Waves of Empowerment: Black Radio and the Civil Rights Movement

Tianyi Wang*
University of Copenhagen

April 2021

Abstract

In the early 1960s, as the civil rights movement was gaining momentum, Black-oriented radio stations were broadcasting across large swaths of the South. This paper uses newly digitized data to provide the first empirical evidence on the effects of Black radio on the civil rights movement. Exploiting plausibly exogenous variation in signal reception resulting from topographic factors, I find strong evidence that Black radio increased Black political participation and activism in the South during the early 1960s, as measured by Black voter registration and the presence of a local chapter of the NAACP. For mechanisms, I find evidence consistent with Black radio increasing the reach of civil rights groups and providing positive role models to African Americans. Moreover, results suggest that exposure to Black radio translated into substantive economic and political gains for the Black community in the form of greater state aid and legislative support for civil rights bills. Much of the effects of Black radio took place before the enactment of landmark civil rights legislation, highlighting the significance of Black radio to the Black community.

JEL CODES: D72, N42, Z12

Keywords: Race, Mass Media, Political Participation, Civil Rights Movement

*Department of Economics, University of Copenhagen, Øster Farimagsgade 5, Building. 35, 1353 Copenhagen K, Denmark. Email: tianyi.wang@econ.ku.dk. I am extremely grateful to Randy Walsh, Osea Giuntella, and Allison Shertzer for their guidance and support throughout this project and to Benjamin Olken for sharing the radio propagation software. I also thank D. Mark Anderson, Abhay Aneja, Stefano DellaVigna, Andy Ferrara, Ruixue Jia, Daniel B. Jones, Shawn Kantor, Carl Kitchens, Daniel I. Rees, Marianne Wanamaker, Richard Van Weelden and seminar participants at Applied Young Economist Webinar, Florida State University, University of Bayreuth, University of Copenhagen, University of Pittsburgh, Virtual Economic History Seminar, ASREC24h Conference, and SEA Conference for their helpful comments and suggestions.

1 Introduction

Can media and information technologies empower oppressed minority groups in their struggle for greater equality and justice? I study this question in the context of the civil rights movement during the 1950s and 1960s, a period that ushered in arguably the most important breakthrough in racial equality and justice in American history since the Reconstruction era (1865-1877). Through political participation such as voter registration and mass mobilization by civil rights groups, African Americans strived for changes against legalized racial segregation, discrimination, and disenfranchisement in the Jim Crow South. This paper examines the impacts of an important and yet little studied institution during the civil rights movement, Black-oriented radio, which was then a new media format and aimed specifically at a Black audience. While the civil rights movement was gaining momentum, Black-oriented radio stations were broadcasting across the South with widespread popularity. In this paper, I assemble a unique dataset to study the impacts of Black radio on Black political participation during the civil rights movement.

During the civil rights era in the South, Black radio was the only broadcast medium that appealed to the interests of Black Americans (Ward, 2004; Barlow, 1999). It is therefore not surprising that, according to a 1972 survey by *Ebony* magazine, African Americans ranked Black radio highest among all mass media in such categories as empathy, honesty, objectivity, and entertainment (Walsh, 2001). The political impacts of Black radio, however, are not immediately clear. On the one hand, Black radio stations in the South were almost all owned and controlled by White businessmen, whose primary motive was profits instead of political activism (Walsh, 2001); the programs also focused heavily on music and entertainment, which could potentially lower political participation, similar to what Gentzkow (2006) finds for television during the same period.[1]

On the other hand, however, out of the pressure to appeal to their Black audience,

[1]Previous studies also find that exposure to entertainment-focused media, such as radio and television, tend to lower social engagement and civic-mindedness today (Olken, 2009; Durante et al., 2019)

Black-oriented stations often granted air time to civil rights activists, who disseminated the latest news and information pertaining to the civil rights movement to a mass audience. For instance, a 1964 NAACP survey revealed that 95 percent of the Association's branches that sought air time on their local stations were accommodated (Walsh, 2001). In addition, there is also anecdotal evidence that Black DJs, much venerated by the Black community during the civil rights era, would sometimes embed in their speeches political code words on civil rights-related activities (such as meetings and protests) that were only understood by Black Americans (Ward, 2004; Barlow, 1999). The news and political messages on the civil rights movement, although not the main content of the broadcast most of the time, could still inform and engage Black listeners politically during the movement, increasing Black Americans' political activism and participation.

My baseline analysis examines the impact of exposure to Black radio on Black voter registration in the South in 1960. In particular, I collected and digitized novel data on the location and technical details of Black radio stations in 1960, which allow me to predict the signal strength of Black radio stations across the South. Since Black radio stations in the South during this period were virtually all owned by White businessmen, whose main motive was profits instead of political activism, it is therefore unlikely that the station location was directly functional to Black political activism.

Nonetheless, reception of Black radio could be correlated with other local characteristics that might influence Black political participation. To address this concern, I employ a strategy pioneered by Olken (2009) to exploit the variation in Black radio signal strength resulting from topographic factors. Specifically, I regress the outcomes on the Black radio signal strength, while controlling for the hypothetical signal strength when there are no geographic or topographic obstacles such as mountains and hills. Hence, identification comes from the residual variation in signal strength as a result of idiosyncratic topographic factors along the signal transmission route, which I find to be uncorrelated with a wide range of pre-existing county socioeconomic characteristics. In addition, I also show in placebo tests that

the residual variation in signal resulting from topography is not correlated with measures of past local racial attitudes and Black political activism.

The baseline results suggest that counties more exposed to Black radio in 1960 registered more Black voters. Specifically, a one standard deviation increase in Black radio signal strength increased the share of Black voter registered by about 4 percentage points, or about 14 percent relative to the mean. The estimate is robust to controlling for a rich set of pre-existing county characteristics, including measures of past local racial attitudes and Black political activism.

To show that the results did not reflect the effect of exposure to radio programs in general, I run a falsification test using exposure to national radio network (ABC, CBS, and NBC) stations that did not have a Black-oriented format. In a statistical horse race between Black and non-Black radio exposure, I find that what mattered to Black voter registration was exposure to Black radio stations and not exposure to other radio stations. Similarly, I find that the baseline results are robust to controlling for access to other competing media, such as television and Black newspapers, suggesting that Black radio had a unique and independent effect on Black voter registration. The baseline results also hold under a series of additional robustness checks, such as showing that exposure to Black radio, with a predominantly Black audience, had little effect on white voter registration. Together, the evidence suggests that the effects of Black radio on Black voter registration can be interpreted as causal.

Moreover, I find consistent evidence using an alternative measure of Black political activism, namely the presence of a local chapter of the NAACP. Specifically, I find that a one standard deviation increase in exposure to Black radio increased the probability of having an NAACP chapter in 1964 by about 13 percentage points (relative to a mean of 32.5 percentage points). As a placebo test, I show that Black radio had no effect on the presence of NAACP in 1942 or earlier years, prior to the rise of Black radio in the post-WWII period.

Having shown that Black radio increased Black political participation and activism, I

turn to explore the potential mechanisms. Using individual survey data on African Americans in the early 1960s, I provide suggestive evidence that Black people living in counties more exposed to Black radio displayed greater knowledge of and support for civil rights groups such as the NAACP. Besides, I find some evidence that African Americans with greater exposure to Black radio watched less television but did not change their consumption of newspapers; the substitution away from television could also have boosted political participation, consistent with the negative effects of television on electoral participation during this period (Gentzkow, 2006). Moreover, I find that higher exposure to Black radio was also associated with a lower tendency for Black people to engage in racial stereotyping, which has been shown to negatively affect Black political participation (Craemer and Orey, 2017). The finding is consistent with a role-model effect of Black radio, which portrayed African Americans on the air, such as DJs and activists, in a positive way. The positive image of African Americans on Black radio was in stark contrast with the mainstream Southern media during this period, which frequently distorted the image of Black people (Barlow, 1999; Torres, 2003; Acham, 2005; Boroghkozy, 2012).

Having explored potential mechanisms, I investigate whether Black radio brought actual political power and economic gains to African Americans. In the spirit of Strömberg (2004) and Cascio and Washington (2014), I examine Black radio's impacts on the distribution of state aid and find that counties with higher exposure to Black radio and higher proportions of Black residents saw greater state-to-county transfers in 1962. Moreover, I find that Southern congressmen from districts more exposed to Black radio were also more likely to support civil rights legislation after African Americans gained suffrage, suggesting that Black radio contributed to Black political power. Overall, the results suggest that Black radio not only increased Black political activism and participation but also led to substantive political and economic gains for African Americans during the civil rights era.

This paper is closely related to the literature on media and politics (for surveys of this literature, see DellaVigna and Gentzkow (2010); Prat and Strömberg (2013); Enikolopov

and Petrova (2015); Zhuravskaya et al. (Forthcoming)). Previous studies have examined the effects of media on voting behaviors, with evidence from newspapers (Gentzkow et al., 2011), radio (Strömberg, 2004), television (Gentzkow, 2006; DellaVigna and Kaplan, 2007; Durante et al., 2019), and the Internet (Falck et al., 2014; Campante et al., 2018). Few, however, have studied media targeting ethnic minorities.[2] This paper provides new insights on the political impacts of media targeting ethnic minorities, focusing on African Americans during the civil rights era. In addition, while previous studies find that media can be exploited to generate animosity and violence against ethnic minority groups (Yanagizawa-Drott, 2014; Adena et al., 2015; Bursztyn et al., 2019; Müller and Schwarz, 2019; Wang, 2020), to my knowledge this paper is the first to document empirically that media can also *empower* ethnic minorities both politically and economically, especially in their struggle for greater equality and justice.

This paper also adds to previous research on how disruptive information technologies can unleash resistance to oppressive regimes. Existing evidence mostly comes from developing countries or authoritarian settings, such as Russia (Enikolopov and Petrova, Forthcoming), China (Chen and Yang, 2019), Malaysia (Miner, 2015), Nazi-fascist occupied Italy (Gagliarducci et al., Forthcoming), Egypt (Acemoglu et al., 2018), across Africa (Manacorda and Tesei, 2020), and Venezuela (Knight and Tribin, 2020).[3] My paper complements the existing studies by focusing on a different setting, the Jim Crow South, where the oppressed minority group was subjected to the tyranny of the majority in a section of a developed democracy.

Lastly, this paper also contributes to the literature on race and politics in American history (Kuziemko and Washington, 2018; Cascio and Washington, 2014; Jones et al., 2017; Aneja and Avenancio-Leon, 2019; Feigenbaum et al., 2020; Fouka et al., 2020) as well as

[2] An exception is Oberholzer-Gee and Waldfogel (2009), who find that local Spanish-language TV news boosted Hispanic voter turnout in the U.S. during the period 1994-2002.

