceding midterms in 2010 (40.8%) (McDonald 2010). This suggests that the decline in the Democratic vote share may have been to an important extent due to potential supporters being induced to abstain from voting.

In sum, the Ebola threat had a substantial negative impact on the electoral fortunes of Democrats in the 2014 midterms, across congressional and gubernatorial races.

5.3 Were Voters Blaming Incumbents?

One possible mechanism underlying our results could be an anti-incumbent effect, whereby the perceived crisis may have affected the perception of effectiveness of incumbent officials, both at the national and local level, either rationally or through misattribution. After all, it is possible that voters could be making inferences about incumbent performance based on their perception of the government's response to the Ebola crisis, not to mention that there is substantial evidence that voters may punish or reward incumbents for outcomes over which they have little influence.

We first consider the possibility of a general anti-incumbent channel, looking at voting results by incumbency status. Table 7 shows that, for all types of election, we do not find that incumbents faced a reduction in vote shares due to Ebola concerns (odd columns). It was only Democratic incumbents who experienced a substantial a reduction in their vote share as a result of those concerns (even

Table 6: Ebola Concerns: Senate and Gubernatorial Races and Turnout

	Democrat Vote Share in 2014				Turnout Rate	
	Senatorial Race		Gubernat. Race		in 2014	
	(1)	(2)	(3)	(4)	(5)	(6)
Ebola Searches	-0.232*		-0.256**		-0.119**	
	(0.128)		(0.099)		(0.052)	
Ebola Tweets		-1.122*		-1.209***		-0.533***
		(0.589)		(0.453)		(0.187)
Std Dev Vote Share	17.68	17.68	15.68	15.68	10.50	10.50
Std Dev Ebola (Searches or Tweets)	13.49	3.03	13.09	2.93	11.99	2.76
Effect of Std Dev Δ in Searches/Tweets	-3.13	-3.40	-3.35	-3.54	-1.42	-1.47
County-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Previous Election Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.76	0.75	0.80	0.80	0.75	0.75
Observations	2271	2273	2134	2136	3090	3092
Number of Clusters (DMA)	153	154	172	173	202	203

Notes: All specifications are weighted by DMA population. The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. All regressions are weighted by DMA population. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013.

columns).

While this pattern rules out a general anti-incumbent effect, it is still consistent with the possibility of voters punishing Democrats, at all levels, due to an attribution of responsibility to President Obama. If that were the case, we would expect to see Obama's approval ratings negatively affected by the timing of and distance to Ebola-related events. We explore that possibility by exploiting individual-level (daily) Gallup data on presidential approval ratings to estimate the following model:

$$Disapprove_{i,d,t(c)} = \gamma Post - Case_{t(c)} \times ln(Dist.Ebola_c)_d + \delta' X_i + \lambda_d + \theta_t + \epsilon_{d,t}, \quad (4)$$

where $Disapprove_{i,d,t(c)}$ is an indicator taking value 1 if individual i living in DMA d disapproves of Obama's job as president, and 0 otherwise. $PostCase_t(c)$ is an indicator taking value 1 after the diagnosis of Ebola case c. The variable $ln(Dist.Ebola_c)_d$ is the distance (in logs) of DMA d from Ebola case c. The vector X_i includes individual level controls (e.g., age, gender, race, etc), λ_d is a collection of DMA fixed effects, and θ_t is a collection of day fixed effects.

The results are in Table 8. In columns 1-3, we focus on a window of 15 days before and after the diagnosis of the first Ebola case in the three different locations (Texas, Ohio, and New York). Results suggest that the timing of the events and proximity to the cases do not affect Obama's disapproval

Table 7: Ebola Searches and Incumbent Vote Share

	Incumbent Vote Share in 2014 Election					
	House		Senatorial		Gubernatorial	
	(1)	(2)	(3)	(4)	(5)	(6)
Ebola Searches	0.159	-1.622**	0.035	-0.856***	0.288**	-0.731***
	(0.139)	(0.809)	(0.150)	(0.269)	(0.116)	(0.183)
Incumbent	All	Democrat	All	Democrat	All	Democrat
Std Dev Vote Share	16.67	16.61	18.18	13.49	16.53	14.97
Std Dev Ebola Searches	12.17	7.19	13.49	8.43	13.09	7.88
Effect of Std Dev Δ in Searches	1.94	-11.67	0.47	-7.22	3.77	-5.76
County-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
DMA-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Previous Election Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.29	0.57	0.38	0.68	0.28	0.91
Observations	2861	565	2271	1092	2134	548
Number of Clusters (DMA)	202	99	153	94	172	66

Notes: All specifications are weighted by DMA population. The variable Ebola Searches accounts for the google search volume of the term 'ebola' during the 5 weeks before the 2014 election. All regressions are weighted by DMA population. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013.

rates – in fact, we find a very precisely estimated zero effect.. We then exploit, in column 4, all the daily data from September 1st to November 30th 2014, and estimate the three interaction terms. Again, we find no evidence of an association. In column 5 we test whether the proximity to any of the three locations predicted Obama's disapproval after the first case in the US, and find no evidence of that either. Finally, the result is not an artifact of the Gallup data: column 6 shows no impact on Obama's disapproval as measured by the CCES survey.

In sum, we find no evidence of a general anti-incumbent effect of the Ebola crisis, nor of an impact on President Obama's approval ratings. This suggests that the political impact of Ebola was not about voters being disappointed with a policy response, or irrationally misattributing responsibility, and punishing politicians as a result. To shed additional light on the nature of that impact, we now turn to look at the strategic response by politicians.

6 The Strategic Response to Ebola

We now ask whether the widely perceived role of Ebola as an important campaign theme, in the weeks leading up to the 2014 election, is borne out more systematically in the data, and, moreover, whether it responded to strategic considerations.

Table 8: Disapprove Barack Obama's job as president

	Disapproves Barack Obama's job as president					
	(1)	(2)	(3)	(4)	(5)	(6)
Post-Onset Dallas x Distance (in logs) to Dallas	-0.002			0.006		
	(0.018)			(0.011)		
Post-Onset Cleveland x Distance (in logs) to Cleveland		0.006		-0.002		
		(0.012)		(0.008)		
Post-Onset NYC x Distance (in logs) to NYC			-0.003	0.001		
			(0.010)	(0.007)		
Post-Onset First-Case x Distance (in logs) to Nearest Case					-0.003	0.005
					(0.007)	(0.004)
Survey	Gallup	Gallup	Gallup	Gallup	Gallup	CCES
Day FE	Yes	Yes	Yes	Yes	Yes	Yes
DMA FE	Yes	Yes	Yes	Yes	Yes	No
County FE	No	No	No	No	No	Yes
Individual-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.14	0.14	0.14	0.14	0.14	0.17
Observations	8037	7984	7591	24168	24168	71931
Number of Clusters	183	184	183	184	184	2370

Notes: Samples in Columns 1 to 3 include Gallup' daily individual data 15 days before and 15 days after the ebola diagnosis of each case. Samples in columns 4 and 5 include all daily data between September 1st, 2014 and the midterm election. Sample in column includes CCES's daily data between November 2013 and the midterm election. The dependent variable takes value of 1 if the individual disapproves Barack Obama's job as president, 0 otherwise. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses (county-level in columns 6); *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. For specifications in columns 1 to 5, Individual-level controls are age and indicators for gender, employed, married, black, and hispanic.In column 6 Individual-level controls are are age and a set of indicators variables for male, white, hispanic, college or higher education, married, and annual income above US median (i.e., usd 59,000)

6.1 Congressional Newsletters

We start by exploiting weekly variation obtained from the textual analysis of the content of e-newsletters sent by members of Congress to their constituents. In particular, we are interested in understanding systematic differences across parties and over time, in response to Ebola-related events.

