How do partisan media affect polarization in newly liberalized regimes? Partisan media are often blamed for discord, intolerance, and instability. However, there is little empirical work on the subject, and information-processing theories suggest that extreme position taking is only one possible response to opinionated news. Rather, partisan media may cause moderation by exposing citizens to alternative viewpoints. We conducted a field experiment in Ghana in which \textit{tro-tros} (commuter mini-buses) were randomly assigned to one of four conditions. Passengers heard live talk-radio from a pro-government, pro-opposition, or neutral station, or were in a no-radio control. We find no effect of like-minded media on polarization, but significant evidence of moderation from exposure to cross-cutting broadcasts, indicating that subjects were persuaded by rival arguments. Partisan broadcasts also encouraged displays of national over partisan identity. Rather than fueling extremism, we argue that partisan media can moderate by exposing citizens to alternative perspectives.

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How does exposure to partisan media affect polarization in newly liberalized regimes? Partisan media, which often emerge in new democracies and hybrid regimes in the wake of media liberalization, are frequently blamed for political discord, intolerance, and instability. Observers worry that biased content and vitriolic language will polarize citizenries and threaten democratic prospects. However, many democratic theorists argue that exposure to diverse viewpoints fosters tolerance, moderation, and compromise, which are crucial for progress in polities with histories of authoritarianism and conflict. Since individuals are unlikely to encounter opposing attitudes within the homogenous social networks that are often common in the developing world, partisan media may be the most prevalent source of alternative perspectives. According to this reasoning, partisan media may help, rather than harm, democracy and stability.

This article examines the effects of exposure to partisan media on citizen attitudes about political candidates, as well as on behavioral displays of partisan over national identities. We evaluate whether individuals who access media that favor their preferred party (i.e., like-minded exposure) become more extreme in their partisan attitudes as a result. Importantly, we also test the effects of content that challenges partisan preferences (i.e., cross-cutting exposure), which has received much less attention from scholars. The conventional view predicts that cross-cutting media will exacerbate partisan divisions by provoking individuals to counter-argue against rival positions. In contrast, we theorize that cross-cutting media may moderate attitudes by exposing individuals to alternative perspectives and persuading them to reconsider initial stances.

We test the effects of partisan media with a novel field experiment conducted weeks prior to the 2012 elections in Ghana, an emerging democracy in Africa. We made use of captive audiences traveling in tro-tros, privately operated minibuses that comprise the backbone of the
transportation system in the capital, Accra. Typically, riders are exposed to a station of the driver’s choosing; under our design, drivers played radio stations of our choosing. *Tro-tros* were randomly assigned to one of four conditions: pro-government, pro-opposition, or neutral political talk radio, or the control (no radio). Upon completing their commutes, 1200 subjects from 228 *tro-tros* were interviewed about their political attitudes. Since subjects were exposed to these popular and live broadcasts in a natural setting, the design provides high external validity, while still maintaining the inferential benefits of random assignment.

We find no difference in the level of partisan polarization between subjects exposed to like-minded media and those not exposed to radio. Instead, we find significant evidence of attitude moderation from exposure to cross-cutting broadcasts. Cross-cutting exposure also seems to encourage displays of national over partisan identity. There is no evidence that neutral, but still political, talk radio has these beneficial moderating or unifying effects.

Rather than fueling extremism, as most observers fear, we find that partisan media induce moderation by inspiring more favorable assessments of opposing party candidates.\(^1\) Cross-cutting exposure does not seem to provoke counter-arguing and intensification of initial positions. Rather, partisan media expose citizens to alternative perspectives in clear-cut and captivating ways, thus enhancing acceptance over counter-arguing. While these results are not necessarily generalizable to environments where particularly intense conflict has already widened and reified inter-group schisms, they do point to potentially important and unanticipated effects of partisan media in many newly liberalized media systems.

\(^1\) Analysis of main effects of the radio stations suggests that the moderating effects of cross-cutting media occur because individuals become more approving of politicians on the other side, rather than becoming more cynical about politicians on their own side.
We expect that partisan media are particularly likely to contribute to moderation, rather than polarization, in newly liberalized systems for two reasons. First, many newly liberalized societies are typically relatively poor, and poverty often means that individuals access media in group settings, such as in *tro-tros* where drivers choose the station all riders hear, rather than in isolation. In other words, news consumption is often determined by accessibility, not choice, thus increasing likelihood of exposure to cross-cutting messages. Evidence from our survey suggests that such exposure to cross-cutting media occurs on a regular basis. Second, counter-argument seems to require relatively high levels of partisan attachment and political sophistication, which often are not widespread in developing democracies and hybrid regimes. The moderating effect of cross-cutting media is expected to be substantively rather than just theoretically consequential for stability, good governance, and democratic progress in poor countries with pluralistic media environments.

This paper proceeds in five sections. The first lays out our theoretical expectation that partisan media can have moderating effects, primarily because of the persuasive potential of cross-cutting messages. We then introduce the Ghanaian case, where liberalization launched in the early 1990s yielded a media environment dominated by partisan outlets, which many fear are contributing to mass polarization. Third, we discuss our experimental design and data-collection procedures. The fourth section presents the results of our analyses, and the fifth concludes with a

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2 38% of government partisans reported listening to the political-talk morning show on a noted pro-opposition station (Oman FM) at least a few days a week, while 24% of opposition partisans said the same about the political-talk morning show on a pro-government station (Radio Gold).
discussion of the potential for moderating effects of partisan media in newly liberalized environments.

**Theorizing the Effects of Partisan Media in New Democracies and Hybrid Regimes**

Media liberalization is an important component of broader democratic reforms, since print and broadcast pluralism are necessary for open political competition. In many instances, however, the demise of statist media monopolies has meant a dramatic rise in partisan media.\(^3\) Elites use print and the airwaves to mobilize constituents (Snyder and Ballentine 1996), often through sensationalistic messages, stoking in-group pride, and deriding out-groups (Nyamnjoh 2005: 56-9).

The effects of media environments dominated by politically slanted outlets are unclear, however. If partisan media contribute to polarization, as much of the literature suggests, myriad negative outcomes could ensue, such as the rise of anti-democratic elites (Sartori 1976, Linz 1978, Valenzuela 1978), intra-state conflict (Esteban and Ray 1994, 1999), and weaker economic performance (Frye 2002). Observers contend that partisan broadcasts have polarized citizens in countries as diverse as Madagascar (Keita 2009), Thailand (Montlake 2010), and Turkey (Committee to Protect Journalists 2013). Further, academic and policy communities often reference extreme cases, where violence coincided with indecent broadcasts, thus stoking fears of opinionated media throughout the developing world. In Rwanda, where Samantha Power

\(^3\) When the private sector is weak, as is the case in many newly liberalized societies, many outlets cannot operate from advertising revenue alone, and thus must rely on political patrons. Petrova (2011) demonstrates that increases in advertising facilitated press independence in the United States. For a discussion on this in Africa, see Nyamnjoh 205: 76-8.
wrote evocatively of killers who “carried a machete in one hand and a radio transistor in the other” (2001: 89), anti-Tutsi propaganda was spewed by Radio Télévision Libre des Milles Collines, the first private radio station established after that country’s media liberalization in the early 1990s. Ethnic-hate radio broadcasts were also prominent surrounding the disputed 2007 election and its violent aftermath in Kenya (Abdi and Deane 2008; IRIN 2008), and in the Balkans in the 1990s (Sofos 1999, Thompson 1999, Palmer 2001). These cases are often presented as exemplars of the dangers of biased media in newly liberalized societies. On the other hand, partisan media, given their hyperbolic styles, could be particularly good at provoking interest and exposing citizens to alternate viewpoints, thereby moderating attitudes and reducing polarization.

