Black Newspapers and Media Competition*

Brian Beach
Vanderbilt University
and NBER

Martin Saavedra
Rutgers University

João Tampellini
Vanderbilt University

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Abstract

The late 19th century saw the emergence of the Black press. How did existing newspapers respond to this competition? Difference-in-differences estimates indicate that existing newspapers responded by reducing their coverage of Black people and activities. The decline in coverage appears across all topics, which we interpret as evidence of market segmentation. This pattern of market segmentation is concentrated in counties with higher levels of residential segregation. We are in the process of investigating whether the content that remains undergoes a change in sentiment.

*Email correspondence can be directed to Beach: brian.beach@vanderbilt.edu, Saavedra: martin.saavedra@rutgers.edu, or Tampellini: joao.p.tampellini@vanderbilt.edu

> *"We wish to plead our own cause. Too long have others spoken for us. Too long has the publick [sic] been deceived by misrepresentations, in things which concern us dearly, ... The civil rights of a people being of the greatest value, it shall ever be our duty to vindicate our brethren, when oppressed; and to lay the case before the publick [sic]."*
>
> John Brown Russwurm and Samuel Cornish as quoted from page one of the inaugural issue of the Freedom's Journal (March 1827).

1 Introduction

The Black press has been a central element of social change for nearly two centuries. From Frederick Douglass and the abolitionist movement to Ida B. Wells and John Sengstacke and the civil rights struggle, the Black press has provided an outlet for the expression of ideas and experiences that might otherwise be suppressed or distorted. The actions of Black journalists and publishers as well as the content that was circulated offer an enormous amount of information for scholars to study, and most scholarship uses this to examine the Black press' influence on social change.

This paper asks a slightly different question: to what extent did existing newspapers respond to the opening of a Black newspaper? Demand for Black outlets often stems from under or misrepresentation in the media. Black newspapers thus create a new market, which might bring in new customers and induce existing customers to change their media consumption (George and Waldfogel, 2003). Existing newspapers might continue to undersupply these customers, either because undersupply is deemed to be the profitable decision or because the choice to undersupply was independent of profit motives. Alternatively, competition might induce a change in publishing behavior as existing newspapers attempt to prevent market segmentation (Gentzkow and Shapiro, 2010; Gentzkow et al., 2014).

Our ability to examine this empirical question is made possible by recent data advances. The Library of Congress' *Chronicling America* has digitized over 20 million newspaper pages from 19th and early 20th century newspapers. We use Latent Dirichlet Allocation (LDA) to convert this information into a county-level panel dataset of race-related topic coverage. We then use variation in the year in which a newspaper opened to assess how Black newspaper openings affect the publishing behavior of existing firms.

Results from our staggered difference-in-differences design show substantial heterogeneity based

on the underlying level of segregation.[1] Our measure of residential segregation is the Logan and Parman (2017) neighbor-based index. We find that existing newspapers in relatively segregated counties decrease their coverage of Black people and activities. In less segregated counties, existing newspapers increase their coverage. We are in the process of uncovering whether there is also a change in the slant or sentiment of these articles.

These results are consistent with residential segregation influencing market structures (Cutler and Glaeser, 1997; Davis et al., 2019; Cook et al., 2022, 2023). In terms of plausibility, consider a white customer in a segregated county. That customer might receive disutility from seeing newspaper coverage of Black people or activities. This could be because of racist preferences or (if residential segregation is correlated with social segregation) because the content is less relevant for the white reader. In this case, the opening of a Black newspaper creates two separate markets: one for Black customers and one for white customers, and existing newspapers may choose to cater more exclusively to white audiences. Conversely, white customers in less segregated areas may receive relatively less disutility from coverage of Black people or activities, either because of weaker racist preferences or because the content is deemed relevant given a higher level of social interaction. In this case, a newly opened Black newspaper increases competition and forces existing newspapers to address coverage deficiencies.

This interpretation extends itself to the market composition results. While the theoretical effects of increased competition on market supply under product differentiation are unclear (Perego and Yuksel, 2022; Chen and Suen, 2023), if news diversity is undersupplied to the market before the entry of a Black newspaper, the market itself may grow. Our market composition findings are consistent with this theory: in less segregated areas, the number of non-Black newspapers increases, while in more segregated areas we detect a decrease in non-Black competitors.