For that we estimate different versions of the following general model:

$$Newsletter_{c,t} = \gamma PostOnset_t \times Member_c + \pi' X_{c,t} + \lambda_t + \theta_c + \Gamma_t \times \lambda_c + \epsilon_{c,t}, \tag{5}$$

where $Newsletter_{c,t}$ is one of the several measures of newsletter activity by a member of congress c, as of week t. In particular, we look at an indicator of whether at least one newsletter was sent, the total number in a particular week (a flow variable), or the stock of newsletters sent since August 2014. Our main coefficient of interest captures the effect of the interaction between $PostOnset_t$ (an indicator taking value 1 in the period after the onset Ebola cases) and $Member_c$, which is a cross-sectional characteristic of the candidate c or her electoral district, capturing the differential change in behavior, upon the onset of Ebola cases, by members of Congress with that characteristic. The vector

$X_{c,t}$ accounts for the length of the newsletters in terms of number of words, λ_t is a collection of week fixed effects, and θ_c is a collection of member of Congress fixed effects. Finally, $\Gamma_t \times \lambda_c$ accounts for politician-specific linear trends. We cluster the standard errors at the level of members of Congress.

Figure 5 displays the evolution of Ebola-related newsletters by Republican and Democrats. It is immediately apparent that mentions to Ebola increased dramatically upon the occurrence of the first U.S. case. There is also a clear difference across parties: Republicans respond much more strongly. This confirmed more systematically by Panel A in Table 9. By all of our measures, Republicans were more likely to send Ebola-related content in their newsletters. The magnitude is quite important: Republicans were 6.4 percentage points more likely to mention Ebola in a e-newsletter after the detection of the first case on U.S. soil (from column 1); this doubles the average probability of sending a newsletter mentioning Ebola in a given week during the sample period August-November 2014 (3.1%). This was in spite of the fact that they did not become more likely to send newsletters in general.

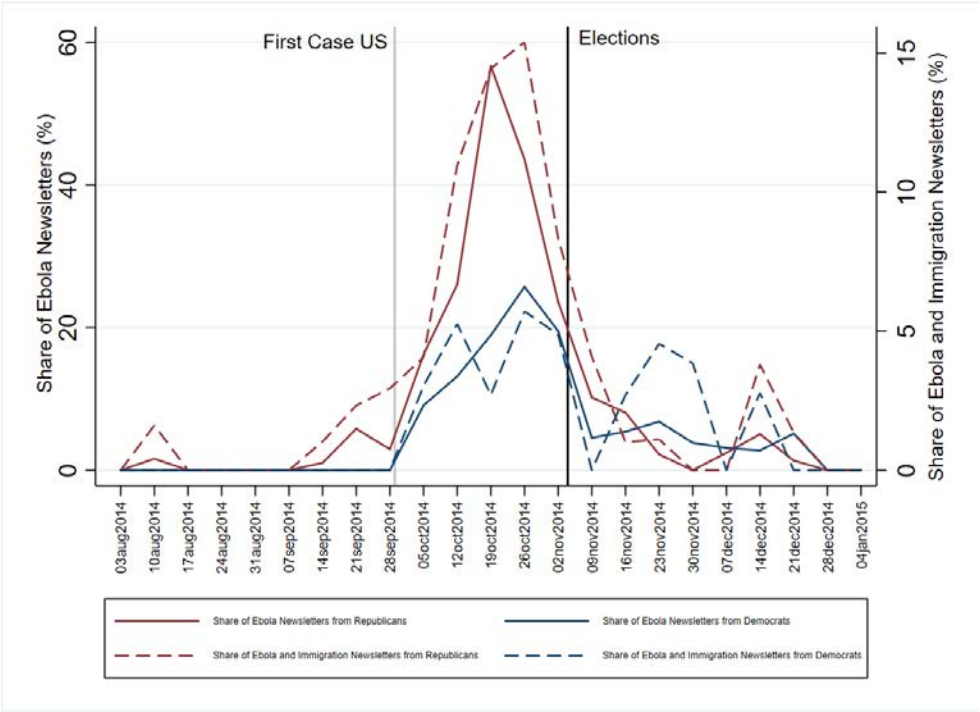

Figure 5: Evolution of Newsletters by Party

Was that response by Republican politicians strategic, or were they more likely to mention Ebola in their newsletters simply because they were also more likely to care about the crisis? One piece of evidence, is also evident in Figure 5, which shows a precipitous drop in Ebola mentions immediately after the election. [16] What is more, we also find (Panel B of Table 9) that Republicans facing a competitive midterm election reacted much more strongly to the occurrence of the first Ebola case in

[16]This is confirmed in Table A.2 in the appendix. In the appendix, we also exploit the timing of different cases. Table A.3 shows that the second case, associated with Ohio, caused a differentially larger reaction from Republican members, and Table A.5 shows that the increase after that second case from members of Congress whose constituents were close to the existing cases is again entirely explained by Republicans.

Table 9: Ebola Newsletters, Other Issues, and Timing of Ebola in the US

	Panel A: Ebola Newsletters Before and After the First Case in the US				
	Ebola Newsletter Indicator	Number of Ebola Newsletters	Number of Time Ebola is Mentioned	Any Newsletter Indicator	Number of Newsletters
	(1)	(2)	(3)	(4)	(5)
Onset First-Case in the US x Republican	0.064***	0.071***	0.348***	-0.005	-0.024
	(0.018)	(0.019)	(0.127)	(0.026)	(0.033)
Adjusted-R^2	0.22	0.23	0.16	0.58	0.62

	Panel B: Ebola Newsletters and Competitive Races		
	Ebola Newsletter		
	Indicator	Flow	Stock
	(1)	(2)	(3)
Post-Onset First-Case in the US x Republican	0.058***	0.064***	0.221***
	(0.019)	(0.019)	(0.044)
Post-Onset First-Case in the US x Republican x Competitive Race	0.247***	0.305**	0.383
	(0.073)	(0.122)	(0.253)
Post-Onset First-Case in the US x Competitive Race	-0.040	-0.039	0.061
	(0.037)	(0.037)	(0.086)
Adjusted-R^2	0.22	0.23	0.79

	Panel C: Ebola, Other Issues, and Timing of Ebola in the US					
	Newsletter (Indicator) About					
	Terrorism	Immigration	Obama	Ebola and Terrorism	Ebola and Immigration	Ebola and Obama
	(1)	(2)	(3)	(4)	(5)	(6)
Post-Onset First-Case in the US x Republican	-0.052**	-0.009	-0.048**	0.010	0.025**	0.033**
	(0.021)	(0.020)	(0.022)	(0.008)	(0.011)	(0.013)
Adjusted-R^2	0.24	0.33	0.35	0.09	0.10	0.15

Notes: The unit of observation is member of congress - week. The sample focuses on 367 member of the congress (i.e., senators and house representatives) who sent sent at least one official e-newsletters between August 2014 and the midterm election. The dependent variables are indicators taking value 1 if the member of the congress sent that week a newsletter mentioning the subjects listed in each column. The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in Dallas and an indicator taking value 1 if the member of the congress is republican, 0 otherwise. Specifications in all panels include week fixed effects, newsletter controls, and member of the congress-specific linear trends. The number of observations is 5505 and the number of clusters is 367. Newsletter controls are the number of words and accumulated number of words. Heteroskedasticity robust standard error estimates clustered at the member of congress-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

the US.[17] There is a strongly heterogeneous pattern: after the first case, Republicans facing a very competitive race were a full 25 percentage points more likely to send a newsletter mentioning Ebola, compared to those facing less competitive races (column 1). We find similar results when looking at either the weekly number (column 2) or accumulated number of Ebola-related newsletters since August 2014 (column 3). This set of results is very much suggestive of a strategic use of the Ebola crisis by Republican politicians.