We posit that the effects of partisan media on polarization will be dependent on two factors: the extent to which individuals are exposed to like-minded and cross-cutting messages, and how they respond to them. If individuals are mostly exposed to like-minded media, and these messages reinforce pre-existing attitudes, then polarization could increase. According to much of the literature on partisan media in advanced democracies, individuals prefer like-minded outlets in order to reduce the cognitive dissonance that can result from cross-cutting messages (Festinger 1957; Iyengar, et al. 2008; Iyengar and Hahn 2009; Stroud 2011; Yanovitzky and Capella 2011). In the United States, cable television in particular has made such selective exposure increasingly possible (Groseclose and Milyo 2005; Mullainathan and Shleifer 2005; Coe, et al. 2008). Theoretically, like-minded media could have one of two effects. First, they could reinforce attitudes, generating more extreme views (Downing, et al. 1992; Abelson 1995; Mutz 2006). Second, individuals might not respond significantly to such messages, perhaps because the information is not novel or because they already hold extreme attitudes (i.e., a
ceiling effect). Many scholars of the United States have embraced the first possibility, connecting partisan media and mass polarization (Yanovitzky and Capella 2001; DellaVigna and Kaplan 2007; Jamieson and Capella 2008; Mutz 2008; Sunstein 2009; Arceneaux and Johnson 2010; Holbert, *et al.* 2010; Dilliplane 2011; Stroud 2011; Williams and Delli Carpini 2011; Baum 2012; Levendusky 2012).

Cross-cutting messages have received less attention, possibly because of expectations that consumers with increasing options will avoid dissonant opinions. However, several studies have highlighted that substantial portions of the audiences of partisan programs are from the opposing camp, even in the United States (Jamieson, *et al.* 2007; Levendusky 2012; Garrett, *et al.* forthcoming). Three potential outcomes of exposure to cross-cutting messages exist. First, individuals may seek to discredit perspectives that are not compatible with their pre-existing beliefs (Ditto and Lopez 1992; Lodge and Taber 2000); they might counter-argue against cross-cutting messages, thus making their attitudes even more extreme (Redlawsk 2002; Taber and Lodge 2006). Second, cross-cutting messages might have null effects if individuals are neither persuaded by nor argue against them. Finally, individuals could be persuaded by cross-cutting messages, and as a result moderate their attitudes by moving in the direction of the message bias (Owen 1997; Dalton, *et al.* 1998; Druckman and Parkin 2005; Barker and Lawrence 2006; Feldman 2011).

While the literature on developed democracies has not focused as extensively on the possibility that partisan media could moderate, rather than polarize, we expect that moderation is particularly likely in newly liberalized societies, for two reasons. First, scholars of media effects in established democracies tend to focus on individual choice, and how the proliferation of partisan outlets allows consumers to rely on like-minded sources. This situation does not
necessarily hold in many developing countries. While media liberalization increases pluralism, poverty often creates single-owner, multi-user (SOMU) communities, in which individuals access media in public or group settings, rather than in isolation (Nyamnjoh 2005: 16-17). Newspapers are frequently shared, urbanites gather around periodical vendors to read displayed headlines or storefronts to watch news, and villagers listen to a common radio in the fields or at evening gatherings. To be sure, homophily in social networks might increase like-minded exposure, but the frequency with which many access their media in public and semi-public spaces (such as in public transportation, a setting we utilize in our field experiment, discussed below) increases probability of cross-cutting exposure. In short, news consumption in the developing world is often determined by accessibility, rather than choice.

Next, exposure to cross-cutting media will only polarize when individuals engage in counter-argument with messages. However, this is most likely when individuals have relatively high levels of partisan attachment, distrust of the other side, and political sophistication (Zaller 1992; Pomerantz, et. al 1995; Taber and Lodge 2006; Levendusky 2013). In much of the developing world, where formal education and literacy rates are often low, and where limited party institutionalization and high volatility make the political landscape harder to evaluate (Mainwaring and Scully 1995, Kuenzi and Lambright 2001, Bielasiak 2002, Ferree 2010), these conditions might not be met. Therefore, we expect that cross-cutting messages could result in moderation, via persuasion, where significant numbers of individuals lack significant political sophistication.

To our knowledge, there have been no attempts to study systematically how partisan media affect political polarization in developing democracies or hybrid regimes. In our next section, we discuss the case of Ghana, where media liberalization has meant a rise in partisan
media, particularly in FM radio, and where many fear that these changes are exacerbating inter-party divisions.

**Case Background: Partisan Media and Polarization in Ghana**

Ghana is a useful case for studying partisan media and polarization in developing democracies. Media liberalization there has resulted in the emergence of myriad partisan outlets, particularly in print and FM radio. Most of Ghana’s post-independence history was marked by single-party or military rule, under which media were significantly restricted (Hachten 1971: 167-70; Asante 1996; Hasty 2005: 33-4). In 1992 there was a return to multiparty elections, as well as the emergence of dozens of independent newspapers and the end of the state-run Ghana Broadcasting Corporation’s *de jure* radio monopoly (Temin and Smith 2002). By October 2012, some 225 FM stations were operating, 70% of which were commercially owned.4

These new media outlets operate in an environment marked by fierce, albeit mostly peaceful, political competition. Two parties—the National Democratic Congress (NDC) and the New Patriotic Party (NPP)—have dominated the six elections that have taken place under the current multiparty regime, and they are quite evenly matched. Partisan control of the presidency and Parliament have each changed hands twice (2000 and 2008), while in 2008 and 2012 the presidential winner enjoyed margins of only 0.5 and 3.0%, respectively. This competition has some roots in ideological schisms (Whitfield 2009). The NDC considers itself the defender of former President Kwame Nkrumah’s (1957-66) redistributionist ideology, while the NPP represents liberal traditions. However, the former’s neo-liberal adjustment policies mean that ideological lines have been blurred (Jeffries 1992; Green 1998; Nugent 2001; Conroy-Krutz and

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4 Data from National Communications Authority (NCA), at [www.nca.org.gh](http://www.nca.org.gh)
Lewis 2011), and ethnicity often seems to be a more salient determinant of contemporary Ghanaian political allegiances (Nugent 1999; Fridy 2007; Arthur 2009; Jockers and Kohnert 2010; Michelitch 2012; Ichino and Nathan 2013). The NDC has traditionally performed better among Ewes and Northern ethnic groups, and the NPP among the Akan.

Media outlets are commonly combatants in this inter-party competition themselves. Station owners often have well-known allegiances and use their broadcasters as partisan mouthpieces. Many observers have accused talk radio of fanning partisan animosities and widening polarization to an extent that it threatens the country’s reputation for stability. Multiple incidents around the 2008 election involving protests or tense standoffs, including at the Electoral Commission headquarters, were reportedly incited by partisan radio (Ghana News Agency 2008). Following that election, one of the foremost Ghanaian professors of communication studies, Dr. Audrey Gadzekpo, warned: “Some of the media houses, especially the FM stations such as Oman FM and Radio Gold… came up with news items that heightened tension and nearly plunged the country into chaos and these must be avoided in 2012” (African Elections Project 2009).

Tense confrontations and purportedly incendiary speech continued. In April 2012, NPP Member of Parliament, Kennedy Ohene Agyapong, was arrested for stating in a broadcast on NPP-friendly Oman FM that he would help organize co-partisans to defend themselves against physical attacks, with violence if necessary, because the NDC-led state had failed to protect them (Ghana News Agency 2012). Former President Jerry Rawlings (1981-2001) decried the state of affairs in the Ghanaian media in October 2012:

[O]pen political bias and falsehood have eaten into our media practice… [T]alk radio has led to all sorts of characters with no capacity to discuss issues of national importance
being given the opportunity to shout hoarse on our airwaves, throwing abuse and insults and feeding us with shallow arguments that further misinform our society (“JJ Blasts Media,” *Daily Guide*, 2012).