[3] There is also evidence at the global level on the effects of mobile phones (Christensen and Garfias, 2018) and Facebook (Fergusson and Molina, 2019) on protests across countries. Anecdotal evidence also suggests that authoritarian regimes fear the potential of disruptive communication technologies such as social media. For instance, the Chinese government banned Instangram, the last major uncensored social media platform available inside China, when the Umbrella Revolution broke out in Hong Kong in 2014 (Bursztyn et al., 2020).

the economic history of the civil rights movement (Wright, 2013). The paper is distinct in its focus on the mobilization and empowerment of racial minorities through media, and in particular, Black radio, an important and yet little studied institution during the civil rights era. The findings of this paper underscore the benefits and importance to racial minorities of having media that serve their interests.

2 Historical Background

For the most part of the first half of the 20th century, broadcast media in the United States primarily targeted a white audience and made little effort to appeal to Black Americans. The lack of interest in the Black audience, however, started to change in the late-1940s. With the rise of television in the post-WWII period, a large number of advertisers left the radio to advertise with television, leading many radio station owners to start to appeal to the Black population, a group with rising income, to generate new sources of advertising revenue (Ward, 2004). As a result, starting in the late-1940s, Black-oriented radio flourished as a new format that appealed specifically to a Black audience through a combination of Black DJs, music, religion, news, and other programs of specific interest to African Americans (Barlow, 1999; Walsh, 2001; Ward, 2004). With few exceptions, Black radio during this era were virtually all White-owned (Walsh, 2001; Ward, 2004). By 1960, radio ownership was almost universal among African Americans and there were at least 65 completely Black-oriented radio stations across the U.S., with most broadcasting in the South.

As Black radio stations were broadcasting across large swaths of the South, the civil rights movement was also gaining momentum. In the face of entrenched racial discrimination and segregation in the Jim Crow South, Black Americans struggled for greater equality and justice through collective political actions, such as mass protests, voter registration drives, and legislative lobbying. By the mid-1960s, with the passage of the Civil Rights Act in 1964 and the Voting Rights Act in 1965, the civil rights movement has achieved

the most important breakthrough in equal-rights legislation for African Americans since the Reconstruction period (Wright, 2020).

Black radio was a unique and important institution in the Black community during the civil rights era. For instance, Martin Luther King Jr. once remarked that African Americans "are almost totally dependent on radio as their means of relating to the society at large. They do not read newspapers, though they may occasionally thumb through *Jet*." While many Southern Black people also owned television during this era, television programs in South either ignored them or presented a distorted image of African Americans (Torres, 2003; Acham, 2005; Boroghkozy, 2012). In comparison with Black radio, Black newspapers and magazines during the period also had much limited reach because of relatively low circulations and were also published less frequently.[4] It is therefore not surprising that Black radio enjoyed widespread popularity among African Americans during the civil rights era, with a 1968 study on Black residents in Pittsburgh finding that the average household listened to radio for 5.5 hours a day (Walsh, 2001).

Based on *Sponsor* magazine, Black radio stations in 1960 broadcast an average of 16 hours per day. In terms of program type and the average proportion of time being allocated, Black radio programs mainly consisted of DJ program (54.8%), religion (23.4%), public service (8.4%), news (6%), homemaking (2.7%), and other music (2.1%). The fact that Black DJs on average took up more than half of the air time on Black radio should not be taken as trivial. Black DJs were much venerated by and exercised considerable influence over Black communities during the civil rights era. For instance, they held interviews with civil rights activists on their programs. In particular, Martin Luther King Jr. was known to have cultivated connections with a wide network of Black DJs across the nation, so that whenever he traveled to a new city he could get on the local Black radio station easily to make his speeches (Barlow, 1999).

Besides directly providing air time to civil rights activists and groups, Black radio

[4]Black newspapers during this era were typically published weekly and Black magazines monthly.

stations also helped disseminate important information pertaining to the movement, such as voter registration campaigns. Figure A.1 presents a clipping of a 1960 article from *The Chicago Defender*, which shows that Black radio stations were part of the national Black voter registration campaign, "Non-Partisan Crusade to Register One Million New Negro Voters," in 1960. In short, while Black radio stations rarely stirred up protests or led the fight against racial injustice and discrimination, by disseminating news on the movement and supplying air time to civil rights activists, Black radio frequently supported those who did (Walsh, 2001).

3 Data

My baseline empirical work relates exposure to Black radio to measures of Black political participation during the civil rights movement. In particular, I focus on Black radio's impacts on Black voter registration in 1960, the year in which I have good measures of both Black radio exposure and Black voter registration rates. For my empirical work, I have assembled a unique data set that is particularly suited to measure the political impacts of Black radio. In this section, I describe the data employed in the empirical analysis, including data used to measure exposure to Black radio, Black political participation, as well as other political, socioeconomic, and geographic characteristics from a variety of sources.

3.1 Exposure to Black Radio

A challenge to study the impacts of Black radio is the scarcity of data on exposure to Black radio. To overcome the challenge, I have collected and digitized novel data from primary sources on Black radio stations that were broadcasting during the civil rights era. Data on Black radio stations are collected from *Sponsor*, which was a major trade journal for radio and television advertisers and broadcasters in the mid-20$^{\text{th}}$ century America.[5] In the special

[5] *Sponsor* magazine was accessed from `worldradiohistory.com`

"Negro Radio Issue" published on September 26, 1960, *Sponsor* provides information on all radio stations across the U.S. that were reported to broadcast some Black-oriented programs in 1960, a total of 187 stations. For my empirical work, I restrict the stations to those with at least 50 percent of their programming devoted to Black-oriented programs, which narrows the list of stations down to a total of 79 stations, with most of the stations (55 out of 79) located in the former confederate South.[6] Importantly, for each station *Sponsor* also provides detailed information on its location and technical characteristics (e.g. transmitter frequency and power), which I need to calculate the signal strength of Black radio stations across counties in 1960.

Radio signal transmission obeys the laws of electromagnetic propagation. In the free space (i.e. assuming the earth is smooth and without any geographic or topographic obstacles), signal strength is inversely proportional to the square of the distance from the transmitter (Olken, 2009). In actual transmission, however, the presence of geographic or topographic obstacles, such as mountains or hills, would lead to diffraction and greater transmission loss in signal. I calculate the signal transmission loss with a professional radio propagation software based on the Irregular Terrain Model (ITM). The ITM was developed by the U.S. government in the 1960s and typically used by radio and TV engineers to predict signal strength of broadcasts.[7]

Following Olken (2009), I calculate the transmission loss for each transmitter-county pair using the ITM algorithm.[8] I then deduct the transmission loss from the power of the transmitter to get the predicted signal strength, where signal strength is measured in decibel-milliwatts (dBm). Finally, following Olken (2009), I use the maximum predicted signal strength in each county across all transmitters as the predicted signal strength in that county.

[6]On average, the share of air time devoted to Black-oriented programs at these 79 stations was approximately 95%.

[7]Benjamin Olken has kindly shared the software with me. The ITM software has also been used to calculate radio signal strength in historical settings by Adena et al. (2015) in the context of Nazi Germany and by Gagliarducci et al. (Forthcoming) in the context of Italy during WWII.

[8]I use the centroid of each county as the receiving location.

Figure 1 shows the predicted signal strength of Black radio across counties in the former confederate South, where stronger signals are shown with darker colors. Previous studies (Adena et al., 2015; Olken, 2009) have found that signal strength is a strong predictor for actual listenership or viewership of mass media. Because data on Black radio listenership are not available systematically across counties during the civil rights era, following Durante et al. (2019) and Enikolopov et al. (2011), I use the continuous measure of signal strength as the explanatory variable and estimate the "intent-to-treat" effect of potential exposure to Black radio.[9] Nonetheless, using individual survey data from 18 counties across the South in the early 1960s, I provide suggestive evidence that Black radio signal strength predicted African Americans' radio listening. Specifically, I obtain data from the Negro Political Political Study of 1961-1962 (Matthews and Prothro, 2006), which allow me to identify individuals by county and observe their radio listening habits. As shown in Table A.1, I find that African Americans living in counties with stronger Black radio signal strengths were more likely to listen to radio, which supports the use of Black radio signal strength as my explanatory variable.

Moreover, I use the ITM to also generate the hypothetical signal strength in the free space, assuming the earth is free of any geographic or topographic obstacles that may hinder signal transmission. This is important to my identification strategy which exploits the varying topography along the signal transmission route to provide plausibly exogenous variation in signal strength, a point I will return to in Section 4.

3.2 Black Political Participation and Activism

The main outcome of interest of my baseline analysis is Black voter registration rate. Data on voter registration by race at the county level in 1960 come from Matthews and Prothro (1966).[10] The data covers counties across the 11 former confederate states. Figure 2 shows

[9]While I use the continuous measure of signal strength in most of my analysis, in a robustness check I use an indicator variable that equals 1 if a county's signal strengthis above median and 0 otherwise.

[10]Professor James Alt has kindly shared the data with me.

Black voter registration rates (measured in percentage points) across counties in 1960, where darker colors represents higher registration rates.

Besides voter registration rate, I also use the presence of a local chapter of the NAACP to measure Black political activism. Data on NAACP chapters are obtained from the Mapping American Social Movements project, which provides me with the precise location (geographic coordinates) of each chapter in multiple years over several decades leading up to 1964. The 1942 NAACP data are particularly comprehensive and provide the size of the membership for all NAACP local chapters.[11]

3.3 County Characteristics

County characteristics are obtained from several sources. From the ICPSR 2896 data set (Haines, 2010), I obtain a rich set of 1950 county variables, including median income, population, and population by race, gender, literacy, education, industry, urban status, employment status, house ownership, and church membership. In addition, from the 1940 Census I construct measures of Black characteristics at the county level, including Black educational levels, wage income, homeownership, and farm status. Besides, I use the 1936 Census of Religious Bodies to measure Black church membership. To measure past racial attitudes, I use the presidential vote share for the Dixiecrat candidate Strom Thurmond in 1948 from Clubb et al. (2006) as well as data on lynching during the period 1882-1930 from Project HAL.[12] Moreover, I use ArcGIS to generate county geographic characteristics, including elevation, terrain ruggedness, and distance to the nearest city with more than 50,000 people.[13]

3.4 Other Data

For my analysis in later sections of the paper, I have also obtained data from several additional sources. To explore potential mechanisms, I use individual survey data from the Negro

[11]The NAACP data are accessed from `https://depts.washington.edu/moves/NAACP_intro.shtml`
[12]The lynching data are accessed from `http://people.uncw.edu/hinese/HAL/HAL%20Web%20Page.htm`
[13]I measure elevation and ruggedness at county centroids, consistent with what I did for signal strength.

Political Participation Study of 1961-1962 (Matthews and Prothro, 2006). The data cover more than 600 Black adults from 18 counties across the former confederate South and provide very detailed measures of individual characteristics, attitudes, and behaviors (such as media consumption habits). The data contain county identifiers, which allow me to measure individual exposure to Black radio at the county level.

To investigate Black radio's impacts on the distribution of state aid, I follow Cascio and Washington (2014) and measure state-to-county transfers using the Census of Governments. In particular, I focus on the transfers as reported in the 1962 Census of Governments data. Moreover, to evaluate Black radio's impacts on legislative voting in Congress, I use the second dimension of the DW-NOMINATE score, which allows me to measure the conservativeness of Southern congressman's votes on civil rights bills (Aneja and Avenancio-Leon, 2019).

