Discrimination and Media Diversity: Historical Evidence from U.S. Radio Stations

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Preliminary draft - see current version here.

Abstract

This paper examines the role racial discrimination plays in the positioning of radio stations in the post-war Jim Crow era. I construct a novel, comprehensive dataset of all commercial radio stations across the U.S., including station-level financial information and black-oriented programming hours, at the start of minority programming in broadcast media. Using a theoretical framework with endogenous product choice, I develop a test for firm-owner discrimination in the spirit of Becker's outcome test. Applying this test, I provide the first set of evidence of firm owner discrimination in the media market: I show that black-oriented stations were significantly more profitable than other stations in the same market, and higher profits are correlated with higher levels of black-oriented programming. I also show that the profitability of black-oriented radio stations is correlated with Dixiecrat vote share, a county-level measure of racism in the south. Similar pattern is not observed for the niche market of foreign-language stations.

Keywords: Entry, positioning, racial discrimination, radio industry, minority media.

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1 Introduction

A new radio format emerged in the 1940s: radio stations devoting part or all of their airtime to programming for African American audiences. By the late 1950s, more than 600 stations in the U.S. aired some black programming - just under 20% of all radio stations. These stations provided black-oriented content and a venue for African American artists to reach larger audiences.

There was a clear lack of minority representation in the media and content for minorities in this time period. This paper explores whether discrimination affects firms' programming decisions, and therefore, leads to underprovision of minority media. In the short-run, these decisions directly affect the profitability of the station and its competitors, success of African American artists and the benefits audiences derive from listening to the radio. In the long-run, these have implications on other industries[1] and American culture.

I examine the the programming decision of radio station owners, and the extent to which owners demand higher profits for black-oriented stations. From industry magazines and government archives, I construct a novel, comprehensive dataset of all commercial radio stations across the U.S. in the 1950s. This dataset includes the most comprehensive and detailed financial information to date on radio stations in any period. In addition, because most other stations did not play black music or hire black talent, this also provides a panel measure of minority-representation in broadcast media across the country in the post-war period.

As broadcast media firms choose the audience to cater towards, it is possible that audiences in minority groups are not served even in absence of racial discrimination.[2] In the spirit of Becker's outcome test, I present a theoretical framework that tests for firm owner discrimination. In this framework, I build on existing work in product positioning to model programming choice in the radio market while allowing for firm owner discrimination. Similar to outcome tests in other contexts (Becker 1957, 1993), the test compares profitability across formats. The intuition is as follows: if black-oriented format is observed to be consistently more profitable than comparable white-oriented format, then the formats must differ in their non-pecuniary payoff to the owner. That is, some stations are choosing to "leave money on the table" and not become black-oriented.

Using station-level financial information and black-oriented programming hours, I use the proposed test for firm-owner discrimination. I show that black-oriented stations were significantly more profitable than other stations in the same market, and higher profits are correlated with higher levels of black-oriented programming. I also show that this is robust to alternative specifications, and a similar pattern is not observed for a different niche market, radio stations with foreign-language programming. This is consistent with firm-owner discrimination as outlined in the theoretical framework , and I show that this wedge is larger for places that are characterized by higher level of local racial discrimination.

[1] The recording industry at the time crucially depended on radio stations to reach wider audiences.

[2] For example, public radio addresses the needs of underserved audiences, such as those who enjoy classical music.

There is a large literature studying the effect of discrimination on individuals. This paper is part of a relatively small literature that studies the effect of discrimination on firms, and one of the first to study discrimination in the media market. Similar to existing literature that show firms hiring underrepresented groups enjoy higher profits, I show catering to these groups prove to be highly profitable.

This paper proceeds as follows: Section 2 provides the historical context, Section 3 summarizes the related literature, Section 4 describes the data, Section 5 presents a model with positioning choice and firm bias, Section 6 presents the empirical results and Section 7 concludes.

2 Historical Context

Radio was introduced to American households in the 1920s. By 1922, there are over 600 radio stations around the U.S. However, it was not until 1948 that the first radio station started to devote all its airtime to black programs. These pioneers, including WDIA in Memphis, Tennessee, WANN in Annapolis, Maryland, and WERD in Atlanta, Georgia, started a trend of white businessmen either starting or switching to a higher proportion of radio program content catering towards African Americans.[3]

This paper focuses on black-oriented radio stations, stations that broadcasted some black-oriented programming. This ranged from just 1 hour to 100% (up to 154 hours) of programming catering towards African American audiences. Figure 1 shows the program of WERD, one of the first 100% black-oriented radio stations (and the first of very few African-American owned radio stations in the 1950s). Programming content ranged from music to "homemaker shows", soap opera sports and news. Although TV was introduced in the late 1940s[4], radio was still an important source of information and entertainment.

This context presents a unique opportunity to study the research questions for several reasons. First and foremost, the setting represents the start of minority programming in broadcast media. Although the history of black newspapers can be traced back to the 19th century and there were earlier African Americans radio personalities, it was not until the late 1940s that significant minority programming can be easily accessed by turning a radio dial.

Second, although many African Americans enjoyed economic prosperity in the 1940s to 1960s, they still faced segregation and open discrimination under Jim Crow laws. Radio stations with black-oriented programming chose to horizontally differentiate, as they chose not only to serve

[3] Anecdotal evidence show that there are fewer than 5 black-owned radio stations in the 1950s. This is less than 1% of all stations with some black-oriented programming.

[4] This period marks a time of significant technological progress. Adoption of TV started from the late 1940s and quickly expanded in the 1950s. The FCC stopped granting new licenses due to signal interference in September 1948, and the freeze unexpectedly lasted until 1952. As part of ongoing work (not yet included in the current draft), this TV license freeze will be explored as an exogenous shock to the timing of TV introduction and instrument for local competitive pressure.

a different group of listeners, but also source their advertising revenue from a different set of businesses.

One important consideration is the policy environment. FCC rules were much stricter during this time period. Prior to 1992, a broadcaster could own at most one AM and one FM station in a local area. While previous literature has focused on using the 1996 Telecommunications Act as an exogenous policy shock, this understudied earlier period makes it possible to answer how supply-side competitive pressure affects product variety while still abstracting from multiproduct firms. The Main Studio Rule and Program Origination rules published in 1946 required stations to have main studio in the city of license and 50% of programming locally produced, leading to a large increase in the number of stations established in the 1940s. This is evident in Figure 2 as I see a surge in number of stations established after the war in 1947 and 1948 (based on surviving stations as of 1955).

Radio waves overcome physical segregation. However, consumer preference were more closely associated with race. For example, the market for popular music was segregated by race and the work by African American performers were in separate charts as "Race Records" on billboards in the late 1940s. As shown in the radio literature on preference externality (benefits to consumers from the presence of others with similar taste) that I will discuss in the next section, radio listenership is divided by race even in the late 1990s. The earlier time period in this paper provides a setting to identify listeners for a station and link directly to observable local market characteristics.[5]

3 Related Literature

This paper is closely tied to several strands of literature. It builds on the existing literature on competition and variety in radio markets in the 1990s and 2000s. Using data from 1993 and 1997, Berry and Waldfogel (2001) examines the effect of the 1996 Telecommunications Act on programming variety in the radio market. The authors find that larger increases in ownership concentration is associated with smaller growth in the number of stations and a larger growth in the number of distinct, non-duplicate formats. Waldfogel (2011) presents cross-sectional results from radio in 2005 to 2009, suggesting that higher concentration promotes variety, but longitudinal exercises (using within-market variation) produce no statistically significant relationships. Related, Berry and Waldfogel (1999) shows that there is excessive entry in the 1990s and Berry and Waldfogel (1997) looks at whether public radio corrects problems of inefficient under-provision. A more recent work, Berry et al. (2016) looks at optimal variety and touches on the topic of racial diversity. It provides correlational evidence between urban format and high African American population. With a richer set of financial data, this project studies a period with stricter ownership rules that promoted competition.