The Media Foundation for West Africa (MFWA) monitored thirty-one Ghanaian radio stations between April and November 2012, during which it documented 454 “indecent expressions,” including “offensive comments,” “unsubstantiated allegations,” “provocative” and “inflammatory” remarks, and calls to violence (MFWA 2012). During our fieldwork, many from NGOs told us that potentially incendiary rhetoric on the airwaves was becoming so serious that governmental curbs on speech freedoms might be warranted.

Importantly, the coincidence of staunch partisan broadcasts and tense incidents does not necessarily mean that partisan media are contributing to political polarization in Ghana. There is no evidence that the individuals who participate in these activities are actually radicalized by like-minded messages; such individuals might already hold extreme attitudes, and broadcasts act as mouthpieces for these views rather than causal agents.

In contrast to the common expectation of polarization, there is a strong likelihood that partisan media in Ghana contribute to moderation, as suggested by our theoretical discussion. First, evidence suggests that exposure to cross-cutting media is a regular occurrence. Most Ghanaians have very limited resources, and print materials, radios, and televisions are frequently shared, often in public settings. As a result, exposure is often determined by availability rather than by partisan proclivities. Next, most Ghanaians live in areas where media representing both major parties are available. Even in rural zones, broadcasts from multiple stations on FM radio, the most-accessed mass medium, are likely accessible. As of September 2012, the mean number of non-state-owned radio stations per region (N=10) in Ghana was 19.2, with only two regions
having fewer than ten.\textsuperscript{5} And Greater Accra had thirty-two operating non-state-owned FM stations at the time of our study. As a result, we expect that Ghanaians will tend to consume media propagating multiple viewpoints. In fact, 38% of government partisans in our survey (described below) reported listening to a political-talk morning show on a noted pro-opposition station (Oman FM) at least a few days a week, while 24% of opposition partisans said the same about a political-talk morning show on a pro-government station (Radio Gold). Less-regular exposure, and exposure to the myriad partisan programs and stations not listed in our survey, means that these figures likely significantly underestimate how often Ghanaians hear cross-cutting messages.

Next, we expect that cross-cutting media in Ghana are particularly likely to have persuasive effects given the political characteristics of Ghanaians. High illiteracy (32.7%) and low secondary-school enrollment (46.3%)\textsuperscript{6} mean that large numbers of Ghanaians probably lack the political sophistication necessary to engage in counter-argument with cross-cutting messages. They also seem to lack the partisan animosities that would provoke counter-arguing with cross-cutting media. For example, our subjects only trusted like-minded media slightly more than they did cross-cutting sources.\textsuperscript{7} This means that moderation is more likely to occur as a result of

\textsuperscript{5} Data available from the NCA.

\textsuperscript{6} Given that this figure is historically high for Ghana—in 1999, only 34.0% of appropriately aged youth were enrolled in secondary school—this likely gives an overly optimistic picture of most adult Ghanaians’ political sophistication. Data from the World Development Indicators. Literacy data from 2010. School enrollment data from 2009.

\textsuperscript{7} The difference between trust in like-minded and cross-cutting media is 0.49 on a four-point scale. This difference is statistically significant (p=.00), but not large substantively.
exposure to cross-cutting media in Ghana. As such, partisan media might not be the negative catalysts that many claim.

**Experimental Design and Data Collection**

To test the effects of exposure to partisan media on polarization in Ghana, we conducted a field experiment in which we randomly exposed individuals to one of four treatments: two political-talk programs on partisan radio stations (one pro-government, one pro-opposition), one political-talk program on a neutral radio station, and no radio (the control). Since our subject population included government and opposition supporters, this design allows us to measure the effects of exposure to like-minded and cross-cutting messages.

In the study of media effects, experimental research has important advantages, most notably that randomizing exposure to messages avoids identification problems that occur as a result of self-selection. Our field-based design also has significant advantages in terms of external validity as compared to previous experimental work on media effects, much of which is conducted in laboratory settings. We exposed our subjects to treatments in an unobtrusive manner (i.e., without their knowledge that they were being included in a study on media effects either at the time of exposure or during the data-collection process), in an environment in which they would often hear both like-minded and cross-cutting messages, and with messages created by actual partisan (and non-partisan) outlets, rather than by researchers.

**Selection of radio treatments: live, political, popular, and fervent broadcasts**

Our treatments included live broadcasts from actual Ghanaian radio stations. This strategy does increase the risk of Type II errors: if, during our study, the messages on a partisan
station were atypically subtle, or coverage was consumed by discussion of a non-political news item, such as a sporting event or celebrity sex scandal, then we might not find significant treatment effects, even though partisan messages might normally have effects on attitudes. Given that our study was conducted during a general election campaign, these risks were minimized. If our data do allow us to reject null hypotheses, we can be more confident that similar effects operate in the reality beyond our study.

In order to select the three radio stations that we would use as treatments, we discussed options with Ghanaian academics, journalists, representatives of media monitoring organizations, and radio program directors to identify partisan and neutral stations. Three criteria in addition to the partisan reputation of the station guided our selection. First, we wanted to choose stations that are frequently played on *tro-tros* so that subjects would not be cognizant of differences between their experimental and normal commute experiences. Second, although some stations have afternoon, evening, or weekend political programming, weekday morning hours are the only time when political programs overlap across multiple stations. In order to make randomization feasible, we focused only on stations that broadcast political programming between 6 and 10 AM. Next, we selected from stations that mainly broadcast these programs in Twi, which is the *lingua franca* in Accra, the site of our study.\(^8\)

\(^8\) A number of the stations included in the study broadcast call ins, and sometimes hosts’ responses, in languages other than Twi, such as Ga, Ewe, or English, but staff at selected stations told us that their hosts make efforts to restate in Twi, to facilitate understanding by the broadest possible audience.
On these bases, we chose Radio Gold as the pro-government station, Oman FM as the pro-opposition station, and Peace FM as the neutral station. These programs—*Gold Power Drive* on Gold, *National Agenda* on Oman, and *Kokrokoo* on Peace—contain mixes of news items, interviews, call-in segments, and hosts’ commentary. As discussed previously, broadcasts by both Gold and Oman were sources of controversy surrounding the 2008 election. These two stations were also singled out for particular criticism at a roundtable discussion on Ghanaian media organized by the Centre for Democratic Development-Ghana in early 2009 (*Daily Graphic* 2009). What’s more, the MFWA report issued in November 2012 ranked Oman and Gold, respectively, as the top sources of “indecent expression” during its monitoring period, which overlapped with our study period (MFWA 2012). In short, media experts deem the partisan stations used in our study to contain the most problematic language, and systematic content analysis suggests the expert assessments are valid.

In addition to containing the most “indecent” language, these partisan stations are also extremely biased and are perceived as such. The quasi-governmental National Media Commission monitored news stories in October prior to the 2012 elections, and ranked Gold and Oman as the most biased. 85% of (pro-opposition) Oman news stories were on the opposition

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9 Peace FM is reportedly the station with the largest listenership in Greater Accra. Although some interviewees told us that the owner of Peace is likely an NPP partisan, almost all agreed that the station has a reputation for neutrality.

10 Oman accounted for 106 (23.3%) of all identified “indecent expressions,” while Gold had 45. Peace FM had 17. According to the MFWA, most of Oman’s incidents occurred during the *National Agenda* and *Boiling Point* programs, the former of which was broadcast during our hours of study.
party (NPP) and only 6% were on the government party (NDC). 74% of (pro-government) Radio Gold news stories were on government party and only 12% were on the opposition. Importantly, the majority of our subjects identified the bias of the stations as we have labeled them, and a very small fraction of our subjects reported the opposite bias for our partisan stations.