The paper is organized as follows. Section 2 gives a brief background of the media market and provides a simple theoretical framework in which we base our main results. Section 3 describes the data sources and explains the topic modeling used in this article. Section 4 gives an overview of our empirical strategy. Section 5 provides our main results. Section 6 concludes.

[1] We use the Callaway and Sant'Anna (2021) estimator for our empirical design.

2 Background and Theoretical Framework

Black newspapers emerged in the U.S. during the early 19th century. Part of this timing might be explained by technological change. Due to heavy taxes and regulation, 18th century newspapers catered to wealthier readers and other special interests. Mechanized paper-making and falling taxes reduced production costs, and newspaper publishers responded by increasing advertising and expanding circulation. This increased independence, as newspapers could survive without the sponsorship of political parties Petrova (2011). Cheaper newspapers also opened up the possibility of serving new populations of readers, such as the working class.

Financial incentives, however, are not enough to explain the emergence of the Black press. Black newspapers in the 19th century are often characterized by their short lifespan. No pre-Civil War Black newspaper, for example, survived the conflict (Bullock, 1981). While many newspapers struggled to achieve commercial success, Black newspapers' financial struggles were exacerbated by white businesses' refusal to buy advertising space (Pride and Wilson, 1997).[2] As such, Black newspapers relied more heavily on subscriptions and voluntary donations, often by religious organizations.

Early Black newspapers emerged because of their ability to provide a public platform for political organization in the Black community at a time when most were enslaved and Black leaders were denied space in existing publications. Consider the first Black newspaper, New York City's *Freedom's Journal*, which opened in 1827. The opening text of the inaugural issue (as cited at the beginning of our article) provides support for the idea that Black leaders saw the need to create Black content, by Black authors, for Black audiences. The *Freedom's Journal* had relatively low circulation - about 800 per week - but its abolitionist content would reach plantations in Southern slave states (González, 2012).

Pre-Civil War newspapers were concentrated in the New York and Philadelphia. These newspapers include publications by notable abolitionists such as Fredrick Douglass and Mary Ann Shad Cary. The South provided a more hostile environment to Black newspapers, with writers and editors suffering constant intimidation. Despite this, southern Black media made significant contributions to the abolitionist and, later, civil rights movement through pioneers such as Ida B. Wells and her *Memphis Free Speech and Headlight*.

[2]This makes archival work more difficult, as copies of newspapers operating for only a few years may not have survived.

Despite the openly political (and not financial) goals of the earliest Black newspapers, subsequent business ventures took an increasingly commercial approach to ensure survival despite the difficult business environment (Pride and Wilson, 1997). Following Gentzkow et al. (2014), we model our analysis in a market competition framework. This framework assumes that the utility of media consumption is inherently different for Black and white customers. Importantly, we assume that white customers receive weakly negative utility from reading articles connected to Black people, and that this disutility is most intense in racially segregated areas. This influences the profit maximization problem for each newspaper type, as white newspapers in segregated areas will not attempt to compete for Black customers following the opening of a Black newspaper. In less segregated markets, however, where white disutility is weaker, white newspapers compete with Black newspapers for customers, and so we expect to observe existing newspapers to adjust their content to maximize profits.

3 Data

3.1 Newspaper Openings

Our newspaper directory information comes from the U.S. Library of Congress' *Chronicling America* online archive. This directory is based on bibliographic records from WorldCat, and so our sample is selected in the sense that newspaper pages have to survive and be cataloged.[3] The directory reports basic information about each newspaper, such as: newspaper title, location of publication, and years of operation. We classify a newspaper as a Black newspaper if the title or description includes any of the following strings: "Negro," "African," or "Colored." We exclude from the analysis newspapers with unclear beginning of operations.[4]