[5]Compared to for example, classical music, for which potential audience is much harder to identify.

It also relates to the literature that looks at competition and diversity in the media more generally. This includes Gentzkow et al. (2014) that looks at US newspaper in the 20th century, focusing on a cross-section in 1924 and more recent work by Angelucci and Cagé (2019) that focuses on the role of the introduction of TV advertising on newspaper content in 1960 - 1974. The analysis builds on the theoretical literature on differentiated products in broadcasting. This includes earlier work on radio and TV markets, such as Steiner (1952), Beebe (1977) and Spence and Owen (1977), and more recent work on advertising revenue and horizontal differentiation or positioning in general, including Anderson and Coate (2005), Armstrong and Wright (2007), Peitz and Valletti (2008), Crampes et al. (2009), and Gal-or et al. (2012).

The paper adds to the literature that examines the causes and consequences of minority media content. Siegelman and Waldfogel (2001) looks at race and radio using data from 1993 and 1997. The authors show that white and minority content preferences are substantially different (even in the 1990s) and minority ownership is correlated with minority programming. The paper presents facts including low minority ownership - 72% of the 236 stations broadcasting black programming are white-owned and conjectures that additional black owners are willing to cater towards the niche market even if it is less profitable. The latter claim was not analyzed as the authors note that they lack profit data in this time period. George and Waldfogel (2003) looks at the newspaper market and finds that newspaper consumption by race is correlated with size of racial groups in the market and provides evidence of product positioning. Oberholzer-Gee and Waldfogel (2001) shows that minority voter turnout is higher in counties with larger minority populations, and attributes the difference to the ability of minority-targeted newspaper and radio to deliver campaign messages.

This paper is related to the large literature on discrimination in the labor and consumer markets.[6] Due to data limitations, there is a relatively small empirical literature on the effect of discrimination on firm profitability. The theoretical framework in Becker (1957) predicts that firms who discriminate have lower profits, and in a competitive setting, will eventually exit (Arrow (1972)). These are consistent with firm performance observed in Hellerstein et al. (1999), Kawaguchi (2007) and Weber and Zulehner (2014), who focus on gender discrimination and find firms with higher percentage of women have higher profits and survive longer. Siegel et al. (2016) shows that multinationals benefited from an outsider's network advantage through their hiring of female managers. Huber et al. (2019) find the expulsion of Jewish managers in Nazi Germany led to lower market valuation of firms.

A related strand of literature is that of startup financing as data on financial performance of startups is more readily available. Younkin and Kuppuswamy (2018) find that African American founders are discriminated against on a crowdfunding platform even when there is no difference in founder ability across race. Ewens and Townsend (2020) finds that female-led startups are less

[6]This literature is reviewed in Charles and Guryan (2011) and more recently in Lang and Spitzer (2020). Most of this work focuses on employment and wage gap by protected classes such as race and gender.

likely to raise capital from male investors while still overperform, and claim this is consistent with gender bias. Gompers and Wang (2017) show that venture capital firms whose senior partners have daughters are more likely to hire women and their funds perform better.

This paper is not the first to look at discrimination in markets for cultural products. Szymanski (2000) find evidence for discrimination in English soccer clubs, as those with more black players were in higher positions in the league, conditional on the wage bill. Kuppuswamy and Younkin (2020) finds that films with more diverse cast had higher revenue. The most closely related papers are Gil and Marion (2018) and Gil and Marion (2020) which study movie theaters of the same time period and find evidence for customer discrimination. With expense data, my paper is the first to estimate the size of firm owner discrimination in the media market. This paper is one of the first to study firm discrimination in the media market.

Positioning choices impact firm profits and consumer welfare. In the case of firms in the media market, these horizontal differentiation decisions have far-reaching social, cultural and political implications. Russo (2020), for example, has shown that the expansion of American radio networks is associated with cultural homogenization and assimilation of immigrants. A large literature has studied the role of media in voter participation, turnout, political outcomes and mass mobilization.[7]

4 Data

This paper combines multiple data sources from industry magazines and government archives.[8]

The first data source is hand-collected Federal Communications Commission documents from the National Archives. As stations are required to hold licenses granted by the FCC, the government agency collected annual financial reports from broadcasting stations that included income statements, partial balance sheet, and for some years basic employment numbers. Organized by year and call number, these reports are publically available at the National Archives facility at College Park, Maryland for 1937 to 1971. As part of efforts in putting together the U.S. Radio Panel, I scanned all available income statements. This includes 1) a page on broadcasting revenue and its breakdown, including sale of station time to local and regional/national advertisers or sponsors 2) a page on broadcasting expense and its breakdown, including salaries and wages divided by function. Starting in 1947, these reports also included the number of part-time and full-time employees. This is the most comprehensive station-level financial information available in the American radio industry in any period.[9] See Figure 3 for a sample of an annual financial

[7]This includes work on radio and TV, Oberholzer-Gee and Waldfogel (2001), Adena et al (2015), Enikolopov et al (2011), Gentzkow (2006), to name a few.

[8]It is part of an ongoing data collection effort that creates an original dataset on radio programming, financial information and technical specifications for all stations around the U.S from 1946 to 1966.

[9]The FCC stopped collecting this information in the early 1980s and all papers from later years rely on station-level revenue data that are estimated from other data sources such as ratings. Sweeting, whose work focuses on radio in more recent years, notes the following in Anderson et al. (2016) on computed revenue: "...revenue estimates are

report for a black-oriented radio station.

In addition, I digitize several industry magazines. One primary data source comes from *Broadcasting Yearbook*, an annually published industry magazine with a directory of all radio stations across the country. Starting from 1955, the magazine publishes annual lists of "Stations with Negro Programming and Total Weekly Hours" and "Stations Broadcasting Foreign Language Programs with Total Weekly Hours".[10]These are used to identify location, year of establishment and programming of stations.

I supplement our analysis with *Sponsor*, a magazine for advertisers. In a special issue in 1958, the magazine published articles on the African American consumer market, with results from surveys on black-oriented radio stations. This special issue includes a list of black radio stations with the number of years a station has had black programming and advertiser composition. From the census, I use race composition, income, education and radio ownership.

Finally, I use electoral data and attitude surveys to measure local racial attitudes. In particular, I use county level percentage votes for the States' Right Democrat (Dixiecrat) candidate Thurmond in the 1948 presidential election from Clubb et al. (2006). The Dixiecrat party was a segregationist political party created to oppose the Democratic party to support racial segregation in the South, and went on to win Louisiana, Mississippi, Alabama, and South Carolina in the presidential elections. I look at the subset of counties in the south and use this as a measure of local racial discrimination.

Table 1(a) presents summary statistics at the station-level for stations operating in 1955. On average, the profit of a station is around $11,000. In our analysis, I focus on spot radio stations (stations that are not associated with a major network), as these programming decisions respond to local market characteristics and there is very little black-oriented programming on network radio. Column 2 summarizes the characteristics of local radio stations. These are younger and have lower profit than network stations and are established and operated by entrepreneurs. Column 3 focuses on the subset of spot radio stations that broadcast any black-oriented programming and Column 4 focuses on the subset that broadcast significant amount of black-oriented programming. Stations with significant black-oriented programming are significantly more profitable than the average spot radio station.

Table 1(b) presents summary statistics at the market-level. In our analysis, each market is defined as county. The number of stations range from 0 to 19 stations in a county, and the number of black-oriented radio station range from 0 to 8 stations in a county. Counties with 1 or more black-oriented stations are more populated, have on average more than twice of the non-white population than the average county with any radio station, and have significantly higher non-white

closely related to audience size, market share and format but it is unclear whether this relationship reflects a very close relationship that exists in reality or just the relationship that BIA assumes when making its estimates."

[10]These yearbooks are in PDF format accessible through AmericanRadioHistory.com and I digitized and cleaned the 1955 list to identify station location, year of establishment and technical specifications.

population share.