Selection of subjects: tro-tro routes, vans, and commuters

Our subject population was morning tro-tro riders in Accra, Ghana’s capital and largest city. The Accra population is ideal for study, because it is quite politically divided. In the 2012 election, for example, John Dramani Mahama (NDC), who ascended to the presidency upon President John Atta Mills’ death in July, carried the region with a bare majority—52.3%, versus 46.9% for Nana Akufo-Addo (NPP). We administered our treatments in tro-tros, which are privately owned vans, usually with capacities of 15-20 individuals, that form the backbone of inter- and intra-city transport in Ghana (Abane 1993, 2011). Discussions with Ghanaians, and our own experiences with riding similar transportation in various African countries (including 11 These numbers also suggest that the partisan radio stations primarily discuss (presumably in a positive light) their own side, with less (presumably disparaging) commentary about the other side.

12 54% of respondents reported that Radio Gold favors the government (2% reported it favors opposition, 19% reported it is neutral, and 24% reported not knowing). 59% said that Oman FM favors the opposition (4% reported it favors government, 15% reported it is neutral, and 22% reported not knowing). 53% reported that Peace FM was neutral (5 % reported it favors government, 23% reported it favors opposition, and 16% reported not knowing).
Ghana), demonstrated that commuters are quite often captive to the musical or talk-radio preferences of the vehicle’s driver. Given that Ghanaians are frequently exposed to like-minded or cross-cutting messages in these settings, *tro-tros* seemed ideal for the administration of treatments, thus increasing external validity while also avoiding making individuals aware that they were part of an experiment.

Our sampling involved three stages: selection of *tro-tro* routes, vans, and subjects. First, *tro-tros* tend to follow regular routes, between an initial departure point and a final destination. We selected routes that met three criteria: 1) minimum travel time between initial departure point and final destination of at least forty minutes, to ensure that subjects had significant exposure to the treatment; 2) high proportions of passengers who remain on the *tro-tro* from the initial departure point to the final destination, again to maximize the probability of significant exposure; and 3) a large number of *tro-tros* plying the route in one direction during our study hours. This last criterion facilitated efficient distribution of our staff—some staff members (“recruiters”) were initially stationed at departure points, while others (“interviewers”) worked at the destinations. In order to minimize the probability of individuals being included in our sample twice, or of subjects being in contact with others from earlier days, we never worked on the same route twice during the study period.

We chose routes by conducting an enumeration of major *tro-tro* routes in Accra, in which research assistants visited the nine main terminuses in the city and interviewed staff of the Ghana Private Road Transport Union to identify all departure points that dispatched *tro-tros* to that station on a normal weekday morning. Assistants then visited these departure points and

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13 Some routes are more akin to expresses, in that nearly all passengers who board at the initial departure point ride until the final destination station.
interviewed drivers about travel times and normal ridership patterns. Ultimately, we conducted the experiment using fifty-seven distinct routes that met our criteria.

Next, we recruited drivers to act as our confederates. In return for ten Ghanaian cedis (about $5.26 US), drivers played the station assigned to them (or not any station at all), without interruption, at a volume that would make the broadcast as clear as possible to passengers;\textsuperscript{14} and without mentioning to any passenger that they had received such instructions.\textsuperscript{15} In order to ensure that these rules were followed, a recruiter traveled in the \textit{tro-tro} from the point of departure until the final destination. These recruiters, who filled out detailed questionnaires about each trip, reported no violations. Finally, drivers were instructed not to begin playing an assigned station until after the vehicle had departed, in order to minimize the possibility that individuals would hear a certain station playing, and thus self-select into or out of certain treatments. Treatments were assigned randomly; the distribution is reported in Table 1. We ultimately worked with 228 drivers in an equal number of \textit{tro-tros}.

\begin{table}[h]
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\caption{Table 1 about here}
\end{table}

\textsuperscript{14} As part of the census of routes, research assistants surveyed drivers about whether vehicles had sound systems that could play FM broadcasts.

\textsuperscript{15} When drivers were not present at the stations as planned, or when they were not likely to leave the stations within an acceptable window of time, staff “recruited” substitution drivers plying the same route. Recruiters only chose vehicles with working sound systems even if they were assigned to the no-radio treatment.
The last stage of sampling involved subject recruitment. As the tro-tro neared the final destination, the recruiter announced that any Ghanaian citizen of at least eighteen years of age who had been in the vehicle for at least forty minutes was eligible to complete a survey “about your experience with riding tro-tros in Accra, conditions faced by commuters in Accra, and what can be done to improve conditions for Ghanaians more generally.” Commuters were promised two cedis (about $1.05 US) in return for their time. Interviewers were waiting for subjects at several points near the destination. Because we used a simple random assignment procedure for tro-tros, we do not have equal numbers of vehicles or subjects across treatments. Tro-tros yielded a range of successful interviews, from 1 to 14, with a mean of 5.3 subjects per tro-tro. Yield rates do not differ significantly according to treatment. In total, our staff interviewed 1,200 subjects, over a fifteen-day period, between 16 October and 7 November 2012. The socio-economic, demographic, and partisan characteristics of respondents, as well as some indicators of the tro-tro ride experience, are balanced across each of the partisan radio treatment groups (Gold and Oman), the neutral radio group (Peace), and the no-radio treatment group. There are a few slight imbalances, as would be expected by chance, but the imbalances are not consistent across all condition comparisons. For example, the age of respondents exposed to Oman and

16 A significant number of questions addressed the transit system in Accra. Translations of the survey instrument were available in English, Ga, and Twi.

17 This amount was more than double what 69% of our subjects reported they paid for their commute that morning, and none reported paying more than two cedis.

18 Because tro-tros vary in capacity, and because we do not have ridership figures for each vehicle included in the study, we cannot determine what proportion of eligible passengers completed an interview.
Peace are significantly different, but only by 1.6 years, and age was not significantly different between any of the other paired treatment groups. Overall, the results from our balance checks indicate that the randomization procedure was well executed and that the effects of the treatments are unlikely to be associated with confounding variables (at least with respect to observables).

As a manipulation check, subjects were asked whether the *tro-tro*’s radio was playing and, if so, what station.\(^\text{19}\) Of those assigned to the no-radio condition, 75% reported that the radio was not playing. Of those assigned to a radio condition, 79% reported that a station was playing. Furthermore, 76% of respondents who named a specific station (and were assigned to a radio condition) correctly named the assigned station. The most common discrepancy was mislabeling one of the partisan stations as the neutral station. The second most common discrepancy was naming a station other than one of our three treatment stations. Only seven respondents in total named the opposing partisan station from that to which they were assigned (i.e. those assigned to the pro-government station saying the pro-opposition station played, and vice versa). The small percentage who reported a treatment that was different from what they were assigned suggests that the treatment was correctly applied. Given that subjects were never alerted to the treatment, we would expect some to have tuned out or forgotten what was being played.

Nonetheless, it is important to note that, of those assigned to the radio treatment groups, 21% said that the radio was not playing, and another 31% said they did not know what station was playing. It is likely that many of these subjects were still affected by the treatment messages

\(^{19}\) These questions were asked at the end of the survey (as part of a set of questions about the *tro-tro* ride generally), so as to avoid priming respondents on the study’s purpose.
even if they could not identify the specific treatment after the fact. It is also possible that they ignored the treatment entirely. In the following analyses we look at the more conservative intention-to-treat results; in other words, we evaluate the effect for all those who were exposed to the treatments.20

**Measurement**

**Independent variables**

Our independent variables are the experimental treatments converted to indicate whether subjects were exposed to like-minded radio or cross-cutting radio, by virtue of their partisanship. We also include the effects of neutral radio. Coding like-minded and cross-cutting exposure

20 If reliably estimated, we would expect the influence of the treatment on the treated (TOT) to be larger than the intention to treat (ITT) results, because we would expect larger effects for the subset of the population who actually listened to the radio, relative to the entire group who were merely exposed to the radio. Unfortunately, we cannot accurately identify the entire “treated” population (i.e., those who listened). While we can identify active listeners as those who correctly identified the stations (treated), we do not have a reliable way of distinguishing passive listeners and listeners with poor recall (also treated), from those who did not listen at all (untreated). Therefore, we do not think we can generate a reliable TOT estimate. A TOT analysis that codes only active listeners as treated subjects, and all others as untreated, would be especially problematic because we expect passive listeners to be most likely to be persuaded by cross-cutting media. Active or attentive listeners are more inclined to be engaged in counter-argument and reject rival broadcasts.
requires a measure of subject partisanship. Here, we measure partisanship as reported vote in the 2008 election. While it would have been ideal to measure partisanship prior to the treatment, we could not have done so without alerting subjects to the experiment. We employ 2008 vote because, of the possible measures of partisanship, this is the least likely to be influenced by the radio treatments. This is evidenced by the fact that our measure of partisanship based on 2008 vote is balanced across all the treatment pairs. 752 individuals were included in the analysis because they reported voting for NDC or NPP in 2008.