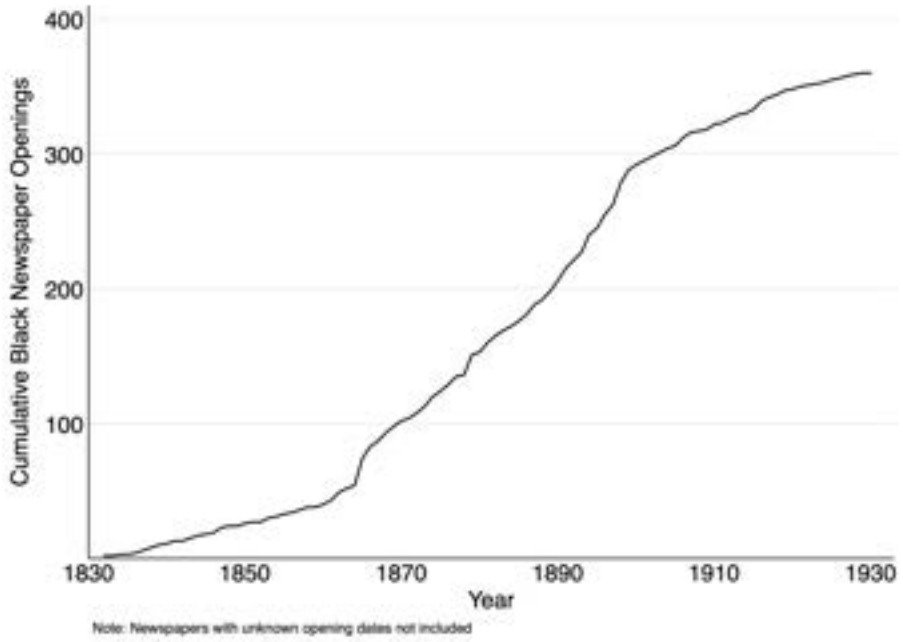
Figure 1 shows the cumulative openings over time. Between 1865 and 1895 Black newspapers opened at a rate of about 7 newspapers per year. From 1895 to 1925 the rate falls to about 2 new newspapers per year. Our period of interest is between 1880-1922 (when the newspaper content data available from the Library of Congress is most dense). During this period 198 Black newspapers

[3]We are currently in the process of cross-referencing this database with the Mitchell and Ayers directories, which provide snapshots of newspapers in existence over time. This will allow us build a more comprehensive dataset of newspaper openings.

[4]For example, some newspapers have initial year of operation of the format 19?? or 189?. Those newspapers are currently excluded from the analysis.

opened across the United States.

Figure 1: Cumulative Black Newspaper Openings



As noted earlier, many of these recently opened newspapers will only exist for a short time. Panel A of Appendix Figure A1 plots the total number of active Black newspapers by year. Panel B plots active Black newspapers as a share of all active newspapers. There we see that the Black newspaper share increased at a steady pace between 1840 and 1900. The Black newspaper share remained at about 2.5% between 1905 and 1920. During this period, most Black newspapers were concentrated in the Southern U.S., which also contained an overwhelming majority of the Black population.

3.2 Newspaper Content

Our newspaper content is page-level data, as made available from Chronicling America. Our period of interest is 1880 to 1922. This period corresponds to when newspaper coverage is relatively dense. Fewer newspapers survived from the mid-nineteenth century and active copyrights prevent the Library of Congress from digitizing more recent newspapers.

We start by collecting terms that have a high probability of referring to Black people or activities: negro, colored, or the n-word. The terms African Americans and Black were not in widespread use

during this period. We then collect every word that is within 10-words as one of the above terms. This gives us a collection of words that are likely used when referring to either Black people or subjects and activities connected to Black people. Note that we can only identify whether and where words appear on a page as the Chronicling America database does not attempt to partition pages into articles.

We clean the text data using the following steps. First, we removed punctuation and numbers. The most common OCR errors are inserted spaces where none exists. To improve the OCR quality, our second step is to concatenate adjacent words if one of those words is not in the English dictionaries but the concatenation is. Third, we reduce words to their roots using Porter stemmer. The Porter stemmer combines distinct words such as "house", "houses", and "housed" to the stem "hous." Fourth, to further reduce OCR errors, we drop words that appear fewer than 500 times.

We next estimate topics using Latent Dirichlet Allocation (LDA). LDA is a Bayesian method from computation linguistics. LDA assumes that each document has a probability distribution over K topics. For each word in the document, first a topic is drawn from that distribution and then a word is drawn from the topic-word probability distribution. The meaning of each topic can be found by looking at words that occur with a high probability in that topic (representative words), words that occur within a topic at a higher probability than other topics (distinctive words), or by closely reading newspaper pages that largely fall into a single topic. LDA is a mixture model, so that newspaper pages can belong to several topics so long as the shares sum to one.

We estimate a model with 15 topics. Too few topics risks grouping together distinct subjects, whereas too many topics will result in separate topics that cover similar subjects. Data driven ways for choosing the optimal number of topics do exist, but many researchers suggest picking the value of K that leads to the most human interpretable results. The model results is several topics visualized in the word clouds below. The size of each word is proportional to the topic-word probability (hence, these are representative, but perhaps not distinctive words).