4 Empirical Strategy

The objective of my baseline empirical work is to study the impact of exposure to Black radio on Black voter registration in the 1960 general election. Notably, Black radio stations in the South during this period were almost all owned by White businessmen whose main motive was profits and not politics (Walsh, 2001). It is therefore unlikely that the station location was intentionally driven by Black political activism.

Nonetheless, reception of Black radio might have been correlated with other local characteristics (e.g. distance to major cities) that could have influenced Black political activism and participation. To address this concern, I employ an empirical strategy pioneered by Olken (2009) and exploit plausibly exogenous variation in Black radio signal strength resulting from topographic factors.[14] Specifically, I regress the outcomes of interest on the actual signal strength ($Signal$), while controlling for the hypothetical signal strength in the free space ($SignalFree$) where the earth is assumed to be free of any topographic obstacles,

[14] A similar strategy has also been used by Durante et al. (2019), DellaVigna et al. (2014), and Yanagizawa-Drott (2014).

such as mountains or hills, that diffract and weaken radio signal transmission. Crucially, the variable $SignalFree$ controls for a county's proximity to a transmitter as well as the power of the transmitter. Therefore, once controlling for $SignalFree$, identification of the coefficient of $Signal$ comes from variation in diffraction patterns caused by topographic obstacles along the signal transmission route.

Because a county's own topography (such as terrain ruggedness) could also potentially affect local political participation, I control for the mean elevation and ruggedness of the county. Therefore, I only exploit residual variation in signal strength resulting from the topography along the signal transmission route *outside* the county, which is arguably more exogenous.[15] Furthermore, I restrict the analysis to variation within State Economic Areas (SEA). First used in the 1950 census, State Economic Areas are typically groups of contiguous counties within the same state that had similar economic characteristics (Bogue, 1951). Therefore, I will compare counties in relatively small substate geographical areas characterized by similar economic and political conditions.

I run the following regression for my baseline analysis:

$$Y_c = \beta Signal_c + \gamma SignalFree_c + \delta' X_c + \eta_s + \epsilon_c \tag{1}$$

where Y_c is the share (in percentage points) of Black voting-age population registered to vote in the 1960 election in county c. $Signal_c$ is the actual signal strength of Black radio received in county c in 1960. $SignalFree_c$ is the hypothetical signal strength in the free space. X_c is a vector of county baseline controls for local geographic characteristics, socioeconomic characteristics, and proxies for past racial attitudes (i.e. the vote share for the Dixiecrat candidate Strom Thurmond in the 1948 presidential election and historical lynching measures) and Black political activism (measured by the presence of a local chapter of the NAACP in 1942 and its membership). η_s are State Economic Area fixed effects, controlling for any

[15]The exceptions are the counties that contained Black radio stations. I will provide robustness checks by dropping these counties as well as the areas surrounding them.

differences across State Economic Areas that might influence voting. ϵ_c is the error term. Standard errors are corrected for clustering at the radio station level in the baseline, but in robustness checks I also use Conley (1999)'s approach with different distance cutoffs to address concerns about spatial correlation in error terms. To ease the interpretation of the results, I standardize signal strength such that it has a mean of zero and a standard deviation of one.

The coefficient β provides the reduced-form estimate of the effect of exposure to Black radio. The identification assumption is that *Signal* is not correlated with unobserved factors that influence Black voter registration, conditional on all the covariates in equation (1). While the assumption is ultimately untestable, I support the conditional exogeneity assumption through balance and placebo tests by examining the correlation of *Signal* with pre-existing county socioeconomic characteristics, racial attitudes, and Black political activism.

In Table 1, I examine the correlation between Black radio signal strength in 1960 and pre-existing county socioeconomic characteristics in a balance test. Specifically, in column 1, I regress Black radio signal strength on the set of county characteristics, while controlling for SEA fixed effects and local geography (elevation and ruggedness). The estimates in column 1 suggest that, conditional on the controls, *Signal* is still significantly correlated with several pre-existing county characteristics, including urbanization, gender, median family income, and distance to the nearest city with more than 50,000 people. This is not surprising given that Black radio stations were mostly located in the largest cities. After I further control for the free-space signal strength in column 2, however, *Signal* is no longer significantly correlated with any of the more than 20 pre-existing socioeconomic characteristics. The estimates from column 2 support the view that the residual variation in signal strength resulting from topographic factors is largely idiosyncratic. Nonetheless, to be conservative, I will include all the socioeconomic characteristics in Table 1 as controls in my subsequent analysis.

In Table 2, I perform a series of placebo tests by examining the correlation between *Signal* and past county racial attitudes and Black political activism measured before the rise of Black radio. Specifically, I measure past racial attitudes using the vote share for Strom Thurmond in the 1948 presidential election (column 1) and historical lynching measures (whether the county had any lynching during the period 1882-1930 in column 2 and the number of lynchings in column 3). I proxy for pre-existing Black political activism using the presence of a local chapter of the NAACP in 1942 (column 4) and the natural logarithm of NAACP membership per 10,000 Black population (column 5). Conditional on the full set of controls in Table 1, *Signal* does not have a statistically significant correlation with any of the measures of past racial attitudes or Black political activism. The results from the placebo tests, together with the balance test in Table 1, provide support to the conditional exogeneity assumption of equation (1).

5 Results

In this section, I present the results on the impact of exposure to Black radio on Black political participation. I focus on Black voter registration in 1960, the year in which I have good measures of both Black radio exposure and Black voter registration rates, but I also explore other outcomes of Black political activism and participation. In addition, I discuss potential mechanisms and examine whether Black radio led to changes in political power and economic gains for African Americans.

5.1 Baseline Results on Black Voter Registration

Table 3 shows the estimated effects of exposure to Black radio on voter registration in 1960. I find that exposure to Black radio had a large positive effect on Black voter registration. Based on column 1, controlling for only State Economic Area (SEA) fixed effects, a one standard deviation increase in exposure to Black radio program was associated with an

increase in Black voter registration by about 3 percentage points. The estimates are robust and generally stable when including additional controls in subsequent columns, including the free-space signal strength (column 2), county geographic and socioeconomic characteristics (columns 3 and 4), and controls for past racial attitudes and Black activism (columns 5 and 6). Because Black voter registration rates may suffer from greater measurement errors in counties with fewer African Americans, in column 7 I weight the regression by county Black population to improve the precision of my estimates. The estimated coefficient after weighting becomes slightly smaller but is still statistically significant at the 1 percent level. Based on column 7, which is my preferred specification that includes all baseline controls and is weighted by Black population, a one standard deviation increase in exposure to Black radio increased Black voter registration by about 4 percentage points, which is about 14 percent relative to the mean of Black registration rates.

As a falsification test, I turn to examine the effects of Black radio on White voter registration. Because the audience of Black radio were predominantly African Americans and the White population did not listen to Black stations on a systematic or large scale (Walsh, 2001), Black radio should have limited effect on the registration of white voters. Indeed, as shown in columns 8 and 9 of Table 3, the estimated effects of Black radio exposure on white voter registration, with or without using white population as weights, are small and statistically indistinguishable from zero. The results support the view that Black radio had a unique effect on Black Americans and that counties more exposed to Black radio did not differ systematically in political activism overall.

A potential concern remains that the baseline results may simply reflect exposure to radio programs or to mass media in general, instead of exposure to Black radio per se. To address this concern, I collect data on ABC, CBS, and NBC network radio stations, which did not have a Black-oriented format, and run a falsification test. Specifically, I use the same method to predict the signal strengths from the non-Black national network radio stations (more than 200 stations in total) and then include the non-Black radio signal strengths

(including free-space signals) in my baseline regression to perform a statistical horse race. The results are reported in Table 4, which for the purpose of comparison shows again in the first column the baseline estimate. As seen in column 2 of Table 4, the estimated effect of exposure to (non-Black) national network radio stations is negative, much smaller in magnitude, and statistically insignificant, while the estimate for exposure to Black radio stations remains strong and similar as in the baseline. Therefore, the result from column 2 suggests that it was Black radio, instead of exposure to radio programs in general, that increased Black voter registration.

I conduct analogous exercises in columns 3 and 4 of Table 4 to compare the effect of Black radio with those of television and Black newspapers. Specifically, I collect data on the national network television stations (about 140 stations in total) that were operating in the South during the same period and predict TV signal strengths across the South. During this period, national network TV programs had a predominantly White-centered format, and any programs featuring African Americans or race issues were frequently censored by Southern station owners (Torres, 2003; Acham, 2005; Boroghkozy, 2012). Therefore, I would not expect TV to have a substantial positive effect on Black political participation. Indeed, column 3 of Table 4 shows that TV exposure had a relatively small, negative, and statistically insignificant effect on Black registration, while the estimate for Black radio remains virtually unchanged.

Similarly, in column 4 I include the natural logarithm of distance to the nearest Black newspaper as a measure of access to Black newspapers. Not surprisingly, greater access to Black newspapers (i.e. a decrease in distance) is significantly correlated with higher Black voter registration, while the estimated effect of Black radio still holds. Finally, in the last column, I control for exposure to all three competing media and the estimated effect of Black radio remains similar and robust. Together, the series of falsification tests suggest that Black radio had a unique and independent effect on Black voter registration.

5.2 Other Robustness Checks

I perform several additional robustness checks on my baseline results and report them in Table A.2. In column 1, I drop counties within 50 miles from any Black radio stations in 1960 to verify that big cities and their surrounding regions do not drive the results. Counties further away from Black radio stations in general had smaller Black populations and therefore were more likely exposed to Black radio "by chance."

As a further robustness check to address any remaining concern of potentially omitted variables (although this is unlikely given the balance and placebo tests performed in the Empirical Strategy section), I redo the baseline exercise only for counties in Mississippi. I would expect the effects, if any, to be limited in Mississippi, because Mississippi during the period had arguably the most stringent policies against Black voter registration.[16] If the baseline finding was driven by the correlation between Black radio exposure and some unobserved variables that also affected Black voter registration, I would expect to find a similar effect of Black radio in Mississippi as well. As seen in column 2 of Table A.2, I find that Black radio had little effect on Black voter registration in Mississippi, suggesting that the baseline findings are unlikely driven by omitted variables.

Besides, in column 3 of Table A.2, I control for the free-space signal more flexibly, including the square and the cube of the the free-space signal in the baseline regression as additional controls. The baseline results remain robust. Moreover, in column 4 of the table, I verify that the results are not driven by particular parametric assumptions by using a binary measure of signal that equals 1 if the signal strength was above the median and 0 otherwise. The result based on the binary measure is marginally significant (p-value=0.11) and qualitatively similar.