The measure of partisanship was combined with the radio treatment conditions to create measures of exposure to a station biased towards (like-minded) or against (cross-cutting) a subject’s 2008 vote. Like-minded treatments included: 1) subjects who voted for the government (NDC) and were exposed to government-leaning radio (Gold), and 2) subjects who voted for the opposition (NPP) and were exposed to opposition-leaning radio (Oman). Cross-cutting treatments included: 1) subjects who voted for the government (NDC) and were exposed to opposition-leaning radio (Oman), and 2) subjects who voted for the opposition (NPP) and were

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21 See the online appendix for all specific question wordings and descriptive statistics.

22 Likelihood of voting for the NDC versus the NPP is not different for the following paired comparisons (all with no radio): Gold versus (p-value=0.95), Oman versus (0.21), and Peace (0.35).

23 Those who did not vote, did not report their vote choice or who voted for a minor party, were thereby excluded.

24 In 2012, NDC was the government party and NPP the opposition. In 2008, the opposite was true. To ease the discussion here, we refer to the parties in relation to their status at the time of the experiment in 2012.
exposed to government-leaning radio (Gold). We also create an indicator of neutral radio exposure. Partisan respondents in these treatment groups are always compared to partisan respondents in the no-radio control.

**Dependent variables**

We have four main outcome variables: three based on self-reported attitudes about NDC and NPP candidates, and one based on revealed subject behavior.\(^{25}\) To determine whether like-minded and cross-cutting media increase attitude extremity we transformed the first three variables by folding each of attitude measures, so that higher values indicate attitudes strongly in line with the subject’s favored party, and lower values indicate attitudes strongly out of line with the subject’s favored party.

The first outcome is a folded index variable that measures favorability of attitudes towards candidates from the government party (NDC). Respondents were asked if they thought NDC candidates generally were honest, strong leaders, and capable of bringing development to Ghana. The variable is coded so that NDC partisans have higher scores if they are favorable towards NDC candidates and NPP partisans have higher scores if they are unfavorable towards NDC candidates.\(^{26}\) The index of extreme attitudes about NDC candidates ranges from zero to three.\(^{27}\)

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\(^{25}\) The Cronbach’s alpha for the four outcome variables is 0.61 indicating that the four indicators, to some extent, measure a single underlying concept of extreme partisan predispositions.

\(^{26}\) Specifically, the variable was coded so that higher values indicate more extreme attitudes about NDC candidates given respondent partisanship. Respondents who voted in 2008 for NDC were coded the highest score if they thought NDC candidates were extremely honest, strong and
The second outcome variable parallels the first except respondents were asked if NPP candidates were honest, strong, and capable. The variable is coded so that NPP partisans have higher scores if they are favorable towards NPP candidates, and NDC partisans have higher scores if they are unfavorable towards NPP candidates. The index of extreme attitudes about NDC candidates ranges from zero to three.\textsuperscript{28}

The third outcome is a folded dichotomous variable that measures whether respondents said they would never vote for the opposing party “under any circumstances.” NDC supporters were coded one if they mentioned NPP as a party for which they would never vote, and zero if they did not mention NPP. NPP supporters were coded one if they mentioned NDC as a party for which they would never vote, and zero if they did not mention NDC. In short, respondents were coded as more extreme if they said voting for the other party was unthinkable.

The final measure is a behavioral one indicating whether an individual was inclined to display a partisan preference. After the survey we thanked the respondents and showed them three keychains: one prominently depicting the NDC logo, one the NPP logo, and one the Ghanaian flag. They were encouraged to select one of the three keychains to take home. The capable; they were given the lowest score if they thought NDC candidates were not at all honest, strong, and incapable. Respondents who voted in 2008 for NPP were coded the highest score if they thought NDC politicians were not at all honest, strong and capable; they were given the lowest scores if they thought NDC candidates were extremely honest, strong and capable. Respondents who said NDC candidates were somewhat or a little honest, strong and capable received scores in the middle of the range.

\textsuperscript{27} The Cronbach’s alpha for the index is 0.87.

\textsuperscript{28} The Cronbach’s alpha for the index is 0.87.
partisan keychains (which could be found along with other party paraphernalia in outdoor markets) included the party symbol, name or acronym, and telltale colors. The non-partisan keychain contained the word “Ghana” against the national flag. 279 respondents (23%) took the NDC keychain, 287 (24%) the NPP keychain, and 598 (50%) the keychain with the Ghanaian flag.29 The variable is coded so that respondents received the highest value of two when they took a keychain with their own party logo, one for the flag, and zero for the other party logo. In other words, extreme partisan attitudes are revealed when respondents choose to display their own party preference over their national identity.

Results

We compare subjects exposed to like-minded, cross-cutting, or neutral radio to those not exposed to radio. In other words, the no-radio condition is the excluded category. We estimate the following equation:

\[ \text{Extreme partisan attitudes or behavior} = \beta_0 + \beta_1 \text{ Like-minded} + \beta_2 \text{ Cross-cutting} + \beta_3 \text{ Neutral} + \varepsilon \]

We run separate analyses for each of the four outcome measures: 1) attitudes about NDC candidates; 2) attitudes about NPP candidates; 3) aversion to voting for the other side; and 4) keychain selection. For the first two outcome variables we use OLS regressions, for the third we use a logistic regression, and for the last we use an ordered logistical regression.

29 3% did not take a keychain.
Positive estimated coefficients on like-minded ($\beta_1$), cross-cutting ($\beta_2$), or neutral ($\beta_3$) radio exposure would indicate that subjects in the relevant treatment groups had more extreme attitudes in line with their partisanship than those in the no-radio condition. Negative estimated coefficients would indicate that subjects exposed to the relevant radio treatments had less-extreme attitudes than subjects in the no-radio condition. Thus, positive estimated coefficients indicate polarization due to the treatments, and negative coefficients indicate moderation.

[Table 2 about here]

Table 2 reports the results from two-tailed tests$^{30}$ of the effects of like-minded, cross-cutting, and neutral radio on the extremity of attitudes about NDC candidates, NPP candidates, willingness to vote for the other side, and keychain selection. The first row of Table 2 indicates that exposure to like-minded radio is not significantly related to attitude extremity or behavior change. These results suggest that listeners might not be affected when they are exposed to media matching their partisan leanings.$^{31}$

$^{30}$ We chose to use the more conservative two-tailed tests due to the possibility that partisan media can have both positive and negative effects.

$^{31}$ We need to be cautious when making claims about whether or not like-minded media have effects writ large. It could be that effects would be evident with a larger sample size. Furthermore, our 40-minute treatment was subtle, and we cannot know how many of our subjects actively listened to the like-minded radio treatments. However, the small substantive effects and the large p-values on nearly all estimates suggest that a larger sample or powerful treatment might not reveal differences. Thus it is possible, though we think unlikely, that our analyses are
Importantly, the results in the second row reveal that cross-cutting media did have a statistically significant effect on attitudes about party candidates. The estimated coefficients are negative, indicating that cross-cutting radio moderated attitudes about politicians and reduced partisan polarization. Furthermore, the negative estimated coefficient on party keychain suggests that cross-cutting radio induced respondents to prefer the symbol of national identity over partisan identity. On balance, exposure to cross-cutting radio reduced partisan polarization by persuading individuals to moderate their initial sentiments.