We focus our analyses on the topics shown in Figure 2 as they can be easily categorized by a human reader and reflect ideas relevant to contemporary race relations. The topics correspond to organized politics with words such as vote, elect, delegate, and Republican, politics and war with words such as soldier, protect, and troop, and violence with words such as kill, lynch, murder, and arrest. The topic model also allows to disentangle other uses of the tokens. For example, there are

clearly topics that refer to fashion and art for when the word "colored" refers to non-race topics. A comprehensive list of topics generated by the language model can be found in Appendix Figure A2.

Figure 2: Representative words for race-related topics

(a) Organized Politics

(b) Politics and War

(c) Violence

Note: The size of each word is proportional to the absolute value of the word-topic probability.

4 Empirical Strategy

To identify the effect of the opening of Black newspapers on market composition and non-Black newspapers' language, we use the staggered difference-in-differences design proposed by Callaway and Sant'Anna (2021) to allow for heterogeneous treatment timing across locations over time.

This estimator is derived in the following way. First, counties are categorized based on treatment timing, indexed by $g = 1882, 1883, ...+$. For each year t such that $t \geq g$ and for each treatment timing group g, we then estimate the following equation:

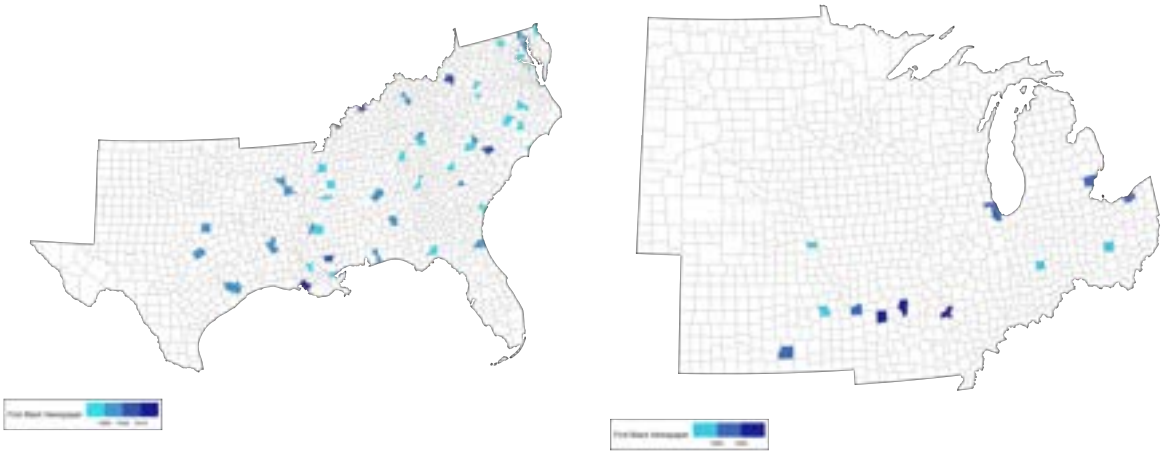
$$\text{Outcome}_{gt} = \alpha_0 + \beta_{gt}\mathbb{1}[G_c = g] \times \text{Post}_t + \gamma\mathbb{1}[G_c = g] + \tau\text{Post}_t + \varepsilon_{ct} \tag{1}$$

where $\mathbb{1}[G_c = g]$ is equal to one if county c belongs to treatment timing group g and Post_t is equal to one if counties c in group g have already been treated. The control group includes all never-treated and not-yet-treated counties. Each group-time average treatment effect is aggregated into a single estimate given the relative size of each treatment timing group.

We perform the analysis at the county-year level, using text data from non-Black newspapers in each county. Our outcomes of interest will be the number of active non-Black newspapers and the share of pages that mention each of the topics described in section 3.2. We consider a county treated when the first Black newspaper opens in a county. In our sample 65 counties are eventually treated. Following the assumptions of the Callaway and Sant'Anna (2021) estimator, once a county is treated, it remains treated forever. Finally, we restrict the sample to counties with at least 1% Black households and weight observations by the number of Black households in the county in the 1880 census. Standard errors are clustered at the county level.

Figure 3 shows the timing and spatial variation of our newspaper openings, while Table 1 presents summary statistics for our analysis sample. Counties that receive a Black newspaper during our analysis period (treatment group) are relatively larger, have a larger Black population share, are more likely to be located in the South, are more segregated, and publish more newspaper pages per year, on average, despite having fewer publications per 1,000 households. Treated and control counties have nearly identical Black literacy rates, and treated counties have higher white literacy rates.