In addition, in Table A.3 I test the robustness of clustering the standard errors at alternative levels. While in the baseline I cluster the standard errors at the Black radio

[16]Indeed, Mississippi was the state with the lowest Black voter registration (about 3 percent) in 1960, as compared to an average of 28 percent across the South.

station level, I show in the first two columns of Table A.3 that the baseline result is also robust to clustering at the state or the State Economic Area levels. Moreover, in columns 3-8 of the table, I apply Conley (1999)'s approach with different distance cutoffs to further address concerns about spatial correlation in error terms, and the result remains robust.[17] Together, the series of robustness checks in this section further increase my confidence in the baseline results.

5.3 Evidence from NAACP Chapters

Having shown that Black radio increased Black voter registration, I now turn to examine an alternative measure of Black political activism, namely the presence of a local chapter of the NAACP in a county.

In Panel A of Table 5, I examine whether exposure to Black radio affected the likelihood of having a local chapter of the NAACP in 1964. The outcome is an indicator variable that equals 1 if the county had an NAACP chapter in 1964 and 0 otherwise. Column 1 of the panel suggests that a one standard deviation increase in exposure to Black radio increased the probability of having a local chapter of the NAACP by about 13 percentage points (relative to a mean of 32.6 percentage points). The estimated effect remains robust in column 2 after controlling for the presence and membership of the NAACP in 1942, suggesting that Black radio increased the number of the NAACP chapters between 1942 and 1964. As a comparison and a placebo test, I again show that, conditional on all other baseline controls (except the 1942 NAACP controls), exposure to Black radio was not correlated with having a local chapter of the NAACP in 1942, prior to the rise of Black radio in the late 1940s.

As a further check, I plot the estimated effects on the presence of NAACP chapters over time in Figure 3, which also includes data on NAACP chapters from earlier years. As seen in the figure, the estimated effects of Black radio were small in magnitude and statistically indistinguishable from zero in the pre-WWII period. The findings suggest that Black radio

[17] To implement the exercise, I use the Stata package acreg.

exposure was not correlated with Black political activism in either level or trend before the rise of Black radio.

Overall, together with the baseline results, the results so far provide consistent evidence that Black radio increased Black political activism and participation during the early 1960s. Next, I turn to potential mechanisms through which Black radio might have mattered.

5.4 Potential Mechanisms

A natural question is how exposure to Black radio affected Black political participation. In this section, I exploit individual survey data from the Negro Political Participation Study (Matthews and Prothro, 2006) to explore potential mechanisms that may explain the effects of Black radio on Black political participation. Specifically, the survey data contain county identifier for each respondent, which allows me to measure individual exposure to Black radio and relate Black radio exposure to a rich set of attitudes and behaviors of African Americans in the early 1960s. A caveat, however, is that the survey only contains individual data from 18 counties in the South, although all 11 states in the former confederate South are included. I therefore would treat the findings in this section more cautiously and interpret them mostly as suggestive evidence.

One potential channel that may explain the political effects of Black radio is that, by speaking on the radio, civil rights groups and activists might have gained greater exposure and been able to garner greater support from the Black population. To test this hypothesis, I exploit information on African Americans' attitudes towards the NAACP, namely one's familiarity with and approval of the NAACP, which I use as the outcome variables. I present the findings in the first two columns of Table 6. I find that, conditional on state fixed effects, the free-space signal, individual characteristics (gender, age and its square, and education level) and county characteristics (population, share of Black population, and average wage of Black people), African Americans living in counties more exposed to Black radio were more familiar with the NAACP (column 1) and more likely to agree with its actions (column

2). The results are consistent with the view that Black radio provided greater exposure and support for civil rights groups and activists, which likely made African Americans more responsive to the political mobilization of civil rights groups.

In addition, listening to Black radio could lead African Americans to substitute away from consuming other media. Previous work find that the entry of television in the 1950s coincided with sharp drops in consumption of newspapers and radio, and consequently reduced voter turnout (Gentzkow, 2006). To test the effects of Black radio on the consumption of other media, I use data on African Americans' media consumption behaviors in the survey and focus on individual consumption of television and Black newspapers. As seen in columns 3 and 4 of Table 6, I find that African Americans in counties more exposed to Black radio were substantially less likely to watch television, while Black radio did not affect individual consumption of Black newspapers in a statistically significant way. The results suggest that Black radio led African Americans to substitute away from watching television; the substitution away from television to Black radio likely increased African Americans' exposure to information and political messages on the civil rights movement, which then translated into greater political activism and participation.

Moreover, an intriguing question is how might exposure to Black radio affect African Americans' perception of themselves and others. In the Jim Crow South, Black radio was the only broadcast media that featured Black Americans in a positive light; television programs in the South either ignored Black people or presented them in a undignified image, with Southern TV station owners frequently censoring any positive coverage of Black Americans that came from national network television programs (Torres, 2003; Acham, 2005; Boroghkozy, 2012). Therefore, access to Black radio, and the simultaneous substitution away from television, could expose African Americans to a less biased or stereotyped view on race. Changes in one's view on racial stereotypes matters because lower racial stereotyping among African Americans has been found to be associated with higher political participation today (Craemer and Orey (2017)). To explore potential changes in racial stereotyping among Black

people, I use indices measuring one's tendency to engage in racial stereotyping as provided by the survey data, which I use as the outcome variables. The results are reported in the last two columns of of Table 6. As seen in column 5, I find that exposure to Black radio was associated with a lower tendency for African Americans to engage in racial stereotyping in general. Moreover, column 6 suggests that Black radio exposure was also associated with lower stereotyping of African Americans by African Americans themselves. By exposing African Americans to a less distorted and more dignified view of themselves, Black radio could have inspired African Americans to struggle for greater freedom and equality in the face of oppression.

5.5 Impacts on State Aid and Legislative Voting

The results so far suggest that exposure to Black radio increased Black political activism and participation, and potential mechanisms have also been explored. A remaining question is whether Black radio allowed African Americans to reap any substantive political or economic benefits. By keeping the Black community more informed, Black radio could have benefited Black people economically as government policies tend to be more favorable towards groups of citizens that are more informed (Strömberg, 2004). For instance, Strömberg (2004) show that U.S. counties with greater radio penetration during the 1930s received more New Deal relief funds. In addition, the greater electoral participation brought about by Black radio could also increase African Americans' bargaining power in politics. In this respect, Cascio and Washington (2014) have shown that enfranchisement of Southern Black people following the Voting Rights Act (VRA) was accompanied with a shift in state aid towards counties with higher proportions of Black population. In the spirit of Strömberg (2004) and Cascio and Washington (2014), I turn to examine Black radio's impacts on the distribution of state aid. Moreover, to further evaluate the political gains of Southern Black people, I explore Black radio's impacts on Southern congressman's votes on civil rights bills.

Panel A of Table 7 presents the results on Black radio's impacts on state aid. In the

first two columns, the outcome variables are the natural logarithm of per capita state-to-county transfers in 1962. Similar to Cascio and Washington (2014), I interact Black radio exposure with *Black*, which is an indicator variable for counties with a large share of Black population. Specifically, *Black* equals 1 if the county's Black population share in 1950 was above the 75^{th} percentile of the distribution and 0 otherwise. I use the interaction term as my main explanatory variable of interest. As shown in column 1 of the table, conditional on State Economic Area fixed effects and free-space signal strength, I find a positive and statistically significant interactive effect between Black radio exposure and the Black population share, suggesting that counties with higher exposure to Black radio and higher proportions of Black residents saw greater state aid. Column 2 shows that the estimated effect is robust to controlling for the full set of baseline county characteristics. Moreover, column 3 suggests that the result is also robust to measuring state aid in levels. The results from this exercise suggest that Black radio led to concrete economic benefits for African Americans in the form of greater state transfers.

Panel B of Table 7 shows the results on Southern congressman's votes on civil rights bills. The outcome is the second dimension of the DW-NOMINATE score, which measures the conservativeness of congressman's votes on civil rights bills during this era. The panel presents the results for the 89th Congress (1965-1967), which saw the passage of the Voting Rights Act (VRA) in 1965 that prohibited racial discrimination in voting. Each observation is a congressional district in the South. To measure exposure to Black radio in each congressional district, I use the highest Black radio signal strength predicted at the centroid of each district. I again focus on the interaction between Black radio exposure and *Black*, the indicator variable for a high share of Black population, because Black radio's effects on Southern congressman's support for civil rights likely depended on the share of Black voters in the congressman's constituency. As shown in column 1 of the panel, conditional on state fixed effects and free-space signal strength, I find a negative and statistically significant coefficient on the interaction term, which suggests that Southern congressmen voted less conservatively

on civil rights issues in districts with higher exposure to Black radio and higher proportions of African Americans. In column 2 of the panel, I further control for congressional district characteristics (log population, log population density, log median income, share of blue-collar employment, and whether the district contained a major city), and the result is robust.

Moreover, I explore dynamic effects of Black radio on Southern congressman's ideology in Figure **??** by plotting the estimated coefficients on the interaction term (Black Radio Signal $\times$ Black) in years before and after the passage of the VRA. It is evident from Figure **??** that, in the period before Southern Black people gained enfranchisement in 1965, Black radio exposure in districts with greater proportions of African Americans had no effect on Southern congressman's ideology concerning civil rights. Southern congressmen in these districts, however, started to vote less conservatively on civil rights bills immediately after Southern Black people gained enfranchisement in 1965. The results are consistent with the view that the greater political activism and participation brought about by Black radio translated into substantive political power for the Southern Black community after they gained the rights to vote. Together, evidence from this section suggests that Black radio not only increased Black political participation but also led to actual political and economic gains for African Americans during the civil rights movement.

6 Conclusion

While media and information technologies can influence important political outcomes, the possibility that they can empower minorities in the resistance to oppression and injustice remains largely unexplored. This paper assembles a unique data set to study the political impacts of Black radio during the civil rights movement. I find that exposure to Black radio increased Black political activism and participation, as measured by Black voter registration and the presence of a local chapter of the NAACP. I explore potential mechanisms and

find that Black radio increased African Americans' knowledge of and support for civil rights groups, decreased television consumption, and reduced racial stereotyping. Moreover, I provide evidence that Black radio also brought substantive political and economic gains to the Black community during the civil rights era.

My findings provide the first systematic evidence that media and information technologies can empower ethnic minority groups in the face of injustice and oppression. Although specific to the episode of Black radio during the civil rights movement, the results provide more general insights on the importance to minority groups of having media serving their interests.

References

Acemoglu, D., Hassan, T.A., Tahoun, A., 2018. The Power of the Street: Evidence from Egypt's Arab Spring. The Review of Financial Studies 31, 1–42.

Acham, C., 2005. Revolution Televised: Prime Time and the Struggle for Black Power. University of Minnesota Press. Minneapolis.

Adena, M., Enikolopov, R., Petrova, M., Santarosa, V., Zhuravskaya, E., 2015. Radio and the rise of the nazis in prewar germany. Quarterly Journal of Economics 130, 1885–1939.

Aneja, A.P., Avenancio-Leon, C.F., 2019. The Effect of Political Power on Labor Market Inequality: Evidence from the 1965 Voting Rights Act. Working Paper .