Finally, the third row in Table 2 indicates that neutral political talk radio had no significant effect on partisan attitudes or behavior. This suggests that cross-cutting exposure, and only cross-cutting exposure, produces the desired moderating effect.

Reassuringly, our conclusions about the effects of like-minded, cross-cutting and neutral radio are not the product of a particular estimation procedure or model specification. Our results remain largely the same when we cluster standard errors by *tro-tro*, estimate the effect of like-minded or cross-cutting media relative to neutral radio (rather than the no-radio control), control for subject ethnicity, and construct an index measure of all the dependent variables together.32

32 See the online appendix for justification and results for each of these robustness checks. The only notable differences are that the effect of cross-cutting radio on keychain selection in the two-tailed test creeps just beyond conventional levels of significance when including the clustered standard errors (p=.116). Additionally, cross-cutting radio is not significantly different from neutral radio with respect to this behavioral measure.
Furthermore, the main effects of the radio treatments are significant and in line with what we would expect based on the results of the like-minded and cross-cutting analysis. On average, across all partisans, pro-government radio increased support for government officials (and increased flag keychain selection) while opposition radio increased support for opposition politicians. Each partisan radio station shifted attitudes in the direction of the media bias.\textsuperscript{33}

\textbf{[Figure 1 about here]}

Figure 1 illustrates the above results. The height of each bar represents the difference of means between the relevant type of radio exposure and the no-radio condition. As in the analyses above, the outcome variables are depicted so that positive values indicate greater extremity of attitudes in the radio treatment groups than in the no-radio group, and negative values indicate weaker attitudes in the radio treatment groups than in the no-radio group. Note that the cross-cutting media treatment has negative estimated values across all four dependent variables, which indicates that subjects exposed to cross-cutting radio have more moderate attitudes than co-partisan subjects who were not exposed to radio of any kind.

\textsuperscript{33} We also estimated the model with attitudes about the president as an outcome measure. The directions of the effects were consistent with the results from the other variables presented here but they were not statistically significant. Attitudes about the president are plausibly more stable than attitudes about candidates generally, which would account for the lack of significance. For the results of the models predicting presidential attitudes and the main effects, see [working paper by authors].
In sum, the foregoing analyses and figures indicate that exposure to cross-cutting media moderates partisan attitudes amongst our experimental subjects. We posit that cross-cutting media are more influential than like-minded media because the positions presented by cross-cutting media are more novel, whereas the information from like-minded media duplicates what individuals hear from like-minded social contacts. We also posit that cross-cutting media are more influential than neutral media because one-sided arguments are clear-cut and captivating as compared to the nuanced and usually more staid discussions on neutral media. To the extent that Ghanaian citizens are exposed to cross-cutting media (and our evidence suggests that many are on regular basis), the overall effect is to reduce partisan polarization.

Conclusion

Media liberalization has yielded increasingly privatized and pluralized environments in many formerly authoritarian countries, where state-run outlets once dominated. While these reforms are thought to be necessary for enhanced political competition, deliberation, and accountability, many observers believe they have had Janus-faced qualities. Political elites often dominate newly established outlets, and they use this newfound power to mobilize

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34 Our null findings in regard to the influence of like-minded media are not likely due to ceiling effects. Amongst major-party partisans in the control condition, the mean values for the indices on government and opposition candidates were 2.18 and 2.07, respectively, out of a maximum score of 3. The dummy variable indicating aversion to ever voting for another party had a mean of 0.47, while the keychain selection variable had a mean of 1.54 (out of 2). In all of these cases, large numbers were not located at the maximum either before or after the treatment, indicating that there was significant space for most subjects to become more extreme in their attitudes.
constituencies. With violent cases such as Rwanda, Kenya, and the Balkans in mind, observers of Ghanaian politics have voiced grave concerns about incendiary and biased rhetoric on radio programs and in newspapers. However, there has been little empirical evidence that media affect partisan attitudes and behaviors in newly liberalized media environments. Furthermore, information-processing theories suggest that extreme position-taking is only one of several possible responses to partisan media.

We test the effects of political talk radio with a novel field experiment conducted weeks prior to the 2012 elections in Ghana, an emerging democracy. We randomly assigned *tro-tros* (commuter minivans) to one of four conditions: pro-government, pro-opposition, or neutral talk radio, or the control (no radio). In this paper we examine the effects of listening to like-minded broadcasts that are biased towards one’s preferred party as well as cross-cutting broadcasts that are biased towards the other party.

35 Two noteworthy exceptions, both on 1994 Rwanda, come to somewhat differing conclusions about the role of the media in violence. Straus (2007) finds that early onset of killing is not correlated with accessibility to anti-Tutsi broadcasts on RTLM, nor does he find that surveyed perpetrators were significantly more likely to have reported listening to the station. Yanagizawa-Drott (2010), on the other hand, finds that RTLM coverage is significantly and positively associated with the proportion of individuals in an area who were accused of being perpetrators, and he attenuates concerns about self-selection effects by examining how hills acted as an exogenous determinant of access to broadcasts. Neither of these studies includes individual-level analysis. We are not aware of individual-level analyses of the effects of newly privatized media on polarization.
Our analyses yield a number of important findings. First, we find no estimated effect of exposure to like-minded media on partisan polarization. Second, we find significant evidence of moderation from cross-cutting broadcasts, indicating that rival arguments persuaded individuals to reconsider initial attitudes. Cross-cutting exposure also encouraged behavioral displays of national over partisan identity. Rather than fueling extremism, we argue that cross-cutting media encourage moderation by exposing citizens to alternative perspectives. Third, we find that neutral radio has none of these beneficial effects. Importantly, exposure to cross-cutting media seems to be frequent in Ghana, where considerable media consumption occurs in public and semi-public settings like the *tro-tros* we used in our study. Therefore, we should expect the beneficial effects of our cross-cutting treatment to occur outside of the experiment itself.

Why do we find that partisan media causes moderation when most scholarship would lead us to expect polarization? We argue that the prevailing wisdom is based on a number of questionable assumptions that took hold in the absence of empirical evidence. Scholars have focused extensively on exposure to like-minded media, which have been presumed to be polarizing. Like-minded media might not polarize, especially if they duplicate information gained from like-minded social contacts. Much of the literature overlooks the potential influence of cross-cutting media, perhaps because extreme cases of conflict and one-sided information flows, such as 1994 Rwanda, garnered so much attention. Even in these extreme cases, evidence suggests that scholars may be overestimating the influence of like-minded media, underestimating the influence of personal contacts, and misunderstanding the effect of cross-cutting media in generating polarization and violence (Straus 2007).

Research on partisan media in the U.S. may also have encouraged expectations of polarization elsewhere. The prevailing expectation in the literature on the U.S. is that individuals
exposed to cross-cutting messages will engage in counter-argument; as a result, cross-cutting messages could radicalize attitudes. This reasoning seems ill suited to conditions in many developing democracies and hybrid regimes. Research shows that counter-argument is more likely among strong partisans, who are distrustful of cross-cutting sources, and have the political experience and knowledge necessary to question (and counter-argue against) what they hear. Many individuals seem to lack both the inclination and tools to engage in such counter-argument, outside of advanced industrial democracies. Partisan identity tends to be weak in new and unstable party systems, and even strong ideologues may find it more difficult to counter-argue in defense of their partisan views because they lack the education, resources, and information with which to determine parties’ positions.