Figure 3: Newspaper Opening Locations Included in the Sample



(a) South

(b) Midwest

(c) Northeast

(d) West

Table 1: Summary Statistics By Treatment Status

	Counties that receive a Black Newspaper	Counties without a Black Newspaper
Newspaper Pages/Year	2286.41	634.55
Newspapers/1,000 HHs*	0.382	0.446
Number of Households	18068.27	4059.93
Population	64612.38	24947.19
% Black	0.34	0.22
Black Literacy	0.401	0.405
White Literacy	0.866	0.811
South	0.72	0.65
Segregation Index	0.38	0.27
Counties	65	342

Note: *Non-black newspapers per 1,000 households as of 1880.

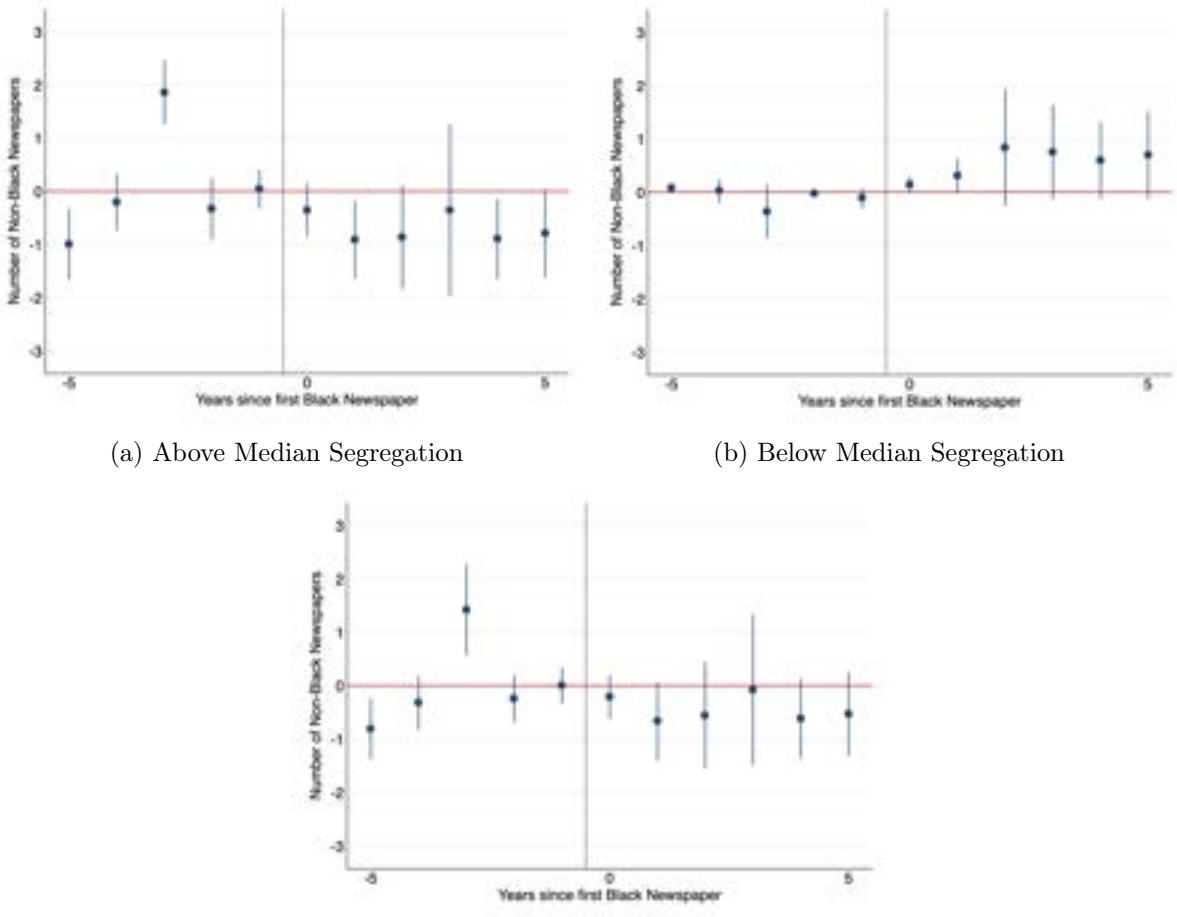
Number of households, population, literacy, and % Black obtained from the 1880 U.S. Census. Segregation index obtained from Logan and Parman (2017). Number of newspaper pages per year obtained from the Library of Congress *Cronichling America* archive.