Barlow, W., 1999. Voice Over: The Making of Black Radio. Temple University Press. Philadelphia.

Bogue, D.J., 1951. State Economic Areas: A Description of the Procedure Used in Making a Functional Grouping of the Counties of the United States. U.S. Government Printing Office. Washington, D.C.

Boroghkozy, A., 2012. Equal Time: Television and the Civil Rights Movement. University of Illinois Press. Champaign.

Bursztyn, L., Cantoni, D., Yang, D.Y., Yuchtman, N., Zhang, Y.J., 2020. Persistent Political Engagement: Social Interactions and the Dynamics of Protest Movements. Working Paper. .

Bursztyn, L., Egorov, G., Enikolopov, R., Petrova, M., 2019. Social Media and Xenophobia: Evidence from Russia. NBER Working Paper No. 26567. .

Campante, F., Durante, R., Sobbrio, F., 2018. Politics 2.0: The Multifaceted Effect of Broadband Internet on Political Participation. Journal of the European Economic Association 16, 1094–1136.

Cascio, E.U., Washington, E., 2014. Valuing the Vote: The Redistribution of Voting Rights and State Funds following the Voting Rights Act of 1965. The Quarterly Journal of Economics 129, 379–433.

Chen, Y., Yang, D.Y., 2019. The Impact of Media Censorship: 1984 or Brave New World? American Economic Review 109, 2294–2332.

Christensen, D., Garfias, F., 2018. Can You Hear Me Now? How Communication Technology Affects Protest and Repression. Quarterly Journal of Political Science 13, 89–117.

Clubb, J.M., Flanigan, W.H., Zingale, N.H., 2006. Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840–1972 (ICPSR 8611). URL: `https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/8611`.

Conley, T.G., 1999. GMM Estimation with Cross Sectional Dependence. Journal of Econometrics 92, 1–45.

Craemer, T., Orey, D., 2017. Implicit Black Identification and Stereotype Threat Among African American Students. Social Science Research 65, 163–180.

DellaVigna, S., Enikolopov, R., Mironova, V., Petrova, M., Zhuravskaya, E., 2014. Cross-border effects of foreign media: Serbian radio and nationalism in croatia. American Economic Journal: Applied Economics 6, 103—132.

DellaVigna, S., Gentzkow, M., 2010. Persuasion: Empirical Evidence. Annual Review of Economics 2, 643–669.

DellaVigna, S., Kaplan, E., 2007. The fox news effect: Media bias and voting. Quarterly Journal of Economics 122, 1187–1234.

Durante, R., Pinotti, P., Tesei, A., 2019. The political legacy of entertainment tv. American Economic Review 109, 2497–2530.

Enikolopov, Ruben, A.M., Petrova, M., Forthcoming. Social Media and Protest Participation: Evidence from Russia. Econometrica .

Enikolopov, R., Petrova, M., 2015. Media Capture. Handbook of Media Economics 1, 687–700.

Enikolopov, R., Petrova, M., Zhuravskaya, E., 2011. Media and political persuasion: Evidence from russia. American Economic Review 111, 3253—3285.

Falck, O., Gold, R., Heblich, S., 2014. E-lections: Voting Behavior and the Internet. American Economic Review 104, 2238–65.

Feigenbaum, J.J., Mazumder, S., Smith, C.B., 2020. When Coercive Economies Fail: The Political Economy of the US South After the Boll Weevil. NBER Working Paper No. 27161 .

Fergusson, L., Molina, C., 2019. Facebook Causes Protests. Working Paper. Available at SSRN: https://ssrn.com/abstract=3553514 .

Fouka, V., Calderon, A., Tabellini, M., 2020. Racial Diversity, Electoral Preferences, and the Supply of Policy: The Great Migration and Civil Rights. Working Paper .

Gagliarducci, S., Onorato, M.G., Sobbrio, F., Tabellini, G., Forthcoming. War of the Waves: Radio and Resistance during World War II. American Economic Journal: Applied Economics .

Gentzkow, M., 2006. Television and Voter Turnout. The Quarterly Journal of Economics 121, 931–972.

Gentzkow, M., Shapiro, J.M., Sinkinson, M., 2011. The Effect of Newspaper Entry and Exit on Electoral Politics. American Economic Review 101, 2980–3018.

Haines, M., 2010. Historical, Demographic, Economic, and Social Data: The United States, 1790–2002 (ICPSR 2896). URL: https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/02896.

Jones, D.B., Troesken, W., Walsh, R., 2017. Political participation in a violent society: The impact of lynching on voter turnout in the post-Reconstruction South. Journal of Development Economics 129, 29–46.

Knight, B.G., Tribin, A., 2020. Opposition Media, State Censorship, and Political Accountability: Evidence from Chavez's Venezuela. NBER Working Paper No. w25916 .

Kuziemko, I., Washington, E., 2018. Why Did the Democrats Lose the South? Bringing New Data to an Old Debate. American Economic Review 108, 2830–67.

Manacorda, M., Tesei, A., 2020. Liberation Technology: Mobile Phones and Political Mobilization in Africa. Econometrica 88, 533–567.

Matthews, D.R., Prothro, J.W., 1966. Negroes and the New Southern Politics. Harcourt, Brace World. New York.

Matthews, D.R., Prothro, J.W., 2006. Negro Political Participation Study, 1961-1962 (ICPSR 7255). URL: https://doi.org/10.3886/ICPSR07255.v3.

Miner, L., 2015. The unintended consequences of internet diffusion: Evidence from Malaysia. Journal of Public Economics 132, 66–78.

Müller, K., Schwarz, C., 2019. From Hashtag to Hate Crime: Twitter and Anti-Minority Sentiment. Working Paper. URL: https://ssrn.com/abstract=3149103.

Oberholzer-Gee, F., Waldfogel, J., 2009. Media Markets and Localism: Does Local News en Español Boost Hispanic Voter Turnout? American Economic Review 99, 2120–28.

Olken, B., 2009. Do television and radio destroy social capital? evidence from indonesian villages. American Economic Journal: Applied Economics 1, 1–33.

Prat, A., Strömberg, D., 2013. The Political Economy of Mass Media, in: Acemoglu, D., Arellano, M., Dekel, E. (Eds.), Advances in Economics and Econometrics: Tenth World Congress. Cambridge University Press. Cambridge.

Strömberg, D., 2004. Radio's Impact on Public Spending. Quarterly Journal of Economics 119, 189–221.

Torres, S., 2003. Black, White, and in Color: Television and Black Civil Rights. Princeton University Press. Princeton.

Walsh, S., 2001. Black-Oriented Radio and the Civil Rights Movement, in: Ward, B. (Ed.), Media, Culture, and the Modern African American Freedom Struggle. University Press of Florida, Gainesville. chapter 3, pp. 67–81.

Wang, T., 2020. Media, Pulpit, and Populist Persuasion: Evidence from Father Coughlin. Working Paper. Available at SSRN: https://ssrn.com/abstract=3583114 .

Ward, B., 2004. Radio and the Struggle for Civil Rights in the South. University Press of Florida. Gainesville.

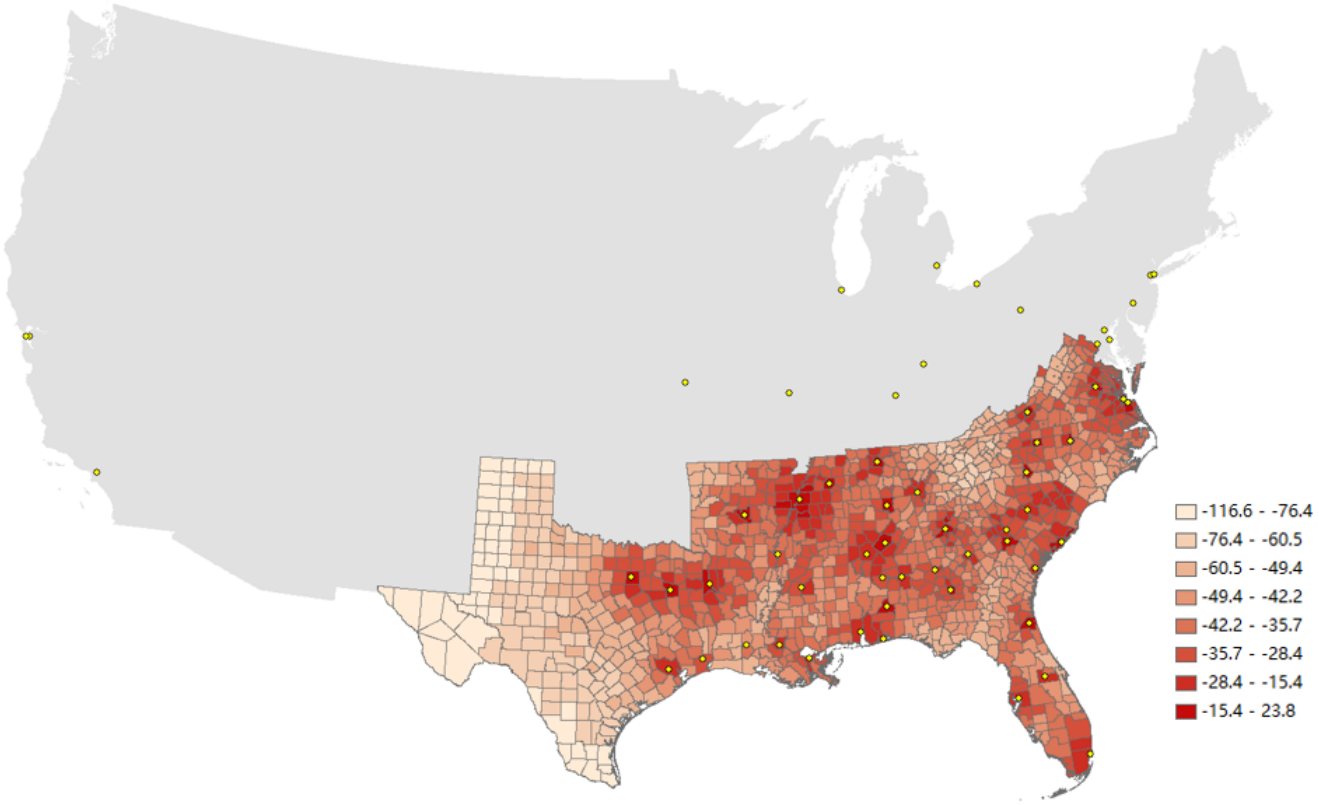
Wright, G., 2013. Sharing the Prize: The Economics of the Civil Rights Revolution in the American South. Harvard University Press. Cambridge.

Wright, G., 2020. voting Rights and Economics in the American South. Working Paper .

Yanagizawa-Drott, D., 2014. Propaganda and conflict: Theory and evidence from the rwandan genocide. Quarterly Journal of Economics 129, 1947—-1994.