The empirical evidence forces us to question widespread assumptions and thus revise our expectations: 1) Excessive focus on like-minded media will obscure the total influence of partisan media, especially since exposure to cross-cutting media may be common in developing countries; 2) Like-minded media may be less influential than cross-cutting media since like-minded media duplicate information citizens receive from homogeneous personal networks while cross-cutting arguments are more novel; 3) Citizens in developing countries may be less likely than those in advanced industrial democracies to engage in counter-argument; and 4) When individuals lack the inclination and tools to engage in partisan-motivated selective exposure and counter-argument, we should expect exposure to cross-cutting media to be more common and persuasive. The net result will be a moderating effect of partisan media.

While we cannot be certain about the generalizability of the findings from Ghana to other contexts without additional research, we can develop informed expectations. We anticipate that counter-argument with cross-cutting messages would be lowest, and the persuasive effects of
cross-cutting media would be greatest, where partisan identities are weak. We expect that citizens will be even more susceptible to the moderating influence of cross-cutting media in settings with less-institutionalized party systems than Ghana’s, such as Benin, Bulgaria, Guatemala, Latvia, Madagascar, Malawi, Mali, Niger, Peru, and Senegal. We think moderation is the most likely outcome of partisan media exposure in many developing democracies or hybrid systems.

However, we do not expect that the Ghanaian results will generalize to all developing democracies or hybrid regimes. While partisan identities in Ghana are meaningful they are not absolute; subsets of the population have indicated in surveys that they are amenable to supporting multiple parties (Lindberg and Morrison 2005, 2008; Fridy 2007; Weghorst and Lindberg 2013). In contrast, inter-group differences have likely been widened and reified by violent conflict in a number of countries, including Kenya, Mozambique, Rwanda, and Zimbabwe (LeBas 2011; Levitsky and Way 2012). In these situations, we might expect that exposure to cross-cutting messages might be less common due to increased self-selection. Even when cross-cutting exposure occurs, the solidified identities prevalent in post-conflict environments might mitigate against moderating effects. In sum, we expect that most citizens in new democracies or hybrid regimes will be susceptible to the persuasive and moderating effects of cross-cutting media, but such salutatory effects are unlikely where conflict has reified political divides. Unfortunately the polities most in need of moderation may also be immune to the potential benefits of exposure to cross-cutting media.

Our research in Ghana can also serve as a cautionary tale for studies of media in the United States. Some of the polarizing effect of partisan media identified in the U.S. could be an artifact of the analytic approaches used by most scholars. Observational research may
overestimate the polarizing potential of partisan media by conflating selective exposure with media effects. Laboratory experiments may also overestimate polarization to the extent that they induce counter-argument at higher levels than is typical. Subjects will be more attentive to the messengers and the messages when they are insulated from distractions and when they know they are being observed. Attentive subjects may be more likely to identify and react negatively to cross-cutting media than they do when passively consuming media on a day-to-day basis. The subjects in our field experiment were unaware that they were being exposed to, or questioned about, experimental treatments. We were able to measure accurately how individuals typically react to incidental media exposure, while still maintaining the benefits of experimental inference. It is possible that we found less counter-argument in our study than in most U.S. experiments because Ghanaians are different from Americans, because individuals behave differently in the field than in the lab, or, more likely, from a combination of the two.

Finally, our research suggests an alternative theoretical framework for understanding the role of partisan media. A venerable literature argues that democracy is strengthened when citizens are exposed to alternative perspectives (Barber 1984; Habermas 1989; Mill [1859] 1999). Exposure to diverse political views builds tolerance, encourages reevaluation of positions, increases mutual understanding, and facilitates compromise (Mutz 2002, 2006). Mass media are primary sources of exposure to opposing political views (Mutz and Martin 2001; Gentzkow and Shapiro 2011), especially where personal networks are ethnically, religiously, geographically, and politically segregated, as they often are in the developing world. Partisan media may be more effective vehicles for delivering alternative perspectives than neutral media, because partisan media present political arguments in captivating and straightforward ways. Strident partisan programming can help citizens pay attention to and understand the arguments
from the other side. Ultimately, loud and clear partisan broadcasts from opposing sides can cause partisans to moderate their initial attitudes in ways that enhance democracy and national unity.
Figure 1: Difference of Means between Treatments and No Radio for Attitude Extremity & Behavior

Notes: Positive bars indicate more extreme attitudes and selection of partisan keychain in the treatment conditions relative to the no-radio control condition. Negative bars indicate more moderate attitudes in the treatment conditions relative to the no-radio control condition.
Table 1: Treatment Assignments

<table>
<thead>
<tr>
<th></th>
<th>No radio</th>
<th>Oman FM (pro-opposition)</th>
<th>Peace FM (neutral)</th>
<th>Radio Gold (pro-government)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assigned <em>trotros</em></td>
<td>59</td>
<td>64</td>
<td>56</td>
<td>49</td>
</tr>
<tr>
<td>Interviews completed (N)</td>
<td>326</td>
<td>345</td>
<td>270</td>
<td>259</td>
</tr>
<tr>
<td>Mean interviews per <em>trotro</em></td>
<td>5.3</td>
<td>5.3</td>
<td>4.9</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Table 2: Effects of Like-Minded & Cross-Cutting Radio on Attitude Extremity & Behavior

<table>
<thead>
<tr>
<th></th>
<th>(1) Government Candidates</th>
<th>(2) Opposition Candidates</th>
<th>(3) Never vote for other party</th>
<th>(4) Party Keychain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like-minded</td>
<td>0.02 (0.08)</td>
<td>0.10 (0.08)</td>
<td>0.04 (0.22)</td>
<td>-0.14 (0.21)</td>
</tr>
<tr>
<td>Cross-cutting</td>
<td>-0.17** (0.08)</td>
<td>-0.19** (0.08)</td>
<td>-0.41** (0.21)</td>
<td>-0.32* (0.19)</td>
</tr>
<tr>
<td>Neutral radio</td>
<td>-0.03 (0.08)</td>
<td>-0.04 (0.08)</td>
<td>0.13 (0.22)</td>
<td>-0.10 (0.20)</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.18*** (0.05)</td>
<td>2.07*** (0.05)</td>
<td>-0.11 (0.15)</td>
<td></td>
</tr>
<tr>
<td>Cut points</td>
<td></td>
<td></td>
<td>-3.31 (0.21)</td>
<td>-0.26 (0.14)</td>
</tr>
<tr>
<td>N</td>
<td>742</td>
<td>734</td>
<td>683</td>
<td>744</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.01</td>
<td>0.02</td>
<td>0.01</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Cell entries are OLS regression coefficients for models 1 and 2, logitistic regression coefficients for model 3, and ordered logistic regression coefficients for model 4. Standard errors are in parentheses. Coefficients that can be distinguished from zero are marked as follows: * ≤ 0.10; ** ≤ 0.05; *** ≤ 0.01 (for a two-tailed test). The excluded baseline group in the analyses is subjects assigned to the no-radio condition.
Works Cited


### Online Supplemental Material

#### Online Appendix A: Baseline and Alternative Specifications

<table>
<thead>
<tr>
<th>Index of partisan attitudes and behavior</th>
<th>Baseline</th>
<th>Tro-Tro Clustered SE</th>
<th>Neutral Radio Comparison</th>
<th>Ethnic Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like-minded treatment</td>
<td>0.04</td>
<td>0.10</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Cross-cutting treatment</td>
<td>-0.25</td>
<td>0.10</td>
<td>-0.25</td>
<td>-0.26</td>
</tr>
<tr>
<td>Neutral treatment</td>
<td>0.00</td>
<td>0.10</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>No radio treatment</td>
<td>0.00</td>
<td>0.10</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Ethnic Akan</td>
<td>0.02</td>
<td>0.10</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Ethnic Ewe</td>
<td>-0.01</td>
<td>0.10</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Ethnic Ga</td>
<td>0.11</td>
<td>0.10</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Intercept</td>
<td>2.67</td>
<td>0.07</td>
<td>2.67</td>
<td>2.68</td>
</tr>
</tbody>
</table>