Figure 4 shows the distribution of stations by state and I see a large number of black-oriented radio stations in the south and to the east of Mississippi.

5 Model

To quantify firm owner discrimination in the radio market, I build on and extend existing frameworks with firm entry and positioning choice. The intuition is as follows: using station-level revenue and expense data, I can estimate the fixed cost of entry into black-oriented and non-black-oriented programming. I discuss in Section 7 alternative explanations for differences in fixed cost by format, and argue that there should be no difference in the actual cost of entry. Therefore, if I do observe any differences in fixed cost, it can be attributed to a non-pecuniary mental cost, which I interpret as racial discrimination.

In the next few sections, I outline a simple theoretical framework to back out this measure of firm-owner discrimination

5.1 Setup

5.1.1 Timing

In each market m:

1. Firms simultaneously make entry and format choices $f \epsilon \{B, W\}$, black-programming B and non-black programming W.[11]

2. Households choose to listen to a station j or not at all

5.1.2 Firm Payoff

In each market m, firm j's payoff function for entering into format f can be characterized as:

$$V_f(N_B, N_W) = R_f(N_B, N_W; X_m) - FC_{mf} - EC_{mf}$$

A firm makes entry decisions into either black-oriented programming market B or other market W, and their payoff is a function of the underlying market characteristics, format-specific fixed cost and entry cost. The payoff for each firm is a function of N_B and N_W, the number of firms in each of black-oriented programming and other programming formats. Revenue R_j is a function of the number of competitors and X_m exogenous market characteristics. Costs are made of 2

[11] Our current test does not rely on this timing assumption. I could derive a similar test with sequential entry, with timing similar to the Stackelberg version in Mazzeo (2002).

components: 1) market-format-specific operating fixed costs FC_{mf} and 2) market-format-specific entry cost EC_{mf}.

5.2 Free-Entry Equilibrium

In a free-entry equilibrium, there is a large number of potential entrants and they enter if their expected payoff from entry is higher than their outside option. As FCC policy encouraged competition and localism, the radio industry in this time period is characterized by a large number of entrepreneurs establishing local stations. This is different from the policy environment today, where the radio industry is characterized by a few large networks and there are other barriers for individual entrepreneurs; in the post-war period, anyone with access to capital can apply and get approved to establish a new radio station or buy from an owner of an established station.

The free-entry equilibrium can be characterized by positive payoff for all incumbent firms and negative payoff for the next entrant.

In a market with N_B stations with black-programming and N_W other stations, this condition can be represented as for the black-oriented format:

$$V_B(N_B, N_W) > 0 > V_B(N_B + 1, N_w)$$

A similar condition holds for the marginal entrant to the non-black-programming format:

$$V_W(N_B, N_W) > 0 > V_W(N_B, N_w + 1)$$

Note that this equilibrium condition does not depend on the sequential entry assumption for the entry-format choice game and can be generalized to other timing assumptions.

These inequalities provide a bound for (annualized) entry cost for entering into the black-oriented radio market:

$$R_B(N_B + 1, N_W, X_m) < EC_{mB} + FC_{mB} < R_B(N_B, N_W, X_m)$$

I can derive a similar set of inequalities for white-oriented market:

$$R_W(N_B, N_W + 1, X_m) < EC_{mW} + FC_{mW} < R_W(N_B, N_W, X_m)$$

5.3 Test of bias through observed profitability

The inequalities above allow us to infer a bound on entry cost into both markets: it is bounded above by profit of the existing firms and bounded below by the profit of the next potential entrant.

A test that does not rely on specific timing assumptions on entry is to look at the upper bounds[12] for EC, ($\overline{EC_B}$, $\overline{EC_W}$). Since I directly observe fixed operating cost, I can infer the upper bound of entry cost from profit for both markets. To put it differently, if stations who chose the W-format have lower profits than a station that entered into the B-format, then it must be that there is a positive cost associated with entry into the B format.

Entry cost in the radio market includes licensing and construction. As I discuss in Section 7, it is unlikely that a black-oriented radio station faced different monetary entry costs. Therefore, this difference in entry cost arise from differences in non-pecuniary payoff. I interpret this as discrimination: there should be no difference in the cost of entry into programming formats in the absence of discrimination.

6 Results

6.1 Evidence for Content Under-provision

I first examine the amount of programming available for the general population and for African American audiences. Figure 5 shows the number of hours for black-oriented programming per 10,000 non-white population, and number of total radio hours per 10,000 total population. This graph makes many simplifying assumptions (all in the directions so black-oriented hours per capita is as high as possible and general hours as low as possible), and it is clear that by simply comparing levels, I see that there is significantly less minority programming available.

This, however, is not evidence for discrimination. First of all, even in absence of discrimination, broadcasting media is likely to cater towards majority to maximize audience numbers. As consumers do not pay for their consumption of radio, the main source of revenue for radio stations come from advertising. If advertisers pay the same rate per listener, and listeners have different preferences by race, then a profit-maximizing station would cater towards the majority. In addition, number of products (in this case, hours of programming) does not scale linearly with population, as there is fixed cost and competitive effects.

6.2 Tests for Discrimination

Following tests for discrimination outlined in Section 5, Figure 6 plots the profit residual of stations by number of black-oriented programming hours. This binned scatter plot looks at the residual of 5% winsorized profits against number of black-oriented hours, with county and age fixed effect. These fixed effects are added because in parallel to tests outlined in Section 5, I compare stations in the same market established around the same time. This shows that comparing black-oriented

[12] In ongoing work on structural estimation, I build a richer model and back out the lower bound $R_j(N_B + 1, N_W, X_m)$, the counterfactual revenue for the marginal entrant into each of the format.

and general-audience stations, those with significant black-oriented programming were significantly more profitable. The effect size is economically significant: the media profit of a station at the time is only around $7,000.

Table 2 shows this graph in a regression with the following specifications:

$$\pi_j = \alpha + \beta f_j + \gamma \boldsymbol{X}_j + \epsilon_j$$

where π_j is the realized operating profits for firm j, f_i is the number of black-oriented programming hours, X_j is a vector of controls that include market and age fixed effect and ϵ_j is a station-level unobservable that contribute to operating profits.[13] The test depends on comparing payoff-maximizing stations making different programming decisions at the same time. Stations enter until the expected payoff across formats equalize. If I observe different profitability across firms, then I can attribute the product positioning choice to fixed cost that do not enter into operating profits to the firm.

The key assumption in this analysis is that there are no station-format unobservables that affect format choices. In general, f_j is endogenous if firm choices depend on realized ϵ_j. For example, if African American entrepreneurs have higher ϵ_B than white entrepreneurs and ϵ_B is distributed with a higher mean than ϵ_W, then I will observe higher profits for black-oriented radio stations even in absence of discrimination. This, however, is not the case in the 1950s when the number of black-owned stations is less than 1% of all black-oriented stations. Therefore, in the context of this paper, station-format unobservables can be interpreted as white owners having format-specific expertise that make them particularly good at operating black-oriented radio stations. I discuss and rule out this interpretation in Section 7.

One possibility is that the results are driven by a mechanical effect that higher black-oriented programming stations are simply those with more hours on air. Figure 7 shows a similar pattern when I plot percentage of black-oriented programming (instead of number of black-oriented programming hours), to deal with this concern.

6.3 Radio Stations and Advertisers

To understand why these radio stations are catering towards African American audiences, I supplement our analysis with data from 1958 Sponsor magazine. Figure 8 show that the percentage of black-oriented programming is highly correlated with black-oriented advertisers from whom the station derive their revenue. This is evidence that stations are broadcasting black-oriented programming at prime hours (instead of broadcasting at off-peak time, without getting additional revenue).