Panel C further establishes that Republican members of Congress were inclined to mention Ebola in conjunction with particular topics. Specifically, we look at newsletters mentioning terrorism, immigration, and President Obama. As it turns out, while Republicans reduced, if anything, the frequency with which they mentioned those issues after the first Ebola case in the US, they very much increased that with which they mentioned them in conjunction with Ebola, as can also be seen in Figure 5. After the first case, Republicans were 2.5 p.p and 3.3 p.p more likely to mention immigration (column 4) and Obama (column 5) in the same newsletters in which they mentioned Ebola. This represents

[17] By September 19, 2014, 36 (resp. 12) House (resp. Senate) races are classified as competitive.

more than twice the average probability of receiving a newsletter mentioning those immigration and Ebola during the sample period August-November 2014.

Could it be that all politicians were simply responding to the concerns of their constituents? Table A.4 in the Appendix shows that, on average, members of Congress were not very responsive, in terms of mentioning Ebola in their newsletters, to the distance to the nearest Ebola case – which, as we have seen, predicts Ebola concerns. This suggests the latter weren't simply driven by the effort of politicians to raise the salience of the threat. Again, however, it was only Republicans who responded in such fashion (see Table A.5).

Documenting these patterns begs the question of whether the effort by Republican politicians translated into additional votes. To answer that, we slightly modify equation (1), by replacing our indicator of Ebola concerns with an indicator for whether at least one Ebola-related newsletter had been sent to a county. While we do not have a clear source of exogenous variation in the decision to send the newsletter, we can exploit within-DMA variation in our treatment for the House election. Put simply, we can add DMA fixed effects to equation (1), and still be able to estimate our main coefficient of interest.

In Table 10 we show how our coefficient of interest changes as we add different levels of cross-sectional fixed effects. In column 1 we only account for the baseline set of county-level, DMA-level, and previous elections controls. We then sequentially add region, state, and DMA fixed effects in column 2,3, and 4, respectively. We find that, even after accounting for DMA-level unobservables, counties that received Ebola-related newsletters from Republican members of Congress experienced a large drop in Democratic vote shares. Again, while it is hard to draw causal claims from this particularexercise, the results are suggestive that Republicans may have benefited from priming Ebola concerns to their constituents. Taking point estimate from column 4 at face value, counties that received at least one Ebola-related newsletter experienced a drop in Democratic vote share of 4.4 percentage points, compared to those what did not receive any.

6.2 Campaign Ads

We now turn to the data on campaign ads, as it seems natural to expect that any strategic response by politicians would be reflected in their advertising. In this case, we can exploit weekly variation in the number and content of ads that candidates in House, Senate, and gubernatorial races placed on TV. When it comes to the content, one limitation is that we do not have information on whether ads mentioned Ebola, since that was not tracked by the Wesleyan Media Project. The latter did track mentions to specific issues, out of which we focus on a few that tend to be topics that are often perceived to favor conservative politicians: terrorism, immigration, and religion.

We estimate the following model, analogous to (6.1):

$$Ads_{c(r),t} = \gamma Post - Onset_t \times Member_c + \pi' X_{c,t} + \lambda_t + \theta_r + \Gamma_t \times \lambda_r + \epsilon_{c(r),t}, \tag{6}$$

where $Ads_{c(r),t}$ is one of the several content-based measures of different types of ads placed by candidate c in race r. We define extensive and intensive (flow and stock) measures, along the lines

Table 10: Ebola Newsletters and Democratic Vote Share (OLS)

	Democratic Vote Share in 2014 House Election			
	(1)	(2)	(3)	(4)
Ebola Newsletters	-5.880***	-5.880***	-5.880***	-4.421**
	(1.668)	(1.668)	(1.668)	(2.053)
Std Dev Vote Share	20.61	20.61	20.61	20.61
Std Dev Ebola Letters	0.41	0.41	0.41	0.41
Effect of Std Dev Δ in Letters	-2.38	-2.38	-2.38	-1.79
County-Level Controls	Yes	Yes	Yes	Yes
DMA-Level Controls	Yes	Yes	Yes	No
Previous Election Controls	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	No
State FE	No	No	Yes	No
DMA FE	No	NO	No	Yes
Adjusted-R^2	0.73	0.73	0.73	0.80
Observations	2998	2998	2998	3010
Number of Clusters (DMA)	202	202	202	207

Notes: All specifications are weighted by DMA population. The variable Ebola Newsletters is a dummy equal to 1 if the term 'ebola' is mentioned in a political newsletter sent a by Republican House Representative in Congressional District during Aug.-Dec.2014. All regressions but the one in column (5) are weighted by DMA population. Heteroskedasticity robust standard error estimates clustered at the DMA-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests. County-level controls are population density, median age, share of white population, share of population with college degree, income per capita, and unemployment. DMA-level controls are cable TV penetration 2010, Ebola Searches before first case in the US, and google searches for the terms 'anxiety' and 'virus', both in 2013.

of the ones for the newsletter data. The vector $X_{c,t}$ now includes the weekly flow and accumulated stock of ads (since August 1st 2014), as well as their total time duration. Further, λ_t is a collection of week fixed effects and $\theta_{c(r)}$ a collection of candidate (or race) fixed effects. Finally, $\Gamma_t \times \lambda_c$ accounts for race-specific linear trends. We cluster the standard errors at the level of races.

We start by focusing on the within-race variation – namely, comparing candidates competing in the same race and analyzing whether the Republican chooses to air different types of ads after the occurrence of the first Ebola case. Table 11 displays the results for four different issues: terrorism, immigration, President Obama, and religion. With the exception of terrorism, the aforementioned issues are more prevalent in Republican ads (both in the intensive and extensive margin): they are 4.1, 14.4, and 2.4 percentage points more likely to mention immigration, Obama, and religion, respectively, before the onset of Ebola. What is more, Republican candidates become even more likely to air ads about immigration and Obama, after the occurrence of the first case of Ebola in U.S. soil, but now also about terrorism – and not so for religion.

Table 11: Campaign Ads and Ebola Outbreak: Within-Race Variation

	Issue Mentioned in Ad							
	Terrorism		Immigration		Against Obama		Religion	
	Indicator	Flow	Indicator	Flow	Indicator	Flow	Indicator	Flow
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset First Case x Republican	0.035**	5.928**	0.025	13.491**	0.155***	66.656***	0.002	3.508
	(0.014)	(2.933)	(0.018)	(6.753)	(0.020)	(14.472)	(0.016)	(4.394)
Republican	0.004	0.483	0.041***	10.127***	0.144***	52.184***	0.024***	5.730***
	(0.004)	(0.904)	(0.011)	(3.418)	(0.019)	(10.893)	(0.008)	(2.170)
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.17	0.10	0.24	0.18	0.35	0.33	0.18	0.12
Observations	8624	8624	8624	8624	8624	8624	8624	8624
Number of Clusters (Races)	228	228	228	228	228	228	228	228

Notes: The unit of observation a candidate - week. The sample focuses on 597 candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The main independent variable accounts for the interaction between a dummy indicating the post-onset of the firt case in the US and an indicator taking value 1 if the candidate is republican, 0 otherwise. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

This indicates quite clearly that, while Republicans generally focus on a distinct set of topics compared to Democrats, that focus clearly changed in response to the onset of Ebola. They did not simply increase the volume of ads on all topics they typically favor, but rather increased the emphasis on a (presumably negative) framing of President Obama, as well as on issues that could potentially be tied to fear of external threats (terrorism, immigration).

We can actually look directly at whether fear was an important component of that strategy. The "Political Advertising in 2014" dataset codes whether ads feature an appeal to fear, based on the use of ominous music and on the text of the ad. Using that information, we compute the total number of ads appealing to fear, as well as the total number of such ads that also mention terrorism, immigration, or criticism of Obama.