#### Government candidates (NDC)

<table>
<thead>
<tr>
<th>Index of partisan attitudes and behavior</th>
<th>Baseline</th>
<th>Tro-Tro Clustered SE</th>
<th>Neutral Radio Comparison</th>
<th>Ethnic Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like-minded treatment</td>
<td>0.02</td>
<td>0.08</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Cross-cutting treatment</td>
<td>-0.17</td>
<td>0.08</td>
<td>-0.17</td>
<td>-0.17</td>
</tr>
<tr>
<td>Neutral treatment</td>
<td>-0.03</td>
<td>0.08</td>
<td>-0.03</td>
<td>-0.01</td>
</tr>
<tr>
<td>No radio treatment</td>
<td>0.03</td>
<td>0.08</td>
<td>0.03</td>
<td>-0.21</td>
</tr>
<tr>
<td>Ethnic Akan</td>
<td>-0.01</td>
<td>0.09</td>
<td>-0.01</td>
<td>-0.01</td>
</tr>
<tr>
<td>Ethnic Ewe</td>
<td>-0.14</td>
<td>0.10</td>
<td>-0.14</td>
<td>-0.14</td>
</tr>
<tr>
<td>Ethnic Ga</td>
<td>2.18</td>
<td>0.05</td>
<td>2.18</td>
<td>2.30</td>
</tr>
</tbody>
</table>

#### Opposition candidates (NPP)

<table>
<thead>
<tr>
<th>Index of partisan attitudes and behavior</th>
<th>Baseline</th>
<th>Tro-Tro Clustered SE</th>
<th>Neutral Radio Comparison</th>
<th>Ethnic Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like-minded treatment</td>
<td>0.10</td>
<td>0.08</td>
<td>0.10</td>
<td>0.11</td>
</tr>
<tr>
<td>Cross-cutting treatment</td>
<td>-0.19</td>
<td>0.08</td>
<td>-0.19</td>
<td>-0.19</td>
</tr>
<tr>
<td>Neutral treatment</td>
<td>-0.04</td>
<td>0.08</td>
<td>-0.04</td>
<td>-0.06</td>
</tr>
<tr>
<td>No radio treatment</td>
<td>0.04</td>
<td>0.06</td>
<td>0.04</td>
<td>0.25</td>
</tr>
<tr>
<td>Ethnic Akan</td>
<td>-0.01</td>
<td>0.11</td>
<td>-0.01</td>
<td>-0.03</td>
</tr>
<tr>
<td>Ethnic Ewe</td>
<td>2.07</td>
<td>0.05</td>
<td>2.07</td>
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<td>Neutral Radio Comparison</td>
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<td>0.15</td>
<td>0.47</td>
<td>-0.11</td>
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<tr>
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<td>Ethnic Ga</td>
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<td>-0.26</td>
<td>0.14</td>
<td>0.14</td>
<td>-0.26</td>
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</tbody>
</table>

Notes: Cell entries are OLS regression coefficients for the first three outcome variables (“index”, “government candidates”, and “opposition candidates”), logistic regression coefficients for “never vote for other party,” and ordered logistic regression coefficients for “party keychain.” The excluded baseline group in the “baseline,” “tro-tro-clustered standard errors,” and “ethnic controls” models are subjects assigned to the no-radio condition. The excluded baseline group in the “neutral radio” model includes subjects assigned to the neutral radio condition. P-values are for two-tailed tests.
Explanation for robustness checks

First, we cluster standard errors to account for randomization at the level of the *tro-tro*. Second, we use neutral radio as the excluded category to provide suggestive evidence about effects of bias separately from political discussion. Our baseline has the no-radio control because we cannot be certain that the content of the neutral station is actually perfectly neutral for all subjects. No radio is a “cleaner” control and theoretically closer to the counterfactual because Ghanaians might not listen to neutral political radio if partisan radio did not exist. Third, we include ethnic controls to demonstrate that observable traits do not affect the results. We provide the results for ethnicity because ethnicity is strongly related to political attitudes in Ghana, and because ethnicity was not balanced in some comparisons with the neutral station, though the lack of balance seems to be by chance. The results are similar with other controls. Finally, we create an index variable of the four outcome variables (cronbach’s alpha=0.61) to provide a holistic assessment of the effects of the treatments.
Online Appendix B: English-Language Survey Question Wordings

Dependent Variables

Parties For Which Subject Would Never Vote?
[23] Among the political parties in this country, are there any which you would never vote for, under any circumstances? [Multiple answers possible; options not read.]

Opinions of Government (NDC) Candidates
[29] I would like to ask you your opinions about some of the political parties in this country. First, please tell me how well you think these words or phrases describe candidates from the NATIONAL DEMOCRATIC CONGRESS (NDC)? Do you think they describe them extremely well, somewhat well, a little, or not at all? 1) Honest? 2) Strong leader? 3) Capable of bringing development to Ghana?

Opinions of Opposition (NPP) Candidates
[30] Next, please tell me how well you think these words or phrases describe candidates from the NEW PATRIOTIC PARTY (NPP)? Do you think they describe them extremely well, somewhat well, a little, or not at all? 1) Honest? 2) Strong leader? 3) Capable of bringing development to Ghana?

Keychain Selection
[65] We would like to offer you another item as a thank you. Please feel free to take one of these key holders. [Interviewer offers display of three key holders and records subject’s selection.]

Party Affiliation Measure
[22] For which candidate did you vote in the first round of the 2008 presidential election? [Candidates’ names not read. If subject could not remember candidate’s name, follow up]: Do you remember of what party the candidate was a member? [Question only asked of those who had previously reported having voted in 2008, in Question 21: Let’s talk about political participation in the past. We know that many Ghanaians did not go to the polls in the last general elections, in 2008. Did you go to the polls to vote in the first round of the 2008 elections, when this country elected a president and parliament?]

Manipulation Checks
[59] Was the radio playing in the tro-tro?

[61] Can you tell me which radio station was playing in the tro-tro? [Options not read. Only asked of those who reported in Question 59 that the radio was playing.]

[62] From what you know about radio in Accra, would you say that the presenters on the stations I’m going to read to you are more in favor of the government or the opposition, or are they neutral? A) Radio Gold? B) Peace FM? C) Oman FM?
Regular Exposure to and Trust in Cross-Cutting Radio

[53] In the last week, how often would you say that you listen to the following morning shows? Every day, most days, a few days, or not at all? A) “Kokrokoo” on Peace FM? B) “Gold Power Drive” on Gold FM? C) “National Agenda” on Oman FM? [Only asked of those who previously reported listening to radio, in Question 52: For each of these sources, please tell me how often you think you got your news from them in the last week. Every day, most days, a few days, or not at all? Radio?]

[54] In general, how much do you trust and have confidence in [radio station] when it comes to reporting the news fully, accurately, and fairly? A great deal, a fair amount, not very much, or none at all? A) Radio Gold? B) Peace FM? C) Oman FM?

Other Variables

Cost of Tro-Tro Ride
[2] How much did you pay the tro-tro conductor for your most recent ride? [Options not read.]

Ethnic Group
[48] What is your ethnic group or tribe? [Options not read.]
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
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<td>(1=Indicated refusal, 0=Did not indicate refusal)</td>
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<tr>
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<td>2</td>
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<tr>
<td>(0=Other party, 1=Flag, 2=Own party)</td>
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<td><strong>Partisanship Measure</strong></td>
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<tr>
<td>(2008 vote) (1=NDC=1, 0=NPP)</td>
<td>.573</td>
<td>.495</td>
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Notes: Folded measures recoded such that higher values represent favorable attitudes towards co-partisans and negative attitudes towards non co-partisans. For partisanship measure, votes for minor parties, refusals, and reported non-votes excluded.