[13] This is a station-specific profit shock, different from the non-monetary component in the payoff outlined in Section 5

When I look at the breakdown of profits into revenue and revenue from advertisers, I find evidence that higher profits for black-oriented stations partly come from higher advertising revenue. More recent literature show that the average price per listener is lower for African American audiences than for the general audience; this cannot be the reverse under the Jim Crow era. Therefore, the higher profits that I observe are driven by higher number of listeners for black-oriented stations. This is evidence for less competition, consistent with a higher fixed cost of entry into black-oriented programming.[14]

6.4 Foreign-language Programming

The test for firm owner discrimination assumes symmetry across firms. One reason that different profitability is observed across formats is that black-oriented programming is a niche market. As the size of the market is smaller than general audience, it is possible that incumbents in black-oriented radio are better positioned to deter potential entrants than other formats.

I do not see the same pattern in profitability in other niche markets. I look at the same graph for foreign-language programming and I do not see a similar pattern in Figure 9. This bin scatter pools all stations with some foreign language programming. The top 3 languages with the most number of radio stations broadcasting foreign language programming were Spanish, Italian and Polish. I find similar lack of relationship between profitability and number of hours when I look at each language individually.

6.5 Black-oriented Station Profitability and Dixiecrat Share

Theory would predict places with higher racial bias will lead to higher profits for black-oriented radio stations if they do enter. This is indeed what I observe in the south. If I look at the subsample of counties with non-zero Dixiecrat vote share, I see a positive coefficient for the interaction between number of hours and Dixiecrat vote share in Table 2. This analysis includes age and county fixed effect and hours interacted with controls for demographics.

7 Alternative Explanations

I have shown that black-oriented stations had significantly higher profits, which are consistent with higher fixed cost of entry into black-oriented format. This could come from monetary and non-pecuniary cost of entry.

[14] One natural question is why don't non-discriminating firms enter? Note that most of the radio station owners were white at the time, and there are barriers to entry for African American entrepreneurs. In addition, note that even for stations with 100% black-oriented programming, some of the stations only hired white administrative and engineer staff.

One alternative explanation is that there is a higher monetary cost of entry into black-oriented programming. Entry cost in the radio market includes licensing and construction. First of all, if there are any licensing costs, this should not be correlated with local measures of racism because licensing is handled by the federal agency FCC. In addition, once a station is established, owners can easily change their format. There are no barriers from regulations to increase black-oriented programming from 1 to 50 hours per week.

There may be other non-monetary cost of entry into black-oriented format. Based on interviews with African American radio personalities, black ownership among black radio stations is less than 1% in the 1950s, and white businessmen could easily decide to increase the number of black-oriented content. In one case, an announcer was hired through a campus flyer - the only requirement for the job was that the person was African American and they are literate. It did not take special know-how or connections to become a black-oriented station.

Finally, the success of cultural products made by African American artists or catering towards African American audiences is not a new phenomenon. See, for example, Phillips (2012) on evidence from jazz based on number of recordings produced.

8 Conclusion

Product positioning is an important choice for firms in markets with horizontal differentiation. In the case of mass media market, it is especially important as it has wide ranging social, cultural and political implications.

In this paper, I construct a novel dataset to study the relationship between product positioning choice of radio stations and their profitability. I show that firms who catered towards the African American audience received significantly higher profits, and this profit residual is correlated with higher number of black-oriented programming hours. This is robust to alternative specifications and measures of black-oriented programming, and is correlated with local levels of racism. I do not find a similar relationship for stations with foreign-language programming.

I interpret these results as evidence of firm-owner discrimination. I find that black-oriented radio stations received a corresponding percentage of their revenue from black-oriented advertisers. This means that although it is profitable to shift some programming hours from general audience to black-oriented, other stations chose not to and "put money on the table" because of personal taste or potentially inaccurate beliefs about the profitability of catering towards a minority audience.

Government regulation through the FCC promote diversity in broadcast media under the assumption that diversity would otherwise be insufficient. In 1978, the FCC adapted a "Statement of Policy on Minority Ownership of Broadcast Facilities" that outlined tax incentives and special assessment for minority owners in license applications. The current mandate emphasizes on diversity and localism (FCC, 2019).

Even with these tax incentives and special assessment for minority owners in license applications, the demographic composition of the management and broadcaster today still does not reflect the changing demographics of the country. Quantifying the success of minority media in absence of these incentives and how it relates to owner discrimination is a first step to understanding the necessity of these policies and their implication for media owners and audiences.

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Table 1: **Summary Statistics**

(a) **Station-level Summary Statistics**

	(1)	(2)	(3)
Variable	All	All Spot	Black-oriented (33+ hrs/wk)
Hours of Black-oriented Programming	3.4	4.7	81.5
	(13.3)	(16.4)	(30.7)
Year of Establishment	1,943.9	1,947.7	1,946.0
	(9.5)	(6.8)	(9.9)
Revenue	120,996.3	92,812.4	170,157.7
	(102,463.5)	(82,890.3)	(110,486.3)
Expense	109,383.7	82,244.8	141,687.6
	(88,598.8)	(70,166.5)	(89,774.4)
Profit	11,100.9	10,131.4	22,442.7
	(21,948.0)	(18,678.3)	(24,214.7)
Observations	2,627	1,657	59

(b) **County-level Summary Statistics**

	(1)	(2)
Variable	Counties with Radio Station	Counties with Black-focused Radio Station
Number of Black Radio Stations	0.4	1.3
	(0.7)	(0.8)
Number of Radio Stations	1.4	1.9
	(1.2)	(1.8)
Total Population	91,452.3	154,503.2
	(252,350.3)	(423,852.9)
Non-white Population	9,344.1	23,798.0
	(31,231.2)	(52,572.5)
Non-white Population Share	0.1	0.3
	(0.2)	(0.2)
Observations	1,193	379

Table 2: **Profit and black-oriented Hours**

	(1)
Hours of	118.7**
Black-oriented Programming	(44.03)
County FE	YES
Year of Establishment FE	YES
Sample Mean	12615.654
Observations	724

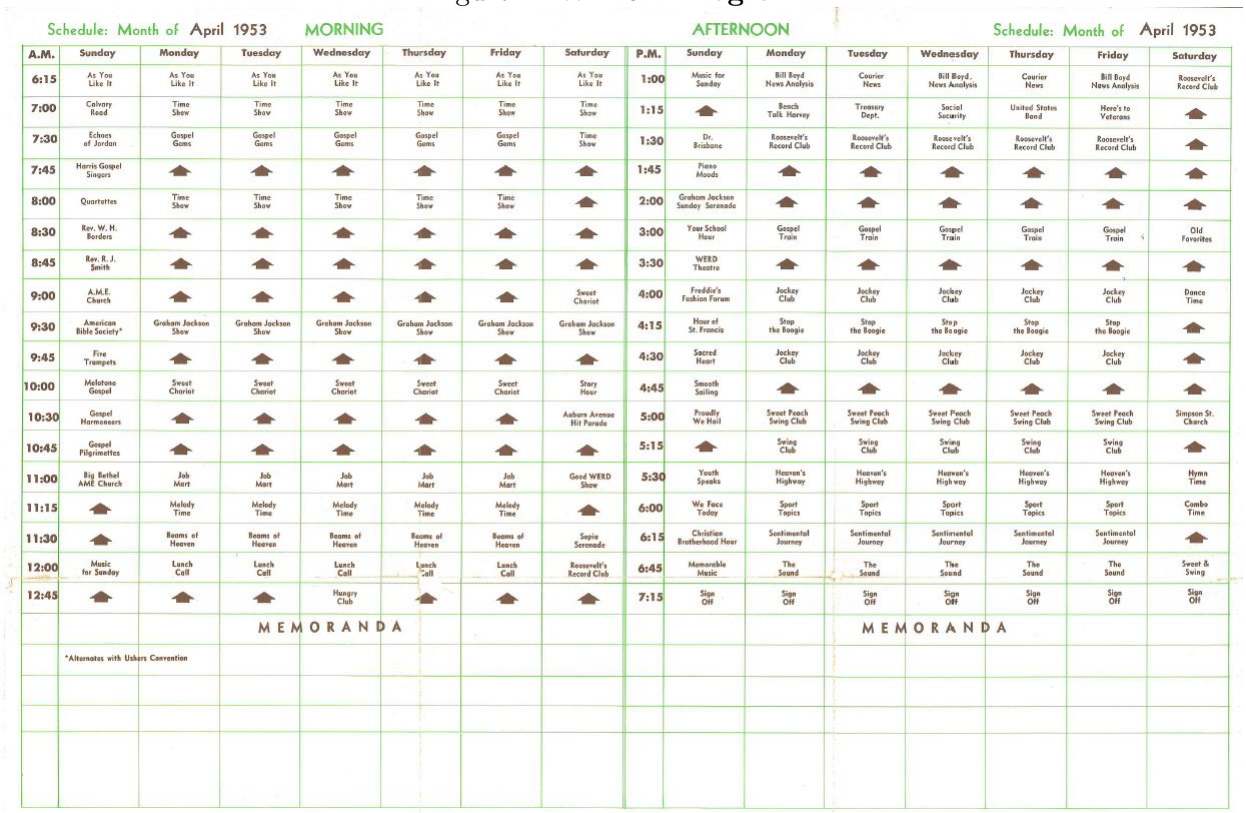
Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: **Profit Residual and Dixiecrat Vote Share**