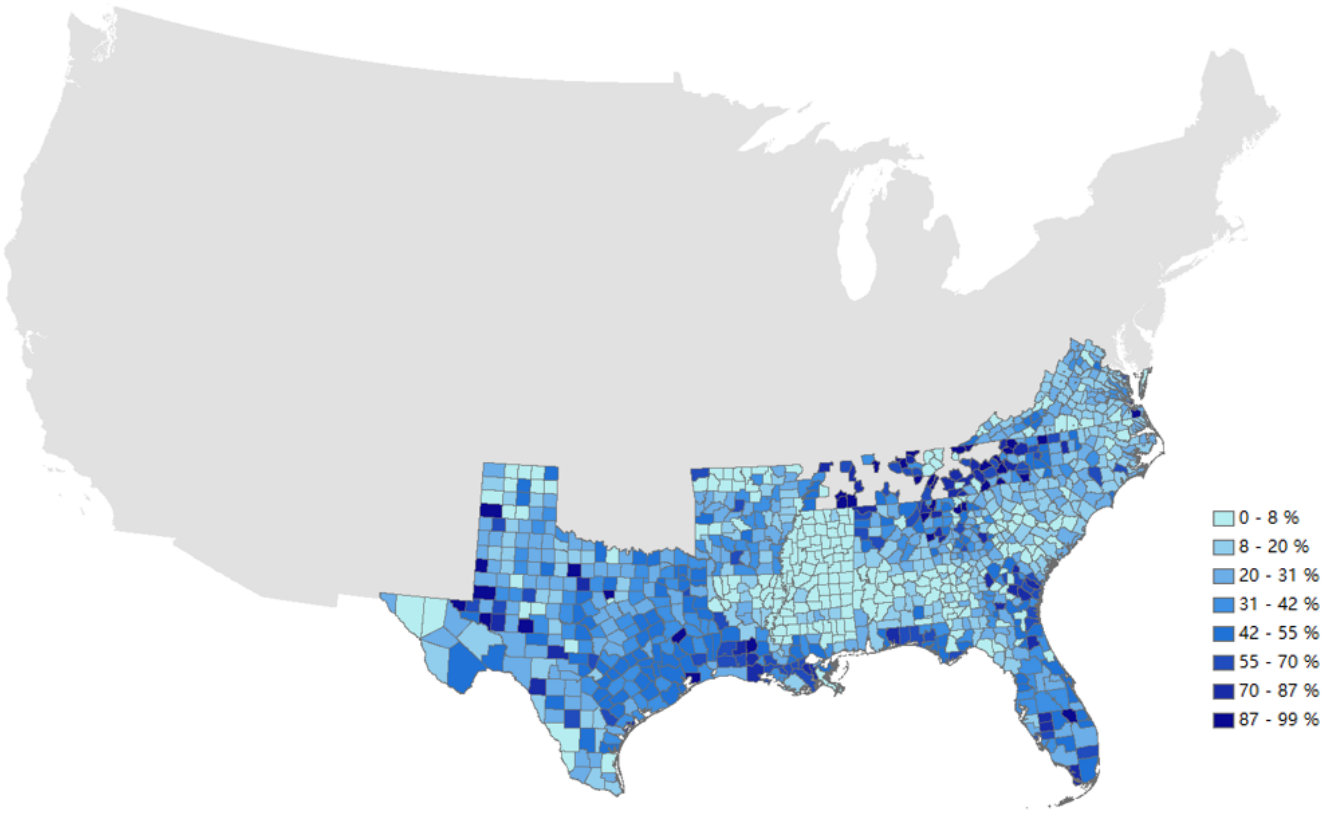
Zhuravskaya, E., Petrova, M., Enikolopov, R., Forthcoming. Political Effects of the Internet and Social Media. Annual Review of Economics doi:https://doi.org/10.1146/annurev-economics-081919-050239.

Figure 1: Location and Signal Strength of Black Radio Stations, 1960



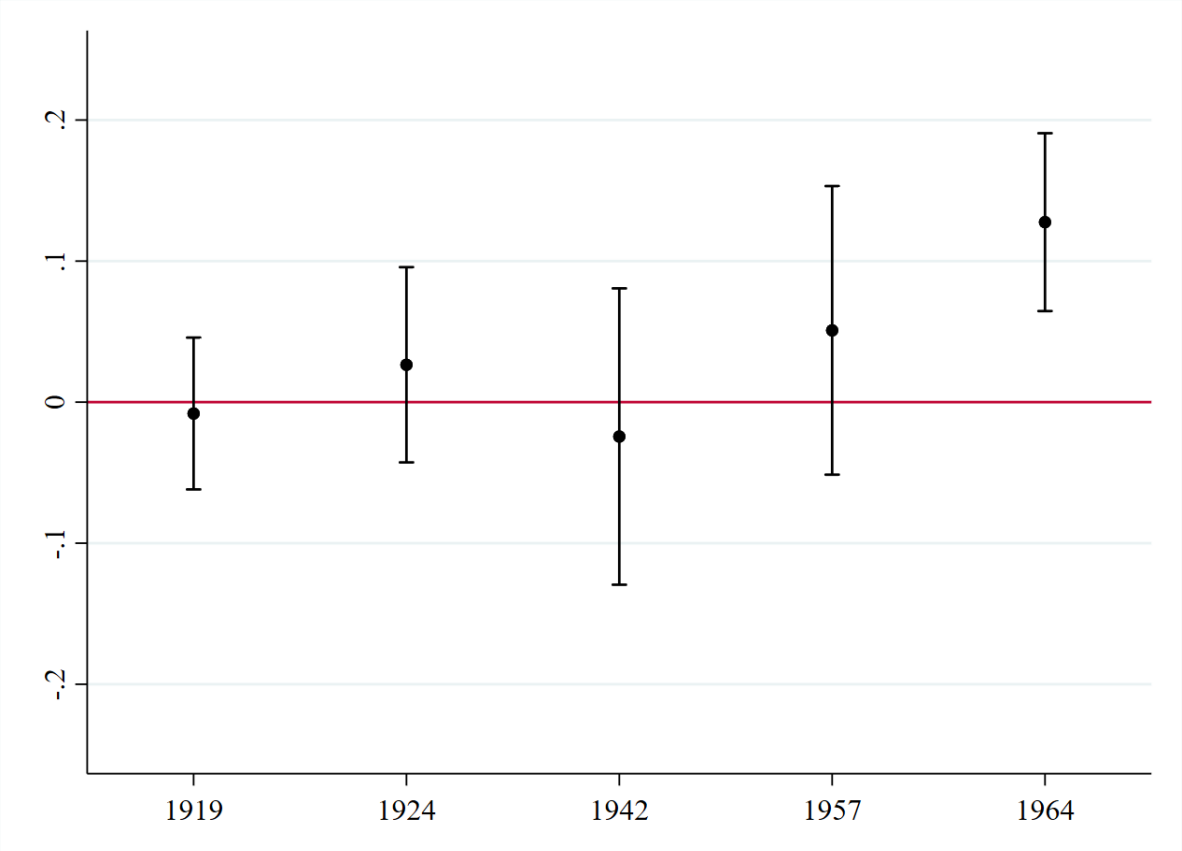
Notes - This figure shows the location and signal strength of Black radio in 1960. The dots are the location of Black radio stations, and darker colors represent stronger signals. Data on Black radio stations are drawn from the broadcasting trade journal *Sponsor* (1960). Signal strength is calculated using the Irregular Terrain Model (ITM) and measured in decibel-milliwatts (dBm).

Figure 2: Black Voter Registration Rate, 1960



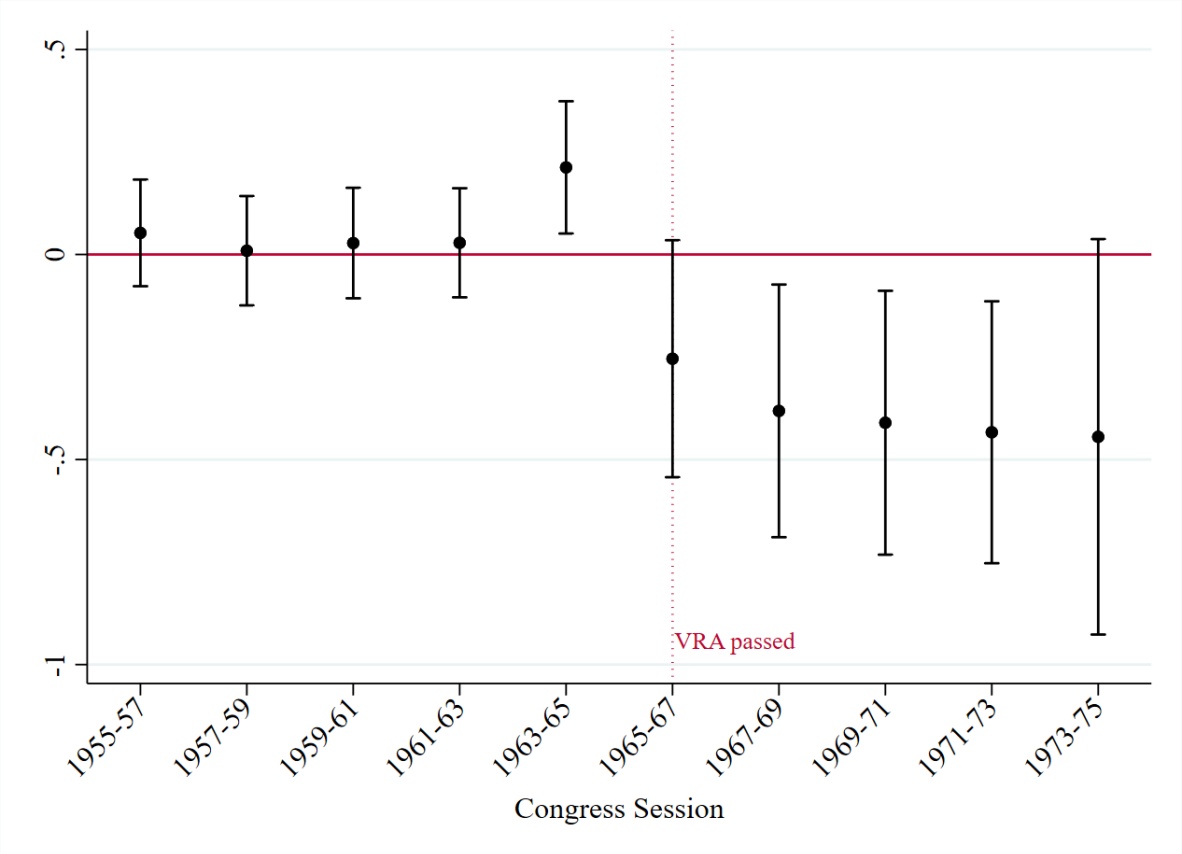
Notes - Data are drawn from Matthews and Prothro (1966).