Figure 6 displays some interesting patterns in those data. First, Republicans and Democrats seem to appeal to fear at similar rates throughout the period, which may be surprising in light of the literature that shows that priming fear in an experimental environment leads to more conservative political views (e.g. Jost et al 2003, Thorisdottir and Jost 2011). However, ads appealing to fear while mentioning immigration are substantially more prevalent in Republican ads, and that combination increases substantially after the occurrence of the first Ebola case in the US. Panel A of Table 12, again focusing on within-race variation, shows that these patterns hold systematically, and not just for immigration: Republicans also combine fear with terrorism and Obama, and more so after the first Ebola case.[18]

This is eminently consistent with a strategic fear-based response that tries to tie the perceived Ebola threat to specific topics that favor Republicans. The strategic nature of this response is underscored

[18]In Table A.6, in the appendix, we show our results still hold when we add candidate fixed effects. We also show in Table A.7 that the first two Ebola-related events explain most of the effect documented in Panel A of Table 12.

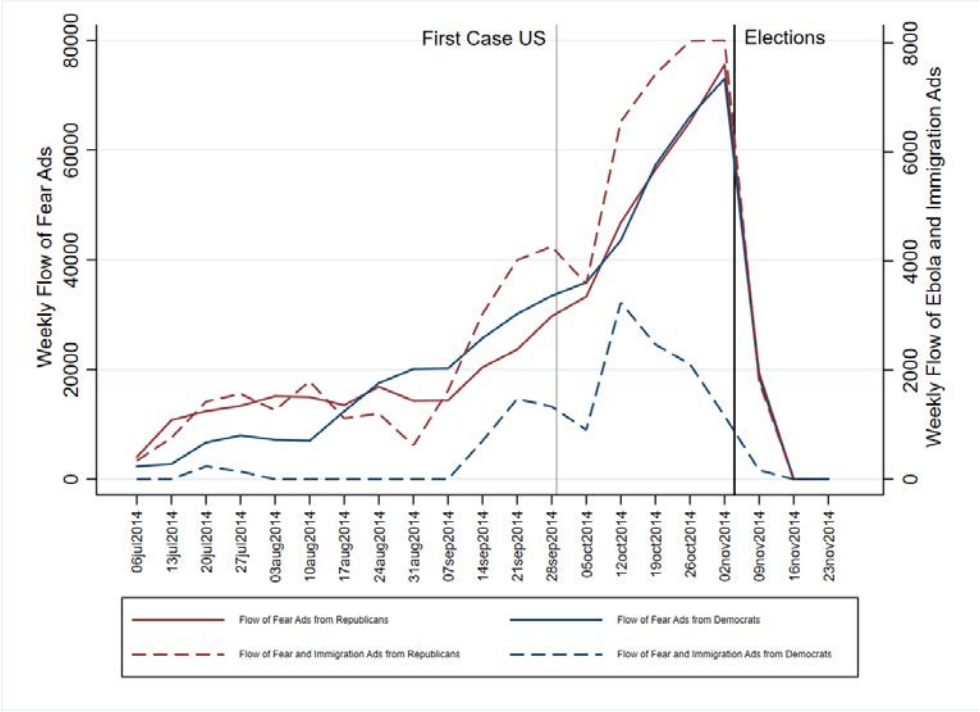

Figure 6: Evolution of Fear Appealing Campaign Ads by Party

by Panel B of Table 12, where we analyze the potential heterogeneous effect of Ebola according the degree of competitiveness of each race. Consistent with the result on congressional newsletters, we find that Republicans facing a competitive race tend to mention more terrorism, immigration, and Obama in fear-appealing ads, after the first Ebola case. Compared to those facing a less competitive race, a very competitive race increased the stock of fear-appealing ads mentioning terrorism, immigration, and criticism of Obama increases by 70, 173, and 634 weekly ads, respectively.

Finally, in Panel C of Table 12 we ask whether campaign ads were responsive to the distance between potential voters and the nearest Ebola case. As with newsletters, we find no effect on average for all candidates (odd columns). In this case, however, we do not detect a link with distance even for Republican candidates (even columns). This reinforces the conclusion that politicians were not simply responding to voters, and that the latter were not simply being prompted by the messages coming from politicians.[19]

7 Did Ebola Make Voters More Conservative?

We have shown that the Ebola-related episodes in the U.S. triggered a strategic response by Republican politicians, and that they benefited the latter in the ballot box. In the absence of a separate source of exogenous variation for the behavior of politicians, we cannot establish whether the electoral effect

[19]In Tables A.8 to A.11 in the appendix, we further investigate the potential role of proximity to Ebola cases by looking at a window of two weeks before and after the diagnosis of the first Ebola case in the three different locations (Texas, Ohio, and New York), or by looking to the whole period and estimating the three relevant interaction terms. Again we do not find strong evidence that distance strongly predicts changes in the content of ads after the occurrence of each case.

Table 12: Campaign Ads Appealing to Fear and Ebola Outbreak

	Panel A: Within-Race Variation							
	All Issues		Terrorism		Immigration		Against Obama	
	Flow	Stock	Flow	Stock	Flow	Stock	Flow	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset First Case x Republican	22.270**	54.731	7.334***	38.324***	9.105*	82.496***	54.730***	436.360***
	(11.175)	(77.217)	(2.605)	(11.709)	(4.650)	(23.045)	(10.862)	(74.970)
Republican	-1.741	32.471	2.027**	5.015*	7.475***	44.348***	35.219***	202.082***
	(9.912)	(48.031)	(0.831)	(3.004)	(2.260)	(12.176)	(7.386)	(48.852)
Race FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.68	0.80	0.09	0.33	0.17	0.38	0.27	0.44

	Panel B: Campaign Ads and Competitive Races Ads Making an Appeal to Fear and Issue Mentioned							
	All Issues		Terrorism		Immigration		Against Obama	
	Flow	Stock	Flow	Stock	Flow	Stock	Flow	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset First Case x Republican	-6.058	-121.642	2.465	10.171*	2.414	8.868	26.745***	159.228***
	(9.344)	(83.294)	(1.497)	(5.318)	(3.387)	(15.742)	(7.882)	(42.831)
Post-Onset First Case x Republican x Competitive Race	61.741**	377.579***	11.903**	70.026**	15.920	172.818***	67.102***	634.490***
	(24.276)	(123.469)	(6.031)	(27.615)	(10.118)	(52.202)	(24.811)	(160.399)
Post-Onset First Case x Competitive Race	-7.025	-91.239	-0.610	-15.311	-1.758	-34.678	-24.911**	-256.472***
	(23.105)	(70.047)	(1.706)	(11.325)	(6.143)	(25.187)	(10.094)	(74.141)
Candidate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.77	0.94	0.16	0.53	0.34	0.73	0.46	0.80

	Panel C: Campaign Ads and Proximity to Ebola Cases Number of Ads Making an Appeal to Fear and Issue Mentioned							
	All Issues		Terrorism		Immigration		Against Obama	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset First-Case x Distance (in logs) to Closest Case	11.374	18.353	1.549	2.734	3.035	5.668	2.058	1.516
	(7.087)	(15.018)	(1.270)	(2.342)	(2.262)	(4.931)	(4.094)	(8.639)
Candidate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Candidate Sample	All	Republican	All	Republican	All	Republican	All	Republican
Observations	8624	4410	8624	4410	8624	4410	8624	4410
Number of Clusters (Races)	228	187	228	187	228	187	228	187

Notes: The unit of observation a candidate - week. The sample focuses on 597 candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music. The independent variable Post-Onset is a dummy indicating the post-onset of the first case in the US whereas Republican is an indicator taking value 1 if the candidate is republican, 0 otherwise. Based on the 2014 House Race and Senate Race Ratings for Sept. 19, 2014 (right before first-ebola case) by the Cook political report, the variable Competitive Race takes value 1 if the race is classified as 'Toss Up' or 'Lean', 0 otherwise. Specifications in all panels include week fixed effects, ads controls, and race-specific linear trends. The number of observations in Panel A and B is 8624 and the number of clusters is 228. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

was caused by that behavior. However, we can look at whether voters changed their views in response to the Ebola threat. This is particularly important as it allows us to ascertain the extent to which the electoral impact was related to a broad threat-induced conservative shift in attitudes, as opposed to something more specific.