	(1)
Hours of	-2301.1
Black-oriented Programming	(1498.4)
Hours of	8.502*
Black-oriented Programming × 1948 States' Rights Democratic Party vote share	(4.682)
County FE	YES
Year of Establishment FE	YES
Observations	239

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1: **WERD Program**



Schedule: Month of April 1953 — MORNING

A.M.	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6:15	As You Like It	As You Like It	As You Like It	As You Like It	As You Like It	As You Like It	As You Like It
7:00	Calvary Road	Time Show	Time Show	Time Show	Time Show	Time Show	Time Show
7:30	Echoes of Jordan	Gospel Gems	Gospel Gems	Gospel Gems	Gospel Gems	Gospel Gems	Time Show
7:45	Harris Gospel Singers	⌂	⌂	⌂	⌂	⌂	⌂
8:00	Quartettes	Time Show	Time Show	Time Show	Time Show	Time Show	⌂
8:30	Rev. W. H. Borders	⌂	⌂	⌂	⌂	⌂	⌂
8:45	Rev. R. J. Smith	⌂	⌂	⌂	⌂	⌂	⌂
9:00	A.M.E. Church	⌂	⌂	⌂	⌂	⌂	Sweet Chariot
9:30	American Bible Society*	Graham Jackson Show	Graham Jackson Show	Graham Jackson Show	Graham Jackson Show	Graham Jackson Show	Graham Jackson Show
9:45	Fire Trumpets	⌂	⌂	⌂	⌂	⌂	⌂
10:00	Melotone Gospel	Sweet Chariot	Sweet Chariot	Sweet Chariot	Sweet Chariot	Sweet Chariot	Story Hour
10:30	Gospel Harmoneers	⌂	⌂	⌂	⌂	⌂	Auburn Avenue Hit Parade
10:45	Gospel Pilgrimettes	⌂	⌂	⌂	⌂	⌂	⌂
11:00	Big Bethel AME Church	Job Mart	Job Mart	Job Mart	Job Mart	Job Mart	Good WERD Show
11:15	⌂	Melody Time	Melody Time	Melody Time	Melody Time	Melody Time	⌂
11:30	⌂	Beams of Heaven	Beams of Heaven	Beams of Heaven	Beams of Heaven	Beams of Heaven	Sepia Serenade
12:00	Music for Sunday	Lunch Call	Lunch Call	Lunch Call	Lunch Call	Lunch Call	Roosevelt's Record Club
12:45	⌂	⌂	⌂	Hungry Club	⌂	⌂	⌂
			MEMORANDA				
	*Alternates with Ushers Convention						

AFTERNOON — Schedule: Month of April 1953

P.M.	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1:00	Music for Sunday	Bill Boyd News Analysis	Courier News	Bill Boyd, News Analysis	Courier News	Bill Boyd News Analysis	Roosevelt's Record Club
1:15	⌂	Beach Talk Harvey	Treasury Dept.	Social Security	United States Band	Here's to Veterans	⌂
1:30	Dr. Brisbane	Roosevelt's Record Club	Roosevelt's Record Club	Roosevelt's Record Club	Roosevelt's Record Club	Roosevelt's Record Club	⌂
1:45	Piano Moods	⌂	⌂	⌂	⌂	⌂	⌂
2:00	Graham Jackson Sunday Serenade	⌂	⌂	⌂	⌂	⌂	⌂
3:00	Your School Hour	Gospel Train	Gospel Train	Gospel Train	Gospel Train	Gospel Train	Old Favorites
3:30	WERD Theatre	⌂	⌂	⌂	⌂	⌂	⌂
4:00	Freddie's Fashion Forum	Jockey Club	Jockey Club	Jockey Club	Jockey Club	Jockey Club	Dance Time
4:15	Hour of St. Francis	Stop the Boogie	Stop the Boogie	Stop the Boogie	Stop the Boogie	Stop the Boogie	⌂
4:30	Sacred Heart	Jockey Club	Jockey Club	Jockey Club	Jockey Club	Jockey Club	⌂
4:45	Smooth Sailing	⌂	⌂	⌂	⌂	⌂	⌂
5:00	Proudly We Hail	Sweet Peach Swing Club	Sweet Peach Swing Club	Sweet Peach Swing Club	Sweet Peach Swing Club	Sweet Peach Swing Club	Simpson St. Church
5:15	⌂	Swing Club	Swing Club	Swing Club	Swing Club	Swing Club	⌂
5:30	Youth Speaks	Heaven's Highway	Heaven's Highway	Heaven's Highway	Heaven's Highway	Heaven's Highway	Hymn Time
6:00	We Face Today	Sport Topics	Sport Topics	Sport Topics	Sport Topics	Sport Topics	Combo Time
6:15	Christian Brotherhood Hour	Sentimental Journey	Sentimental Journey	Sentimental Journey	Sentimental Journey	Sentimental Journey	⌂
6:45	Memorable Music	The Sound	The Sound	The Sound	The Sound	The Sound	Sweet & Swing
7:15	Sign Off	Sign Off	Sign Off	Sign Off	Sign Off	Sign Off	Sign Off
			MEMORANDA				

Notes: This figure presents the full program of WERD (one of the first 100% black-oriented radio stations).