Figure 3: Effects on Having a Local Chapter of the NAACP



Notes - This figure shows the estimated effects of exposure to Black radio on the presence of a local chapter of the NAACP. The estimates come from separate OLS regressions, where each observation is a county in the former confederate South and the outcome variable is an indicator variable that equals 1 if an NAACP chapter was present in the county in that year and 0 otherwise. The explanatory variable is the the Black radio signal strength in 1960. Each regression includes all the baseline controls as in column 7 of Table 3 and is weighted by county Black population. Standard errors are corrected for clustering at the Black radio station level. The dots are the estimated coefficients and the vertical lines represent the 90% confidence intervals.

Figure 4: Effects on Conservativeness of Southern Congressman's Votes on Civil Rights Bills



Notes - This figure shows the interactive effects between Black radio exposure and Black population share on the conservativeness of Southern congressman's votes on civil rights bills, before and after the passage of the Voting Rights Act. The estimates come from separate OLS regressions, where each observation is a congressional district and the outcome variable is the second dimension of the DW-NOMINATE score of the congressman in the district. The explanatory variable is the interaction between Black radio signal strength and an indicator variable that equals 1 if the Black population share was above the 75^{th} percentile of the distribution and 0 otherwise. Each regression includes controls for the free-space signal strength, state fixed effects, and district characteristics (natural log of population, natural log of population density, natural log of median income, share of blue-collar employment, and whether the district contained a major city). Standard errors are corrected for clustering at the Black radio station level. The dots are the estimated coefficients and the vertical lines represent the 90% confidence intervals. The dashed vertical line in 1965 indicates the year in which the Voting Rights Act was passed.

Table 1: Exposure to Black Radio and County Characteristics (Balance Test)

	Outcome: Black Radio Signal Strength, 1960	
	SEA Fixed Effects and Geographic Controls (1)	+ Free-space Signal Strength (2)
ln(Population), 1950	0.048	0.021
	(0.046)	(0.028)
% Blacks, 1950	0.031	-0.001
	(0.071)	(0.047)
% Blacks completed high school, 1940	-0.020	-0.024
	(0.039)	(0.019)
% Blacks with no school, 1940	-0.012	-0.014
	(0.029)	(0.023)
ln(Average Wage of Blacks), 1940	-0.001	0.009
	(0.041)	(0.035)
% Blacks owned home, 1940	-0.023	0.013
	(0.034)	(0.019)
% Blacks on farm, 1940	0.024	0.065
	(0.059)	(0.043)
% Black church member, 1936	0.050	0.036
	(0.031)	(0.024)
% Urban, 1950	-0.089*	-0.035
	(0.052)	(0.029)
% Male, 1950	-0.056*	-0.011
	(0.031)	(0.016)
% Illiterate, 1950	0.013	0.001
	(0.050)	(0.036)
% Unemployed, 1950	-0.006	0.000
	(0.032)	(0.025)
% Church members, 1950	-0.014	-0.025
	(0.029)	(0.024)
% Population growth, 1940-50	0.034	-0.011
	(0.052)	(0.032)
ln(Median family income), 1950	0.143**	0.051
	(0.069)	(0.044)
% With <5 years of school, 1950	0.072	0.088
	(0.077)	(0.064)
% Completed high school, 1950	0.042	0.031
	(0.059)	(0.037)
% Workers in agriculture, 1950	-0.018	-0.027
	(0.078)	(0.042)
% Workers in manufacturing, 1950	-0.038	0.001
	(0.058)	(0.038)
% Home owners, 1950	-0.032	0.020
	(0.059)	(0.028)
ln(Dist. to city > 50k people), 1950	-0.246***	-0.044
	(0.052)	(0.027)
Observations	899	899
R^2	0.701	0.860

Notes - This table shows the correlation between pre-existing county characteristics and the black radio signal strength in 1960. Each column comes from a separate OLS regression. Column 2 controls for State Economic Area fixed effects and county geography (elevation and ruggedness). Column 3 further controls for the free-space signal strength ($SignalFree$). All the variables are standardized. The sample consists of counties in the former Confederate South. Regressions are weighted by county black population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: Placebo Tests on Past Racial Attitudes and Black Activism

	Placebo Outcomes:				
	% Voted Strom Thurmond, 1948	Any Lynching, 1882-1930	Lynch Count, 1882-1930	NAACP Chapter, 1942	ln(NAACP Member per 10,000 Blacks)
	(1)	(2)	(3)	(4)	(5)
Black Radio Signal	1.151	-0.072	-0.660	-0.031	-0.020
	(1.811)	(0.044)	(0.574)	(0.060)	(0.225)
Observations	881	899	899	899	891
R^2	0.937	0.648	0.536	0.503	0.506
State Econ Area FE	Yes	Yes	Yes	Yes	Yes
Free-space Signal	Yes	Yes	Yes	Yes	Yes
County Characteristics	Yes	Yes	Yes	Yes	Yes
Mean of Dep. Var.	29.78	0.545	2.378	0.117	0.491
Std. Dev. of Dep. Var.	27.86	0.498	3.596	0.321	1.439

Notes - This table shows the correlation between exposure to black radio in 1960 and past racial attitudes and black political activism. Each column represents the results from a separate OLS regression following equation (1), where each observation is a county. The sample consists of counties in the former Confederate South. The placebo outcomes are the vote share for Strom Thurmond in the 1948 presidential election (column 1), whether the county had any lynching during the period 1882-1930 (column 2), the number of lynchings during 1882-1930 (column 3), whether the county had a local chapter of the NAACP in 1942 (column 4), and the natural log of NAACP membership per 10,000 blacks in 1942 (column 5). The explanatory variable is the signal strength of black radio in 1960. Each regression includes the full set of controls in Table 1, including State Economic Area fixed effects, free-space signal strength, pre-existing county socioeconomic characteristics, and county geography (elevation and ruggedness). Regressions are weighted by county black population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3: Exposure to Black Radio and Voter Registration, 1960

	% Black Voting-Age Population Registered							% White Registered	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Black Radio Signal	2.921*	4.921**	4.878*	5.451*	5.507***	6.797***	4.075***	-0.031	-0.271
	(1.630)	(2.379)	(2.697)	(2.738)	(1.709)	(1.664)	(1.432)	(2.177)	(2.792)
Observations	1,037	1,037	1,037	1,000	860	835	835	699	699
R^2	0.469	0.471	0.471	0.526	0.608	0.624	0.702	0.713	0.742
State Economic Area FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Free-space Signal		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Local Geography			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Socioeconomics				Yes	Yes	Yes	Yes	Yes	Yes
Black Characteristics					Yes	Yes	Yes	Yes	Yes
Racial Attitudes & Activism						Yes	Yes	Yes	Yes
Population Weighted							Yes		Yes
Mean of Dep. Var.	28.88	28.88	28.88	28.87	28.47	28.32	28.32	73.85	73.85
Std. Dev. of Dep. Var.	24.28	24.28	24.28	24.26	23.33	23.47	23.47	21.66	21.66

Notes - This table shows the estimated effects of exposure to black radio on voter registration in 1960. Each column represents the results from a separate OLS regression following equation (1), where each observation is a county in the former confederate South. The outcome variables are black voter registration rates in columns 1-7 and white voter registration rates in columns 8-9, all measured in percentage points. The explanatory variable is the black radio signal strength in 1960. Free-space signal is the hypothetical signal strength in the free-space (i.e. assuming no topography). Local geographic controls include the county's elevation and terrain ruggedness. Socioeconomic controls are measured at county level in 1950 and include the natural log of population, population growth during 1940-1950, the population shares of blacks, males, urban residents, the illiterate, the unemployed, home owners, church members, share with less than five years of schooling, share with high school degrees, employment share in manufacturing, employment share in agriculture, natural log of median family income, and natural log of distance to the nearest city with more than 50,000 people. Black characteristics are measured at county level in 1940 and include the share of blacks without schooling, share with high school degrees, natural log of average wage, share owned home, share on farm, and share of black church members in 1936. Past racial attitudes and activism controls include all five placebo outcomes shown in Table 2. The regression in column 7 is weighted by county black population, and that in column 9 is weighted by county white population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4: Horse Race between Black Radio and Other Media

	% Black Registered to Vote, 1960				
	(1)	(2)	(3)	(4)	(5)
Black Radio Signal	4.075***	4.610***	4.152***	4.002***	4.539***
	(1.432)	(1.533)	(1.385)	(1.403)	(1.500)
Non-Black Radio Signal		-0.897			-0.762
		(1.332)			(1.330)
TV Signal			-0.992		-1.259
			(1.027)		(1.063)
Black Newspaper in 50 miles				1.736	2.270
				(1.455)	(1.456)
Observations	835	835	835	835	835
R-squared	0.702	0.704	0.703	0.703	0.706
Full Baseline Controls	Yes	Yes	Yes	Yes	Yes
Mean of Dep. Var.	28.32	28.32	28.32	28.32	28.32
Std. Dev. of Dep. Var.	23.47	23.47	23.47	23.47	23.47

Notes - This table compares the estimated effects of exposure to black radio on black voter registration in 1960 with those of exposure to other types of media. Each column represents the results from a separate OLS regression following equation (1), where each observation is a county from the former confederate South. The outcome variable is the 1960 black voter registration rate. The explanatory variable is the black radio signal strength in 1960 in column 1. Column 2 controls for the signal strength of other national network (ABC, CBS, NBC) radio stations that did not have a black-oriented format. Column 3 controls for the signal strength of national network (ABC, CBS, NBC) television. Column 4 controls for the presence of any black newspapers in 50 miles. Column 5 controls for access to all of the aforementioned media. Each regression controls for all the baseline controls as in column 7 of Table 3 and is weighted by county black population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: Effects On the Presence of NAACP Local Chapters

	(1)	(2)	(3)
	Had an NAACP Chapter in		
	1964	1964	1942
Black Radio Signal	0.128***	0.136***	-0.024
	(0.038)	(0.041)	(0.063)
Observations	881	873	881
R^2	0.669	0.674	0.509
1942 NAACP Controls	No	Yes	No
Other Baseline Controls	Yes	Yes	Yes
Mean of Dep. Var.	0.326	0.325	0.118
Std. Dev. of Dep. Var.	0.469	0.469	0.323

Notes - This table shows the estimated effects of exposure to black radio on the presence of NAACP local chapters. Each column represents the results from a separate OLS regression, where each observation is a county from the former confederate South. The outcome variables are indicator variables for whether the county had a local chapter of the NAACP in 1964 (columns 1-2) and in 1942 (column 3). The explanatory variable is the black radio signal strength in 1960. Columns 1 and 3 control for the full set of baseline controls (column 7 of Table 3) except for the 1942 NAACP controls (i.e. an indicator for the presence of a NAACP chapter as well as the natural log of NAACP membership per 10,000 blacks, both observed in 1942). Column 2 includes the full baseline controls. Each regression controls for all the baseline controls as in column 7 of Table 3. Regressions are weighted by county black population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6: Potential Mechanisms