5 Results

5.1 Market Composition

How did the entry of Black newspapers affect media composition? To study that, we estimate Equation 1 on the number of active non-Black newspapers following the entry of the first Black newspaper to the market. We estimate the equation for the full sample and for subsamples of above and below median residential segregation following Logan and Parman (2017). We weight observations by each county's 1880 total population and cluster standard errors at the county level. Figure 4 shows the event study specifications for the dynamic treatment effect, while coefficients of the 2x2 estimation are shown in Appendix Table A1.

Figure 4: Market Composition



(a) Above Median Segregation

(b) Below Median Segregation

(c) Full Sample

We find that media markets react differently based on their levels of residential segregation. We find that more segregated markets, as seen in Panel A of Figure 4, lose on average one non-Black publication in the years following the opening of a Black newspaper. Less segregated places, however, as seen in Panel B of Figure 4, gain one non-Black publication on average following the opening of a Black newspaper. Whether this speaks to the media preferences or changes in newspaper demand that are (for the moment) unobservable to us remains an open question.

5.2 Newspaper Language

Table 2 presents our baseline results. Column 1 considers the share of pages that mention Black people. Columns 2 through 4 consider the main topic categories: organized politics (column 2), war (column 3), and violence (column 4).

We find that, after the opening of a Black newspaper, established newspapers reduced their coverage of Black-related terms by 5.8p., about 16% of the mean. These results are mostly driven by a reduction in terms related to violence: 3p.p., or a one-third reduction over the mean. Finally, we detect a reduction on coverage of political terms, representing roughly 15% of the mean.

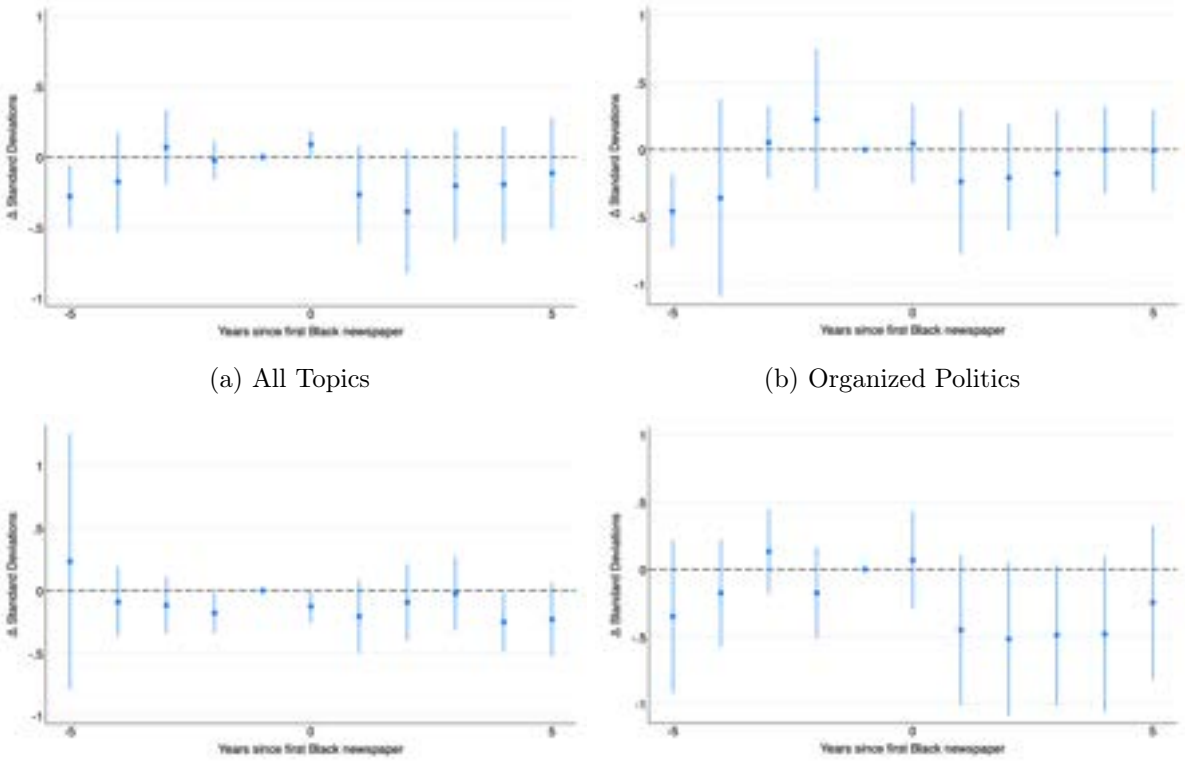
Table 2: County Level analysis - 2x2 DiD estimates