Figure 2: **Year of Establishment (as of 1955)**

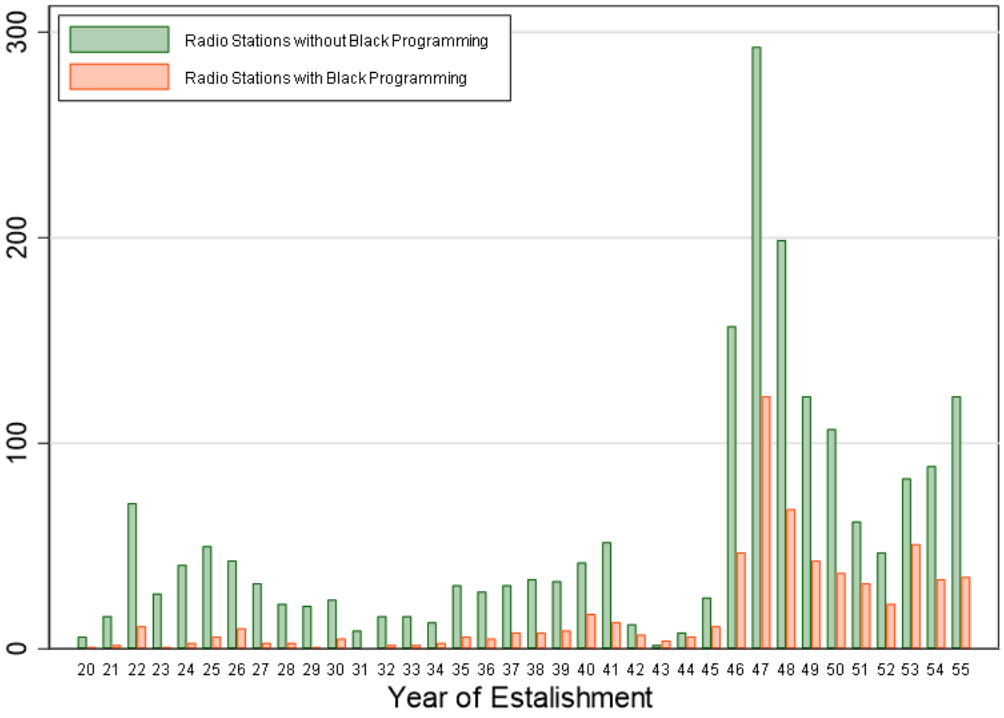
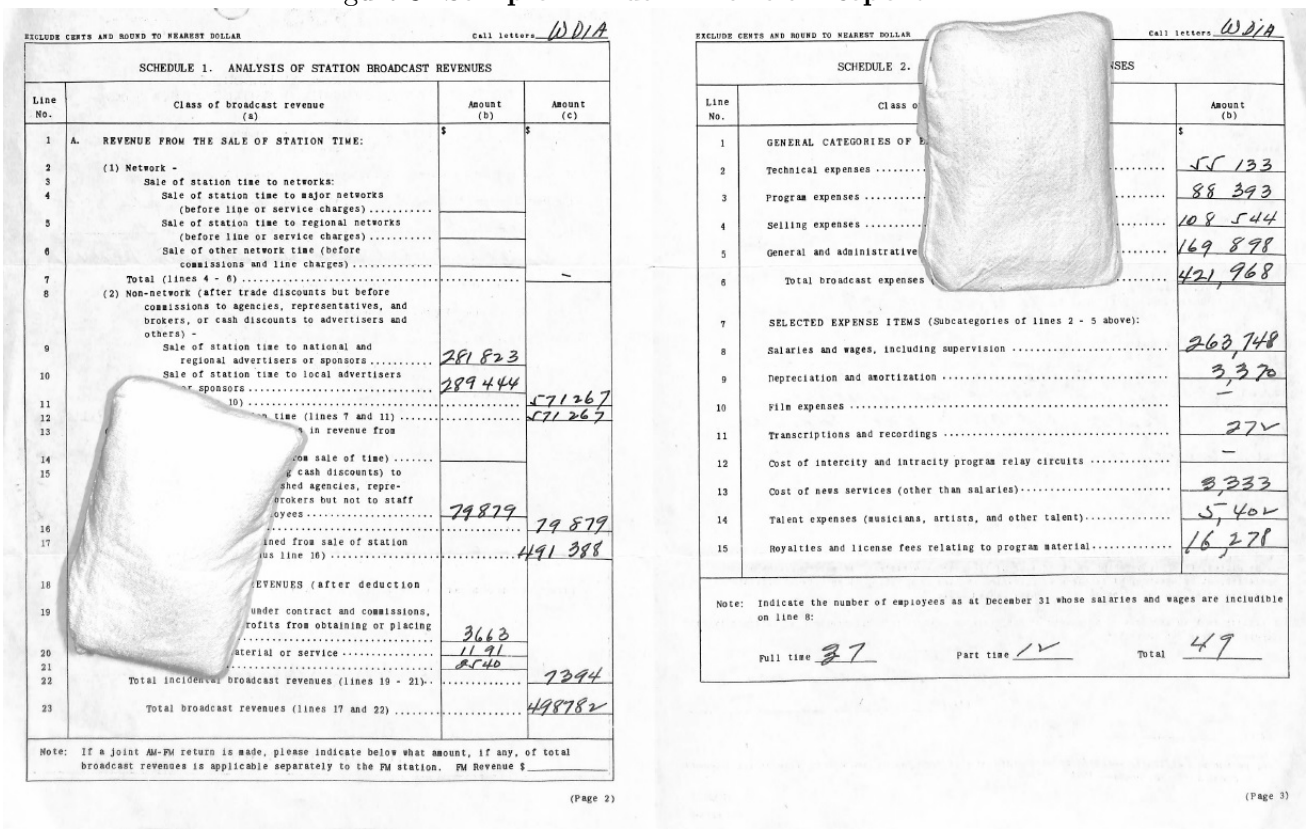


Figure 3: **Sample Annual Financial Report**



EXCLUDE CENTS AND ROUND TO NEAREST DOLLAR — Call letters WDIA

SCHEDULE 1. ANALYSIS OF STATION BROADCAST REVENUES

Line No.	Class of broadcast revenue (a)	Amount (b)	Amount (c)
1	A. REVENUE FROM THE SALE OF STATION TIME:	$	$
2	(1) Network -		
3	Sale of station time to networks:		
4	Sale of station time to major networks (before line or service charges)		
5	Sale of station time to regional networks (before line or service charges)		
6	Sale of other network time (before commissions and line charges)		
7	Total (lines 4 - 6)		–
8	(2) Non-network (after trade discounts but before commissions to agencies, representatives, and brokers, or cash discounts to advertisers and others) -		
9	Sale of station time to national and regional advertisers or sponsors	281 823	
10	Sale of station time to local advertisers or sponsors	289 444	
11	10)		571 267
12	time (lines 7 and 11)		571 267
13	in revenue from		
14	om sale of time)		
15	cash discounts) to shed agencies, repre- brokers but not to staff oyees	79879	
16			79 879
17	ined from sale of station us line 16)		491 388
18	EVENUES (after deduction		
19	under contract and commissions, rofits from obtaining or placing	3663	
20	aterial or service	1191	
21		2540	
22	Total incidental broadcast revenues (lines 19 - 21)		7394
23	Total broadcast revenues (lines 17 and 22)		498782

Note: If a joint AM-FM return is made, please indicate below what amount, if any, of total broadcast revenues is applicable separately to the FM station. FM Revenue $_____

(Page 2)

EXCLUDE CENTS AND ROUND TO NEAREST DOLLAR — Call letters WDIA

SCHEDULE 2. ...SES

Line No.	Class o...	Amount (b)
1	GENERAL CATEGORIES OF E...	$
2	Technical expenses	55 133
3	Program expenses	88 393
4	Selling expenses	108 544
5	General and administrative	169 898
6	Total broadcast expenses	421,968
7	SELECTED EXPENSE ITEMS (Subcategories of lines 2 - 5 above):	
8	Salaries and wages, including supervision	263,748
9	Depreciation and amortization	3,370
10	Film expenses	–
11	Transcriptions and recordings	27
12	Cost of intercity and intracity program relay circuits	–
13	Cost of news services (other than salaries)	2,333
14	Talent expenses (musicians, artists, and other talent)	5,40
15	Royalties and license fees relating to program material	16,278

Note: Indicate the number of employees as at December 31 whose salaries and wages are includible on line 8:

Full time 37 Part time 12 Total 49

(Page 3)

Notes: This figure presents a sample of annual financial report held at the National Archives.