For that we resort to the CCES data, with which we replicate the exact same approach as in (5.3). As dependent variables of interest, we look at five attitudinal measures of surveyed individuals, which we can tie to conservative views: anti-immigration, pro-gun, religious, opposition to same sex marriage, and self-reported conservatism. Table 13 presents the main results. Point estimates suggest that the proximity to an Ebola case after the first Ebola does not explain disagreement with gun

control measures, beliefs regarding the importance of religion, opposition towards gay marriage, or self-reported conservatism.

There is one dimension that does seem to be impacted by Ebola: attitudes towards immigration. Specifically, individuals leaving closer to an Ebola case tend to have stronger anti-immigration attitudes, after the occurrence of the first case.[20]

These findings have two important implications. First, the impact of the concerns regarding Ebola was not necessarily associated with more conservative attitudes in general, which was a possibility suggested by the previous experimental literature. Second, the results suggest that not all associations drawn by politicians were able to change voters' minds: as already documented in Section 5, our treatment does not explain disapproval rates of Obama, even though Republicans tried to push this connection. Instead, the strategic exploitation of the Ebola threat by politicians seems to have been constrained by those associations that can be more readily drawn by voters in regard to that threat.

Table 13: Proximity to Ebola Cases and Attitudes in CCES

	Anti-Immigration	Pro-Gun	Religious	Anti-gay Marriage	Conservative
	(1)	(2)	(3)	(4)	(5)
Post-Onset First-Case x Distance (in logs) to Nearest Case	-0.034**	0.003	-0.005	-0.000	-0.002
	(0.014)	(0.014)	(0.014)	(0.005)	(0.004)
Day FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes
Sample Weights	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.17	0.15	0.14	0.14	0.12
Observations	71931	71931	71931	71931	71866
Number of Clusters	2370	2370	2370	2370	2369

Notes: Sample includes all CCES's respondents for years 2013 and 2014. The variable Anti-Immigration (pro-gun)[religious] corresponds to the first principal component of responses to 5 (5)[3] questions regarding immigration (disagreement with gun-control measures)[importance of religion]. The variable Anti-gay Marriage takes value of 1 if respondent is against gay marriage. The variable conservative takes value of 1 if respondent is conservative or very conservative, 0 otherwise. The variable disapprove Obama takes value 1 if the respondent strongly disapproves or disapproves Obama, 0 otherwise. (all related questions are described in the appendix) The main independent variable accounts for the interaction between the distance (in logs) to the nearest Ebola Case and a dummy indicating the onset of that case. Individual-levels control are age and a set of indicators variables for male, white, hispanic, college or higher education, married, and annual income above US median (i.e., usd 59,000). Heteroskedasticity robust standard error estimates clustered at the county-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

8 Concluding Remarks

Our investigation of the political consequences of the 2014 Ebola episode in the U.S. has uncovered a number of important effects. First, Ebola concerns caused a decrease in the Democratic vote share in that year's midterm elections, which was not related to a general or Obama-specific anti-incumbent reaction. Second, Republican candidates exploited the episode in their campaign strategy, by emphasizing the topic in conjunction with themes such as immigration, terrorism, and anti-Obama rhetoric. Finally, the salience of the Ebola threat also affected views on a subset of those themes, particularly related to increased anti-immigration sentiment.

Generally speaking, our results establish that fear of threats can indeed be a potent electoral force, in a high-stakes context in which we can isolate an exogenous shock to that fear that is relatively

[20]Reassuringly, we find the same patterns when we estimate the three distances interaction after each case in Table A.12 in the appendix.

disconnected from the extent of the actual threat. They also suggest, however, that this force cannot be freely molded by politicians. Instead, the impact of the threat in changing voters' minds seems predicated on there being easily drawn connections between the threat and specific issues. In the case of Ebola, a gruesome disease originating abroad, the association with immigration seems to have stuck with voters.

The extent to which the lessons from Ebola apply to other salient threats is an open question, but we can nevertheless identify some dimensions that are worth considering. For instance, shocks that actually affect the risk environment – such as Ebola itself in the context of West Africa, or the recent coronavirus (COVID-19) episode in many countries around the world – could well lead to a stronger updating of views on incumbent performance. As another example, we must consider which kinds of issues can be plausibly associated with the threat – shark attacks, to use a well-known example, are unlikely to lead to changed views on immigration. Finally, the timing could well matter: the Ebola crisis happened to reach the U.S. just a few weeks before an election, and had more time elapsed it could well be that effects would be more muted.

Last but not least, it would also be interesting to assess the role that the media may play in amplifying the impact of a perceived threat. We have seen evidence that the media gave extensive coverage to the handful of Ebola cases in the US, and that coverage dropped precipitously after the midterm elections. The extent to which this mattered for the effects we find remains a question for future research.

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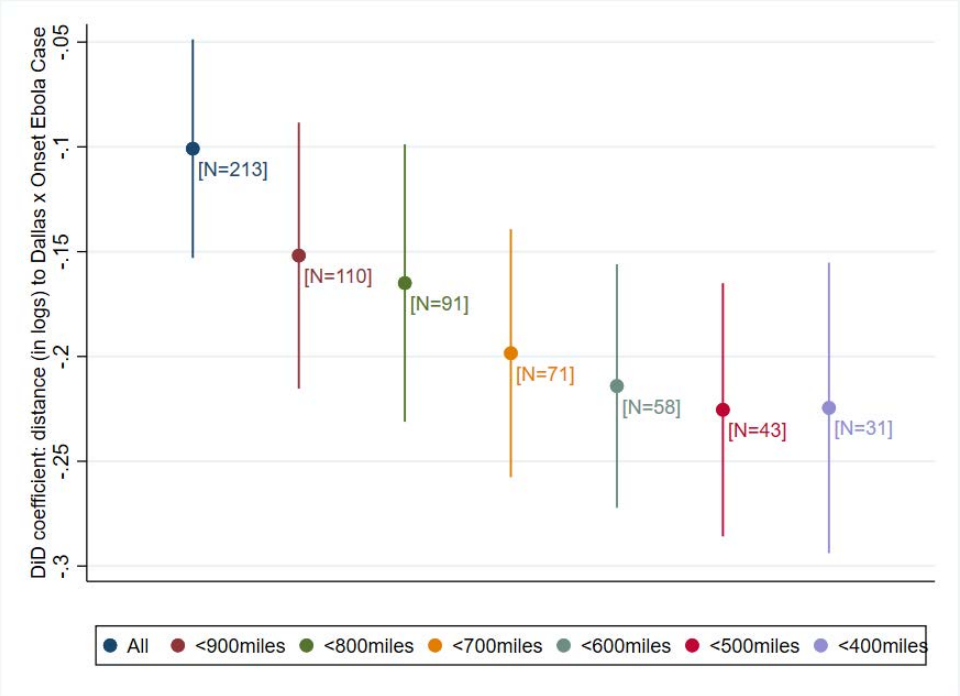
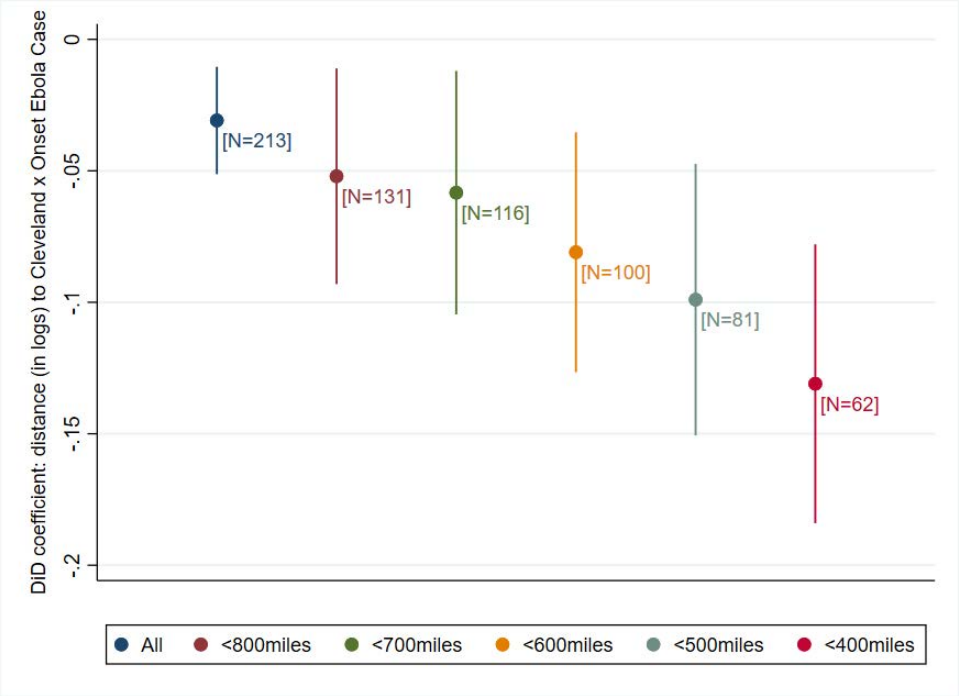
Appendix