	(1) Familiar w/ NAACP	(2) Agree w/ NAACP	(3) Watch TV	(4) Read News	(5) Racial Stereotypes	(6) Stereotypes about Blacks
Black Radio Signal	0.473***	0.566***	-0.812***	0.151	-0.466***	-0.105*
	(0.128)	(0.105)	(0.061)	(0.158)	(0.035)	(0.058)
Observations	616	616	616	616	570	616
R-squared	0.152	0.125	0.201	0.305	0.049	0.051
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Free-space Signal	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes
Mean of Dep. Var.	0.784	0.713	0.705	0.690	0.688	0.177
Std. Dev. of Dep. Var.	0.412	0.453	0.457	0.463	0.464	0.382

Notes - This table shows the estimated effects of exposure to black radio on individual blacks' attitudes and behaviors. Data are drawn from the Negro Political Participation Study (Matthews and Prothro 1962). Each column represents the results from a separate OLS regression, where each observation is an individual. The outcome variables are indicator variables for whether the individual was familiar with the NAACP (column 1), agreed with the actions of the NAACP (column 2), watched TV (column 3), read newspapers (column 4), an index for the tendency to hold racial stereotypes in general (column 5), and an index for the tendency to stereotype blacks (column 5). The explanatory variable is the black radio signal strength in 1960. Each regression controls for state fixed effects, the free-space signal strength, individual characteristics including gender, age and its square, and education level (no schooling, completed grade school, and completed high school), and county characteristics (natural log of population, share of blacks, and natural log of blacks' average wage). Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

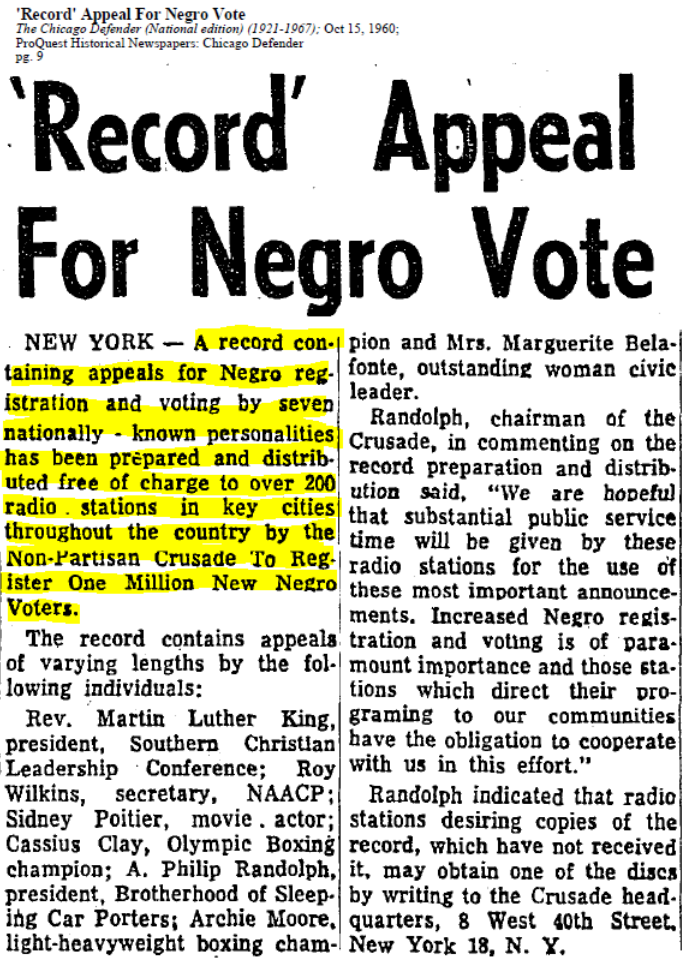
Table 7: Effects of Black Radio on State Aid and Roll Call Votes in Congress

	(1)	(2)	(3)
Panel A. State-to-County Transfers Per Capita, 1962	ln(Transfer)	ln(Transfer)	Transfer
Black Signal x Black	0.076**	0.060**	338.205*
	(0.037)	(0.028)	(174.200)
Black Signal	-0.011	-0.005	-46.372
	(0.034)	(0.027)	(173.310)
Black	0.022	-0.051**	-318.932**
	(0.022)	(0.024)	(154.821)
Observations	1,083	873	873
R-squared	0.674	0.779	0.761
Free-space Signal	Yes	Yes	Yes
State Econ Area FE	Yes	Yes	Yes
County Characteristics	No	Yes	Yes
Mean of Dep. Var.	8.719	8.743	6563
Std. Dev. of Dep. Var.	0.313	0.304	2069
Panel B. Ideology of Representatives in the 89th Congress (1965-1967)	DW-NOMINATE Score (second dimension)		
Black Radio Signal x Black	-0.282*	-0.254	
	(0.152)	(0.171)	
Black Radio Signal	-0.160	-0.105	
	(0.163)	(0.139)	
Black	0.148	0.065	
	(0.108)	(0.101)	
Observations	101	101	
R-squared	0.439	0.543	
Free-space Signal	Yes	Yes	
State FE	Yes	Yes	
District Characteristics	No	Yes	
Mean of Dep. Var.	0.752	0.752	
Std. Dev. of Dep. Var.	0.301	0.301	

Notes - This table shows the estimated effects of exposure to black radio on state aid and the conservativeness of roll call votes on civil rights bills. Each column represents the results from a separate OLS regression. In Panel A, each observation is a county from the former confederate South. The outcome variables are the natural log of state-to-county transfers per capita in 1962 (columns 1-2) and state-to-county transfers per capita measured in levels (column 3). Each regression controls for State Economic Area fixed effects and the free-space signal strength. Full baseline controls are those used in column 7 of Table 3. In Panel B, each observation is a congressional district from the former confederate South. The outcome variable is the second dimension of the DW-NOMINATE score assigned to the congressman in the district. Each regression controls for state fixed effects and the free-space signal strength. District characteristics include natural log of population, natural log of population density, natural log of median income, share of blue-collar employment, and whether the district contained a major city. The explanatory variables of interest in both panels are the interaction terms between black radio signal strength and an indicator variable that equals 1 if the black population share was above the 75^{th} percentile of the distribution and 0 otherwise. Regressions are weighted by county black population in Panel A and by district black population in Panel B. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix A: Supplemental Figures and Tables

Figure A.1: Clipping from A 1960 News Article on Black Radio and Voter Registration



'Record' Appeal For Negro Vote
The Chicago Defender (National edition) (1921-1967); Oct 15, 1960;
ProQuest Historical Newspapers: Chicago Defender
pg. 9

'Record' Appeal For Negro Vote

NEW YORK — A record containing appeals for Negro registration and voting by seven nationally - known personalities has been prepared and distributed free of charge to over 200 radio stations in key cities throughout the country by the Non-Partisan Crusade To Register One Million New Negro Voters.

The record contains appeals of varying lengths by the following individuals:

Rev. Martin Luther King, president, Southern Christian Leadership Conference; Roy Wilkins, secretary, NAACP; Sidney Poitier, movie actor; Cassius Clay, Olympic Boxing champion; A. Philip Randolph, president, Brotherhood of Sleeping Car Porters; Archie Moore, light-heavyweight boxing champion and Mrs. Marguerite Belafonte, outstanding woman civic leader.

Randolph, chairman of the Crusade, in commenting on the record preparation and distribution said, "We are hopeful that substantial public service time will be given by these radio stations for the use of these most important announcements. Increased Negro registration and voting is of paramount importance and those stations which direct their programing to our communities have the obligation to cooperate with us in this effort."

Randolph indicated that radio stations desiring copies of the record, which have not received it, may obtain one of the discs by writing to the Crusade headquarters, 8 West 40th Street, New York 18, N. Y.

Notes - The clipping is from an article published in *The Chicago Defender* on October 15, 1960.

Table A.1: Exposure to Black Radio and Radio Listening by Blacks

	(1)	(2)	(3)
	Listened to Radio		
Black Radio Signal	0.251**	0.252**	0.263
	(0.093)	(0.105)	(0.154)
Observations	618	616	616
R-squared	0.036	0.048	0.049
State FE	Yes	Yes	Yes
Free-space Signal	Yes	Yes	Yes
Individual Controls	No	Yes	Yes
County Controls	No	No	Yes
Mean of Dep. Var.	0.782	0.781	0.781
Std. Dev. of Dep. Var.	0.414	0.414	0.414

Notes - This table shows the estimated effects of exposure to black radio on individual blacks' radio listening. Data are drawn from the Negro Political Participation Study (Matthews and Prothro 1962). Each column represents the results from a separate OLS regression, where each observation is an individual. The outcome variables is an indicator variable for whether the individual was reported to listen to the radio. The explanatory variable is the black radio signal strength in 1960. Each regression controls for state fixed effects and the free-space signal strength. Individual controls include gender, age and its square, and education level (no schooling, completed grade school, and completed high school), and county controls include natural log of population, share of blacks, and natural log of blacks' average wage. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.2: Robustness Checks on Baseline Results

	% Black Voting-Age Population Registered to Vote, 1960			
	Drop counties near stations (1)	Mississippi only (2)	Control SignalFree flexibly (3)	Binary signal (4)
Black Radio Signal	5.607***	0.574	5.056***	
	(1.746)	(1.564)	(1.473)	
I(Black Radio Signal≥Median)				3.010
				(1.891)
Observations	519	81	835	835
R-squared	0.724	0.759	0.704	0.702
Full Baseline Controls	Yes	Yes	Yes	Yes
Mean of Dep. Var.	27.73	3.358	28.32	28.32
Std. Dev. of Dep. Var.	22.41	6.611	23.47	23.47

Notes - This table shows the robustness checks on the baseline results. Each column represents the results from a separate OLS regression following equation (1), where each observation is a county in the former confederate South. The outcome variable is the 1960 black voter registration rate. The explanatory variable is the black radio signal strength in 1960. In column 1, drop counties within 50 miles of any black radio stations in 1960. In column 2, I restrict the sample to only counties in Mississippi. In column 3, I add controls for the square and the cube of the free-space signal strength ($SignalFree$). In column 4, I measure signal strength using a binary variable, which equals 1 if the signal strength was above the median and 0 otherwise. Each regression includes all the baseline controls as in column 7 of Table 3 and is weighted by county black population. Standard errors, shown in parentheses, are corrected for clustering at the black radio station level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.3: Full Baseline Specification Adjusting for Spatial Correlation in Error Terms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Clustering Level		Spatially-Corrected Standard Errors (Conley 1999)					
	State	SEA	10km	20km	50km	100km	200km	300km
Black Radio Signal	4.075***	4.075**	4.075***	4.075***	4.075**	4.075**	4.075**	4.075***
	(0.946)	(1.630)	(1.490)	(1.491)	(1.686)	(1.674)	(1.858)	(1.476)
Observations	835	835	835	835	835	835	835	835

Notes - This table shows the baseline results under alternative ways of adjusting for spatial correlation in error terms. Each column follows the same baseline specification as in column 7 of Table 3. I cluster the standard errors at the state level in column 1 and at the State Economic Area level in column 2. In columns 3-8, I apply Conley's (1999) approach with different distance cutoffs to further address concerns about spatial correlation in error terms. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$