Figure 4: **Geographical Distribution of Stations**

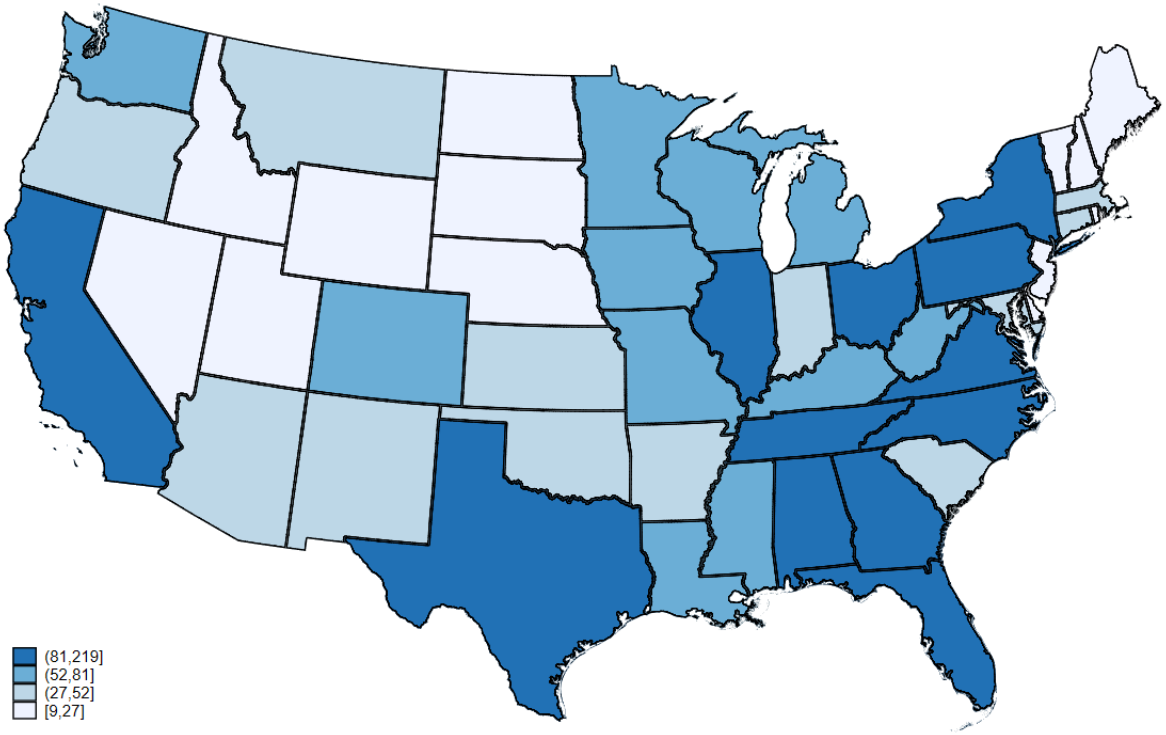
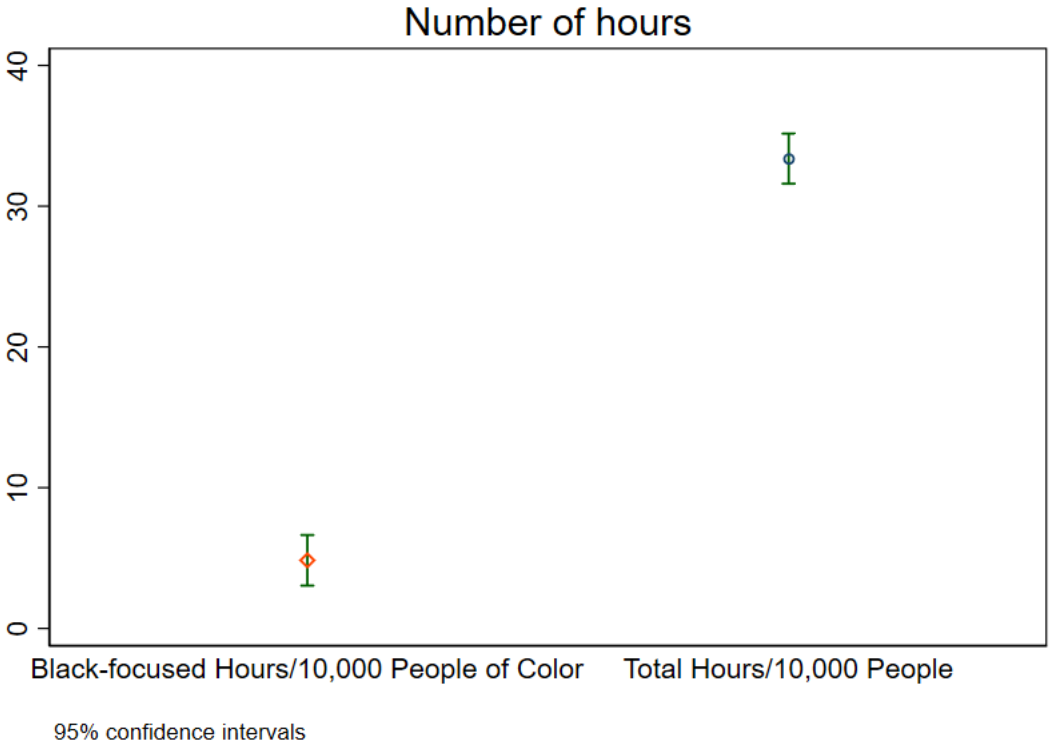


Figure 5: **Hours by Population**



Notes: This figure plots the number of hours per 10,000 residents in the county. For general audience stations, this assumes 84 hours of total programming per station for all stations (since the data on hours of operation is unavailable). This is on the lower end of total number of hours for black-oriented radio stations for which I have total number of hours.