Figure A.1: Ebola-Related Twitter Activity (Dallas)



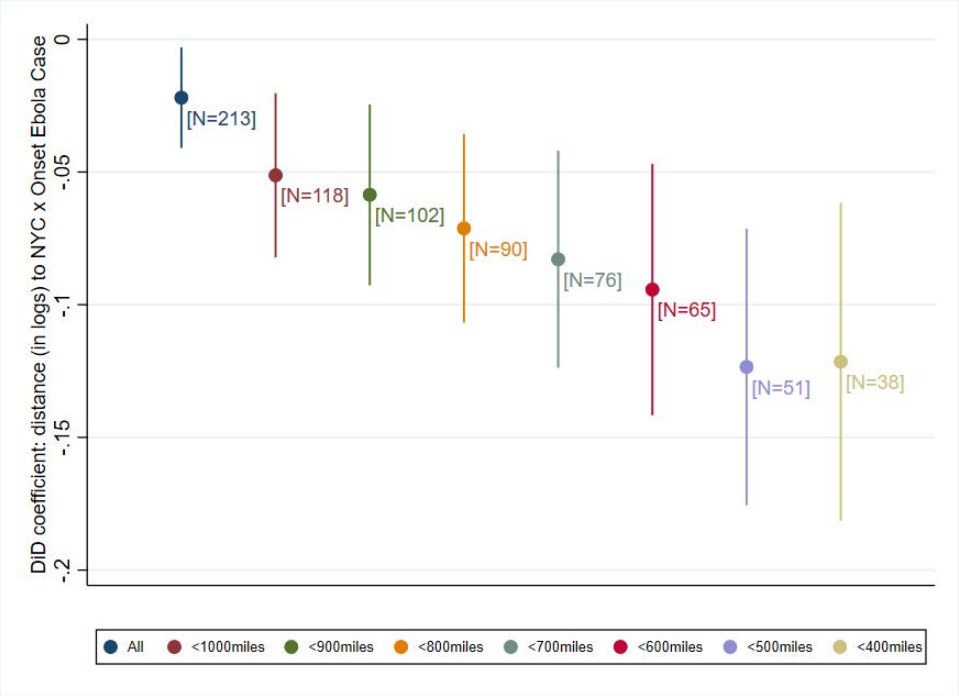
Note: The figure plots the coefficients and the 95% confidence intervals for the interaction between distance (in logs) to Dallas and a dummy indicating the onset of the first ebola case in Dallas. The dependent variable is the number of ebola related tweets per 10,000 inhabitants in DMA (using 2010 census population). The unit observation is a DMA-day. The coefficients are estimated from separate regressions in which we control for DMA fixed effect, day fixed effect, and DMA-specific linear trends while restricting the sample as a function of the proximity to Dallas. The sample includes daily data by DMA 15 days before and 15 days after the ebola diagnosis of the case. Confidence intervals are based on heteroskedasticity-robust standard errors clustered by DMA.The number of DMAs for each regression (clusters) are reported in brackets.

Figure A.2: Ebola-Related Twitter Activity (Cleveland)



Note: The figure plots the coefficients and the 95% confidence intervals for the interaction between distance (in logs) to Cleveland and a dummy indicating the onset of the first ebola case in Cleveland. The dependent variable is the number of ebola related tweets per 10,000 inhabitants in DMA (using 2010 census population). The unit observation is a DMA-day. The coefficients are estimated from separate regressions in which we control for DMA fixed effect, day fixed effect, and DMA-specific linear trends while restricting the sample as a function of the proximity to Cleveland. The sample includes daily data by DMA 15 days before and 15 days after the ebola diagnosis of the case. Confidence intervals are based on heteroskedasticity-robust standard errors clustered by DMA.The number of DMAs for each regression (clusters) are reported in brackets.

Figure A.3: Ebola-Related Twitter Activity (NYC)



Note: The figure plots the coefficients and the 95% confidence intervals for the interaction between distance (in logs) to NYC and a dummy indicating the onset of the first ebola case in NYC. The dependent variable is the number of ebola related tweets per 10,000 inhabitants in DMA (using 2010 census population). The unit observation is a DMA-day. The coefficients are estimated from separate regressions in which we control for DMA fixed effect, day fixed effect, and DMA-specific linear trends while restricting the sample as a function of the proximity to NYC. The sample includes daily data by DMA 15 days before and 15 days after the ebola diagnosis of the case. Confidence intervals are based on heteroskedasticity-robust standard errors clustered by DMA.The number of DMAs for each regression (clusters) are reported in brackets.

Table A.1: Summary statistics

County-level variables	Obs	Mean	Std. Dev.	Min	Max
2014 Democratic Vote Share - HOUSE	3103	33.029	18.685	0.000	100
2014 Democratic Vote Share - GOVERNOR	2146	35.228	14.213	1.075	88.153
2014 Democrat Vote Share - SENATE	2287	32.897	17.188	0.000	87.765
Population Density	3143	255.481	1708.543	.039	69357.68
Median Age	3143	39.862	4.922	18	62.5
Share of white population	3143	0.787	0.198	0.012	1.000
Share of college population	3143	0.190	0.087	0.037	0.710
Income per capita	3142	22505.45	5409.365	7772	64381
Share of unemployed population	3143	0.075	0.034	0.000	0.309
DMA-level variables	Obs	Mean	Std. Dev.	Min	Max
Ebola Concerns (Google Trends)	204	53.966	9.464	14	100
Ebola Concerns (Tweets per capita)	208	3.974	2.08	0	15.447
TV penetration	204	92.011	1.81	86.1	96.9
Anxiety (Google Trend, 2013)	205	70.844	8.384	44	100
Virus (Google Trend, 2013)	205	77.298	8.904	58	100
2009 Swine Flu Concerns (Google Trends, 2009)	204	41.083	9.967	16	100
Placebo Ebola Searches (Google Trends, Aug.2014)	204	52.907	12.636	25	100
Placebo Ebola Tweets (Twitter, Aug.2014)	208	.013	.017	0	.116
Distance to closest reported ebola case (Km., in logs)	204	5.991	.818	2.52	7.424

Table A.2: Newsletters After the Midterm Elections

	Ebola Newsletter Indicator	Number of Ebola Newsletters	Any Newsletter Indicator	Number of Newsletters
	(1)	(2)	(3)	(4)
Post Midterm Election x Republican	-0.084***	-0.090***	-0.042	-0.027
	(0.017)	(0.018)	(0.026)	(0.034)
Week FE	Y	Y	Y	Y
Memb. of Cong. FE	Y	Y	Y	Y
Memb. of Cong.- Specific Linear Trends	Y	Y	Y	Y
Newsletter Controls	Y	Y	Y	Y
Adjusted-R^2	0.13	0.13	0.57	0.61
Observations	8441	8441	8441	8441
Number of Clusters	367	367	367	367

Notes: The unit of observation is member of congress - week. The sample focuses on 367 member of the congress (i.e., senators and house representatives) who sent sent at least one official e-newsletters between August 2014 and December 2014. The variable Ebola Newsletter Indicator takes value 1 if the member of the congress sent that week a newsletter mentioning ebola, 0 otherwise.The variable Number of Ebola Newsletter accounts for the number of newsletter mentioning ebola that were sent that week by the member of the congress. The variables Any Newsletter Indicator and Number of Newsletters consider all newsletter regardless of their contents. The main independent variable accounts for the interaction between a dummy indicating the post-midterm election period and an indicator taking value 1 if the member of the congress is republican, 0 otherwise. Newsletter controls are the number of words and accumulated number of words. Heteroskedasticity robust standard error estimates clustered at the member of congress-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.3: Ebola Newsletters and Timing of the Cases in the US

	Ebola Newsletter							
	Flow	Stock	Flow	Stock	Flow	Stock	Flow	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Onset First-Case (Dallas) in the US x Republican	-0.041	-0.048					0.038	0.070***
	(0.052)	(0.031)					(0.025)	(0.026)
Onset Cleveland x Republican			0.133**	0.110***			0.069**	0.221***
			(0.059)	(0.037)			(0.030)	(0.041)
Onset NYC x Republican					0.010	-0.010	-0.113***	0.066**
					(0.061)	(0.031)	(0.025)	(0.032)
Week FE	Y	Y	Y	Y	Y	Y	Y	Y
Memb. of Cong. FE	Y	Y	Y	Y	Y	Y	Y	Y
Memb. of Cong.- Specific Linear Trends	Y	Y	Y	Y	Y	Y	Y	Y
Newsletter Controls	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.35	0.85	0.29	0.91	0.37	0.97	0.23	0.79
Observations	1468	1468	1468	1468	1468	1468	5505	5505
Number of Clusters	367	367	367	367	367	367	367	367

Notes: The unit of observation is member of congress - week. The sample focuses on 367 member of the congress (i.e., senators and house representatives) who sent sent at least one official e-newsletters: (1) 2 weeks before and 2 weeks after the ebola diagnosis of the case in columns 1 to 6, and (2) between August 2014 and the midterm election in columns 7 and 8. The variable Ebola Newsletter Flow accounts for the accumulated number of newsletter mentioning ebola in week.The variable Ebola Newsletter Stock accounts for the accumulated number of newsletter mentioning ebola that were sent sine August 2014 by the member of the congress. The main independent variables account for the interaction between a dummy indicating the post-onset of the each ebola case and an indicator taking value 1 if the member of the congress is republican, 0 otherwise. Newsletter controls are the number of words and accumulated number of words. Heteroskedasticity robust standard error estimates clustered at the member of congress-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.4: Ebola Newsletters, Timing and Proximity to Ebola Cases

	Ebola Newsletter							
	Indicator	Stock	Indicator	Stock	Indicator	Stock	Indicator	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset Dallas x Distance (in logs) to Dallas	-0.004	0.001					-0.025	-0.090***
	(0.045)	(0.023)					(0.019)	(0.035)
Post-Onset Cleveland x Distance (in logs) to Cleveland			-0.052	-0.023			-0.022*	-0.079**
			(0.041)	(0.026)			(0.013)	(0.033)
Post-Onset NYC x Distance (in logs) to NYC					0.022	0.017	0.009	0.007
					(0.023)	(0.011)	(0.008)	(0.017)
Week FE	Y	Y	Y	Y	Y	Y	Y	Y
Memb. of Cong. FE	Y	Y	Y	Y	Y	Y	Y	Y
Memb. of Cong.- Specific Linear Trends	Y	Y	Y	Y	Y	Y	Y	Y
Newsletter Controls	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted-R^2	0.35	0.85	0.28	0.91	0.37	0.97	0.22	0.78
Observations	1468	1468	1468	1468	1468	1468	5505	5505
Number of Clusters	367	367	367	367	367	367	367	367

Notes: The unit of observation is member of congress - week. The sample focuses on 367 member of the congress (i.e., senators and house representatives) who sent sent at least one official e-newsletters between August 2014 and the midterm election. In columns 1 to 6, the analysis focuses in 2 weeks before and 2 weeks after the diagnosis of each ebola case. The variable Ebola Newsletter Indicator takes value 1 if the member of the congress sent that week a newsletter mentioning ebola, 0 otherwise. The variable Ebola Newsletter Stock accounts for the accumulated number of newsletter mentioning ebola that were sent since August 2014 by the member of the congress. The main independent variables accounts for the interaction between a dummy indicating the post-onset of each ebola case and the distance from each member's constituents to the location of the case. Newsletter controls are the number of words and accumulated number of words. Heteroskedasticity robust standard error estimates clustered at the member of congress-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.5: Ebola Newsletters, Timing and Proximity to Ebola Cases by Party

	Ebola Newsletter from			
	Republican Member		Democrat Member	
	Indicator	Stock	Indicator	Stock
	(1)	(2)	(3)	(4)
Post-Onset Dallas x Distance (in logs) to Dallas	-0.034	-0.076	0.014	-0.044
	(0.023)	(0.050)	(0.029)	(0.037)
Post-Onset Cleveland x Distance (in logs) to Cleveland	-0.049**	-0.111**	-0.001	-0.006
	(0.022)	(0.055)	(0.017)	(0.035)
Post-Onset NYC x Distance (in logs) to NYC	0.046**	-0.046	0.004	0.007
	(0.019)	(0.053)	(0.008)	(0.014)
Week FE	Y	Y	Y	Y
Memb. of Cong. FE	Y	Y	Y	Y
Memb. of Cong.- Specific Linear Trends	Y	Y	Y	Y
Newsletter Controls	Y	Y	Y	Y
Adjusted-R^2	0.24	0.80	0.18	0.72
Observations	3270	3270	2220	2220
Number of Clusters	218	218	148	148

Notes: The unit of observation is member of congress - week. The sample focuses on 370 member of the congress (i.e., senators and house representatives) who sent sent at least one official e-newsletters between August 2014 and the midterm election. The variable Ebola Newsletter Indicator takes value 1 if the member of the congress sent that week a newsletter mentioning ebola, 0 otherwise. The variable Ebola Newsletter Stock accounts for the accumulated number of newsletter mentioning ebola that were sent since August 2014 by the member of the congress. The main independent variables accounts for the interaction between a dummy indicating the post-onset of each ebola case and the distance from each member's constituents to the location of the case. Newsletter controls are the number of words and accumulated number of words. Heteroskedasticity robust standard error estimates clustered at the member of congress-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.6: Campaign Ads Appealing to Fear and Ebola Outbreak: Within-Candidate Variation

	Ads Making an Appeal to Fear and Issue Mentioned							
	All Issues		Terrorism		Immigration		Against Obama	
	Flow	Stock	Flow	Stock	Flow	Stock	Flow	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset First Case x Republican	21.130*	44.775	7.704***	41.030***	9.425**	85.016***	56.346***	439.189***
	(11.176)	(73.992)	(2.713)	(12.538)	(4.778)	(23.774)	(11.736)	(77.132)
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.76	0.94	0.16	0.52	0.34	0.73	0.45	0.79
Observations	8624	8624	8624	8624	8624	8624	8624	8624
Number of Clusters (Races)	228	228	228	228	228	228	228	228

Notes: The unit of observation a candidate - week. The sample focuses on 624 candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and an indicator taking value 1 if the candidate is republican, 0 otherwise. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.7: Campaign Ads Appealing to Fear and Timing of Each Case