Figure 6: **Profit Residual by black-oriented Programming Hours**

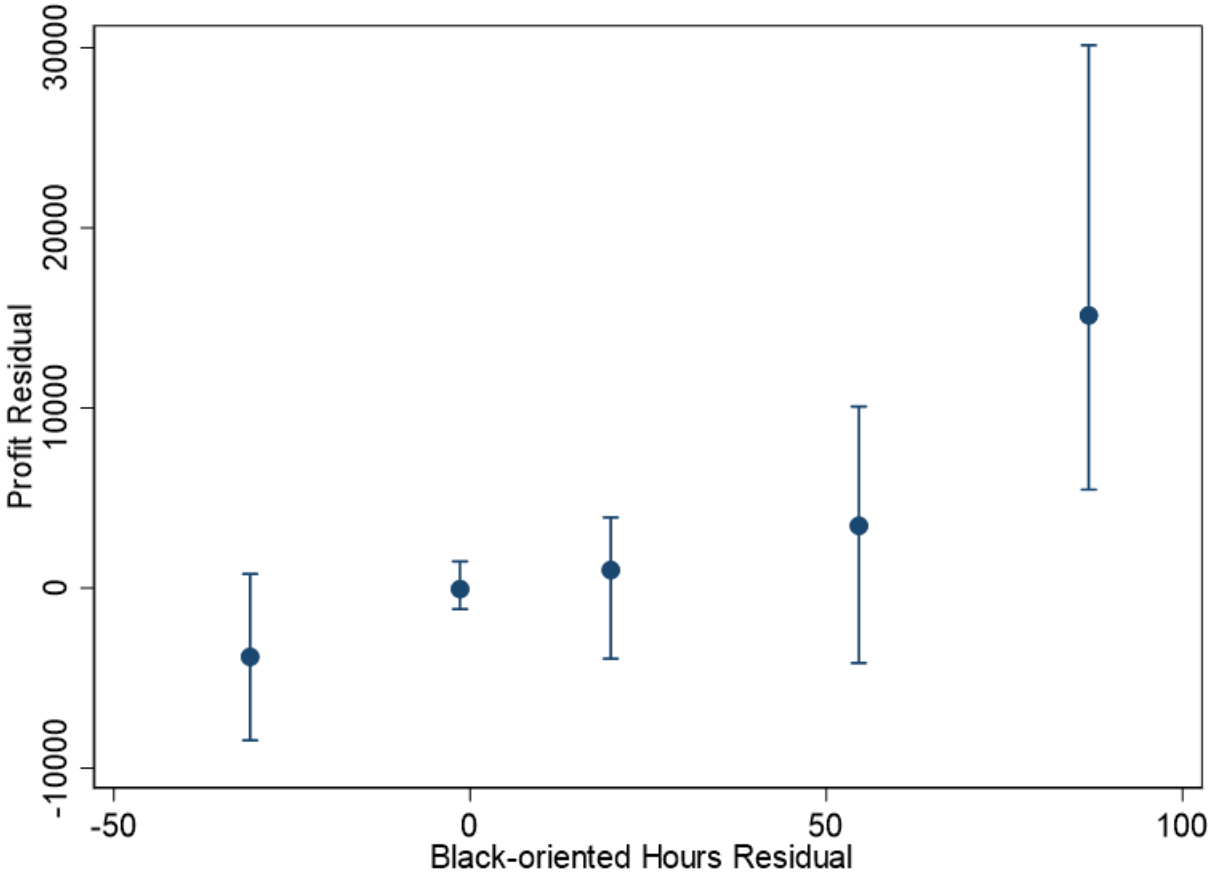


Figure 7: **Profit Residual by % black-oriented Programming Hours**

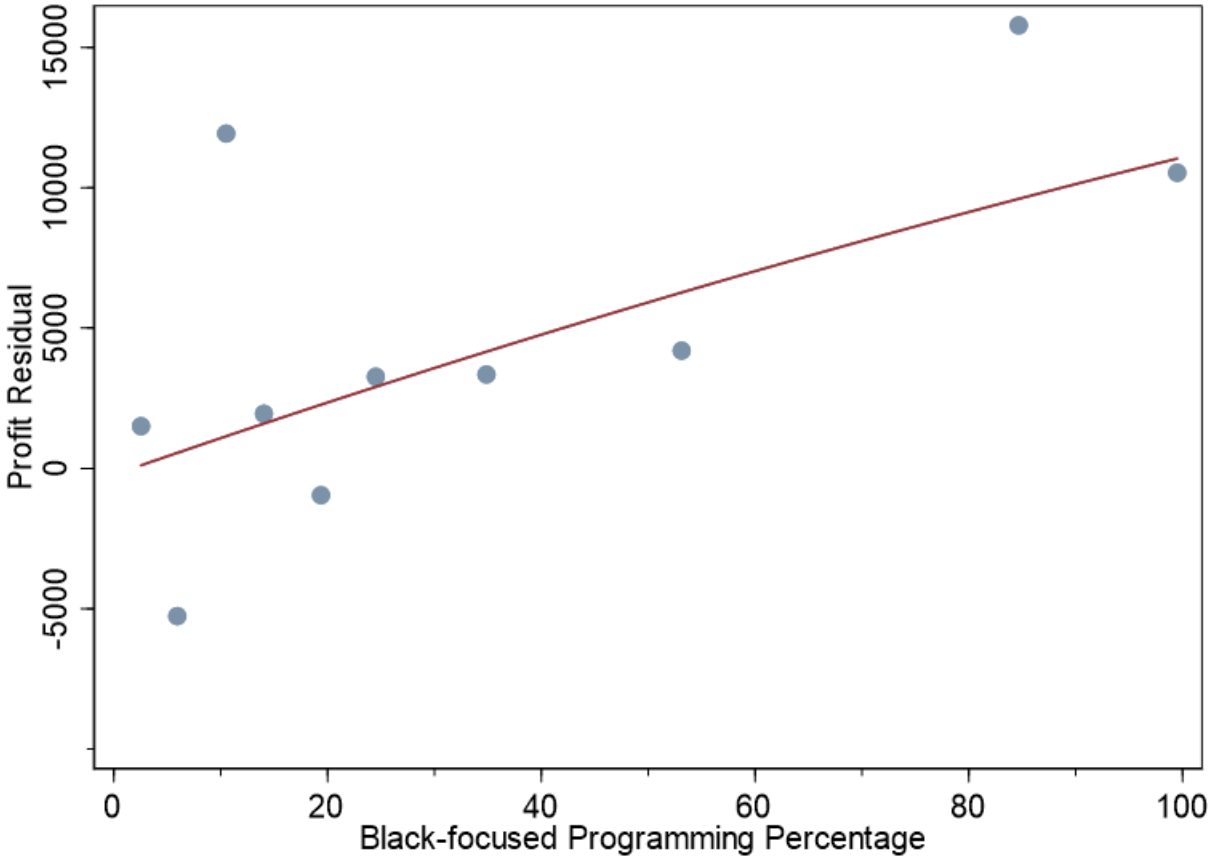


Figure 8: **Percentage black-oriented Programming and Business from black-oriented Advertisers**

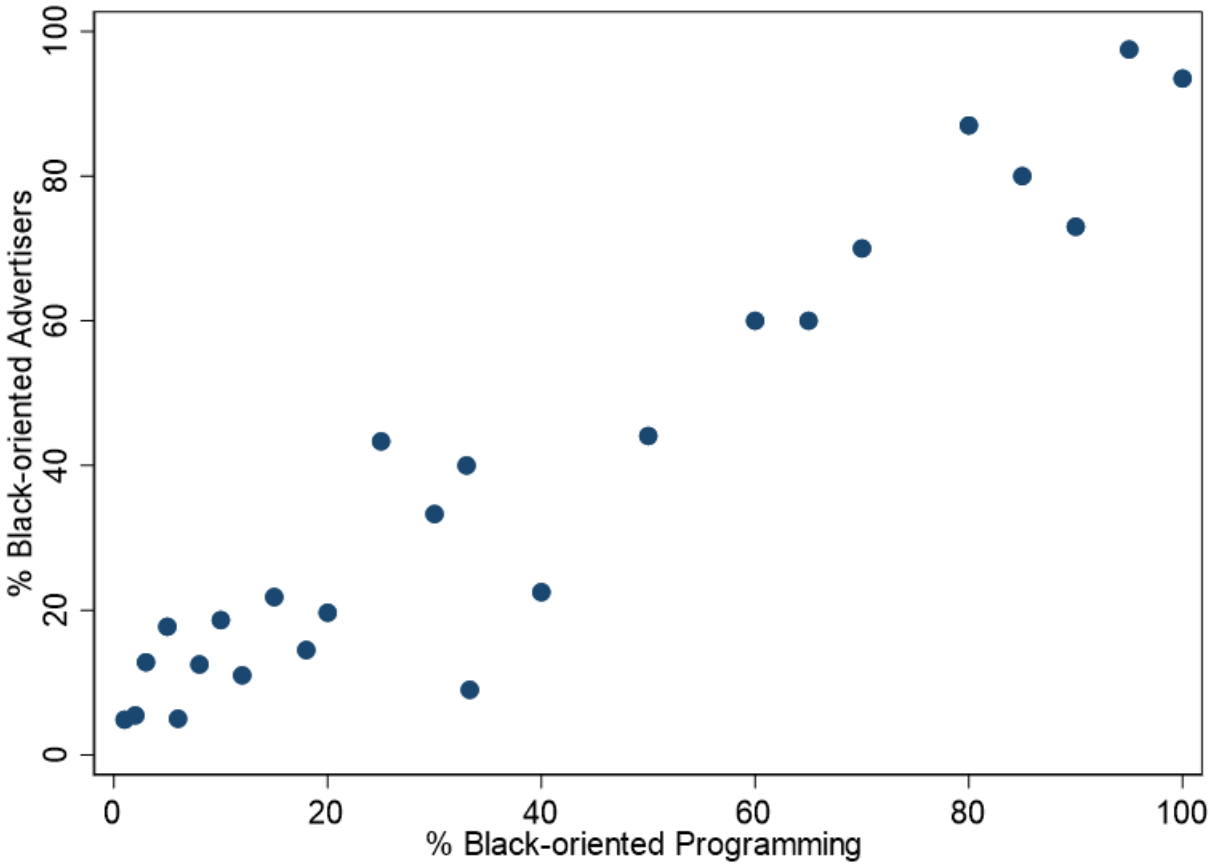


Figure 9: **Profit Residual by Foreign-language Programming Hours**