	Ads Making an Appeal to Fear and Issue Mentioned							
	All Issues		Terrorism		Immigration		Against Obama	
	Flow	Stock	Flow	Stock	Flow	Stock	Flow	Stock
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Onset Dallas x Republican	19.847*	26.233	7.406**	26.086***	7.811	57.791***	51.338***	298.606***
	(10.532)	(62.336)	(3.210)	(8.271)	(5.600)	(16.329)	(11.610)	(54.225)
Post-Onset Cleveland x Republican	-6.400	10.167	2.407	16.715***	5.940	28.815**	29.451***	156.091***
	(17.199)	(23.722)	(2.891)	(5.728)	(8.309)	(13.017)	(10.531)	(29.622)
Post-Onset NYC x Republican	13.207	33.689	-2.893	14.107**	-4.806	28.203***	-31.789**	134.466***
	(17.137)	(29.406)	(3.129)	(5.778)	(6.953)	(8.491)	(12.830)	(24.915)
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.76	0.94	0.16	0.52	0.34	0.73	0.46	0.79
Observations	8624	8624	8624	8624	8624	8624	8624	8624
Number of Clusters (Races)	228	228	228	228	228	228	228	228

Notes: The unit of observation a candidate - week. The sample focuses on 624 candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and an indicator taking value 1 if the candidate is republican, 0 otherwise. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.8: Campaign Ads Appealing to Fear and Proximity to Ebola

	Number of Ads Making an Appeal to Fear									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Post-Onset Dallas x Distance (in logs) to Dallas	-15.288	-25.401							-19.997	-41.273
	(15.215)	(17.549)							(16.594)	(32.897)
Post-Onset Cleveland x Distance (in logs) to Cleveland			5.003	-3.287					4.153	-2.032
			(12.869)	(16.323)					(9.706)	(14.759)
Post-Onset NYC x Distance (in logs) to NYC					-12.730	-2.445			-6.136	-13.625*
					(10.950)	(18.363)			(5.856)	(7.869)
Post-Onset First-Case x Distance (in logs) to Nearest Case							11.374	18.353		
							(7.087)	(15.018)		
Sample Candidates	All	Republican	All	Republican	All	Republican	All	Republican	All	Republican
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.80	0.80	0.84	0.90	0.83	0.86	0.76	0.76	0.76	0.76
Observations	2464	1260	2464	1260	2464	1260	8624	4410	8624	4410
Number of Clusters (Races)	228	187	228	187	228	187	228	187	228	187

Notes: The unit of observation a candidate - week. The sample focuses on 597 candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and and the distance (in logs) to the closest ebola case. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.9: Republican Campaign Ads Appealing to Fear-Terrorism and Proximity to Ebola

	Number of Ads Making an Appeal to Fear and Terrorism				
	(1)	(2)	(3)	(4)	(5)
Post-Onset Dallas x Distance (in logs) to Dallas	-1.444				-7.400*
	(3.199)				(4.371)
Post-Onset Cleveland x Distance (in logs) to Cleveland		1.688			-0.930
		(3.119)			(2.023)
Post-Onset NYC x Distance (in logs) to NYC			-1.566		-1.400
			(2.928)		(2.516)
Post-Onset First-Case x Distance (in logs) to Closest Case				2.734	
				(2.342)	
Week FE	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.35	0.36	0.36	0.20	0.20
Observations	1260	1260	1260	4410	4410
Number of Clusters (Races)	187	187	187	187	187

Notes: The unit of observation a candidate - week. The sample focuses on 306 republican candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and and the distance (in logs) to the closest ebola case. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.10: Republican Campaign Ads Appealing to Fear-Immigration and Proximity to Ebola

	Number of Ads Making an Appeal to Fear and Immigration				
	(1)	(2)	(3)	(4)	(5)
Post-Onset Dallas x Distance (in logs) to Dallas	-8.005				-6.647
	(11.435)				(5.047)
Post-Onset Cleveland x Distance (in logs) to Cleveland		1.387			4.747
		(7.514)			(5.594)
Post-Onset NYC x Distance (in logs) to NYC			-2.173		-6.997
			(5.745)		(4.491)
Post-Onset First-Case x Distance (in logs) to Nearest Case				5.668	
				(4.931)	
Week FE	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.57	0.67	0.57	0.40	0.40
Observations	1260	1260	1260	4410	4410
Number of Clusters (Races)	187	187	187	187	187

Notes: The unit of observation a candidate - week. The sample focuses on 306 republican candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and and the distance (in logs) to the closest ebola case. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.11: Republican Campaign Ads Appealing to Fear-Against Obama and Proximity to Ebola

	Number of Ads Making an Appeal to Fear and Anti-Obama				
	(1)	(2)	(3)	(4)	(5)
Post-Onset Dallas x Distance (in logs) to Dallas	2.879				-47.736**
	(22.440)				(21.577)
Post-Onset Cleveland x Distance (in logs) to Cleveland		-9.769			9.420
		(13.791)			(10.628)
Post-Onset NYC x Distance (in logs) to NYC			5.574		-9.321
			(15.449)		(7.619)
Post-Onset First-Case x Distance (in logs) to Closest Case				1.516	
				(8.639)	
Week FE	Yes	Yes	Yes	Yes	Yes
Candidate FE	Yes	Yes	Yes	Yes	Yes
Race-Specific Linear Trends	Yes	Yes	Yes	Yes	Yes
Ads Controls	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.62	0.70	0.70	0.52	0.52
Observations	1260	1260	1260	4410	4410
Number of Clusters (Races)	187	187	187	187	187

Notes: The unit of observation a candidate - week. The sample focuses on 306 republican candidates for congress (house or senate) and state governor who aired at least campaign ad between August 2014 and the midterm election. The coding of an ads appealing to fear is based on codding by Political Advertising in 2014 (Wesleyan Media Project) in two dimensions: 1) whether any ominous/tense music is played during the ad, or 2) there is direct appeal to fear in ads regardless of the music.The main independent variable accounts for the interaction between a dummy indicating the post-onset of the first case in the US and and the distance (in logs) to the closest ebola case. Ad controls are the number of ads and their total time in week as well as the accumulated number of ads and their total time since August 1st 2014. Heteroskedasticity robust standard error estimates clustered at the race-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.

Table A.12: Proximity to an Ebola Case and Attitudes in CCES

	Anti-Immigration	Pro-Gun	Religious	Anti-gay Marriage	Conservative	Dissaprove Obama
	(1)	(2)	(3)	(4)	(5)	(6)
Post-Onset Dallas x Distance (in logs) to Dallas	-0.035**	-0.014	-0.013	-0.004	-0.013**	0.006
	(0.015)	(0.021)	(0.018)	(0.005)	(0.005)	(0.004)
Post-Onset Cleveland x Distance (in logs) to Cleveland	-0.065***	-0.009	0.022	-0.004	-0.008	0.008
	(0.020)	(0.022)	(0.019)	(0.007)	(0.006)	(0.006)
Post-Onset NYC x Distance (in logs) to NYC	0.016	0.026	0.035	0.009	0.006	-0.013
	(0.028)	(0.025)	(0.023)	(0.009)	(0.008)	(0.009)
Day FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sample Weights	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted-R^2	0.06	0.07	0.05	0.05	0.05	0.06
Observations	72284	72284	72284	72284	72218	72284
Number of Clusters	2384	2384	2384	2384	2383	2384

Notes: Sample includes all CCES's respondents for years 2013 and 2014. The variable Anti-Immigration (pro-gun)[religious] corresponds to the first principal component of responses to 5 (5)[3] questions regarding immigration (disagreement with gun-control measures)[importance of religion]. The variable Anti-gay Marriage takes value of 1 if respondent is against gay marriage. The variable conservative takes value of 1 if respondent is conservative or very conservative, 0 otherwise. The variable disapprove Obama takes value 1 if the respondent strongly disapproves or disapproves Obama, 0 otherwise (all related questions are described in the appendix). The main independent variables account for the interaction between a dummy for the post-onset of an ebola case and the distance (in logs) to that case. Individual-levels control are age and a set of indicators variables for male, white, hispanic, college or higher education, married, and annual income above US median (i.e., usd 59,000). Heteroskedasticity robust standard error estimates clustered at the county-level are reported in parentheses; *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, all for two-sided hypothesis tests.