	All Topics	Organized Politics	Politics and War	Violence
	(1)	(2)	(3)	(4)
DiD estimate	-0.057*	0.000	-0.004*	-0.030**
	(0.033)	(0.003)	(0.003)	(0.013)
N	7,502	7,502	7,502	7,502
Mean of Topic	0.363	0.033	0.032	0.094

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses clustered at the county level.

Figure 5 presents event study estimates, which allow us to assess heterogeneity based on treatment timing. We see little evidence of a pre-trend, suggesting that the opening of a Black newspaper may not have been motivated by recent changes in the existing media market. The point estimate for "year of opening" is often in line with the pre-treatment observations, which might reflect the partial-treatment nature of that observations (e.g., a newspaper that opens in November will count as fully treated even though the majority of the year was spent as part of the control group). The treatment effects emerge in the year *after* the Black newspaper opens and appear stable thereafter.

Figure 5: Event Studies - County-level analysis



(a) All Topics

(b) Organized Politics

(c) Politics and War

(d) Violence

5.2.1 The Role of Residential Segregation

One possibility is that newspapers respond differentially according to the level of spatial segregation of the market they serve. If a non-Black newspaper serves a highly-segregated area and does not cater to Black customers prior to the introduction of a Black newspaper they may feel less compelled to change their language as a response to competition. Alternatively, non-Black newspapers in highly segregated areas may respond to Black competition by simply reducing coverage of race-related topics.

We use data on residential segregation from Logan and Parman (2017) and estimate Equation 1 separately for above- and below-median residential segregation counties in 1880. Results are presented in Table 3. Figure 6 show the event studies for the above and below-median samples.

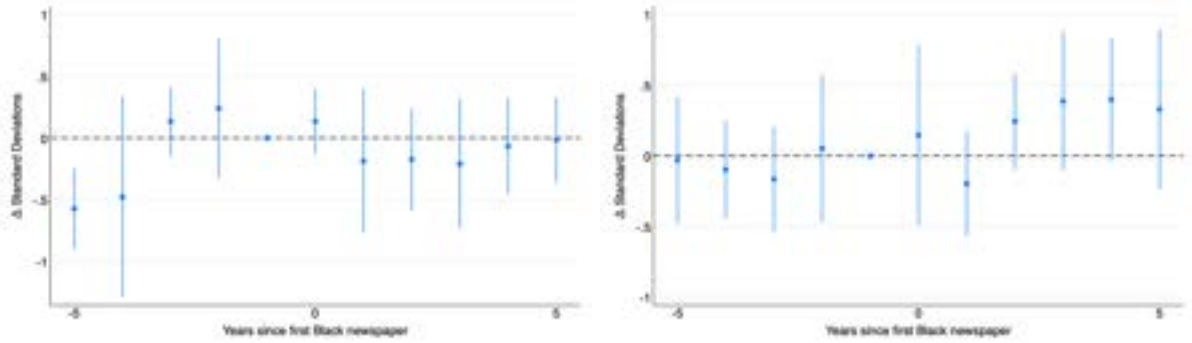
Table 3: Heterogeneity by Residential Segregation - 2x2 DiD estimates

	All Topics	Organized Politics	Politics and War	Violence
	(1)	(3)	(5)	(4)
Panel A: Above Median Residential Segregation				
DiD estimate	-0.086***	-0.002	-0.007***	-0.034**
	(0.032)	(0.004)	(0.002)	(0.014)
N	3,586	3,586	3,586	3,586
Mean of Topic	0.390	0.035	0.036	0.107
Panel B: Below Median Residential Segregation				
DiD estimate	0.115**	0.017**	0.016***	0.030***
	(0.047)	(0.007)	(0.006)	(0.010)
N	3,332	3,332	3,332	3,332
Mean of Topic	0.336	0.031	0.029	0.082

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses clustered at the county level.

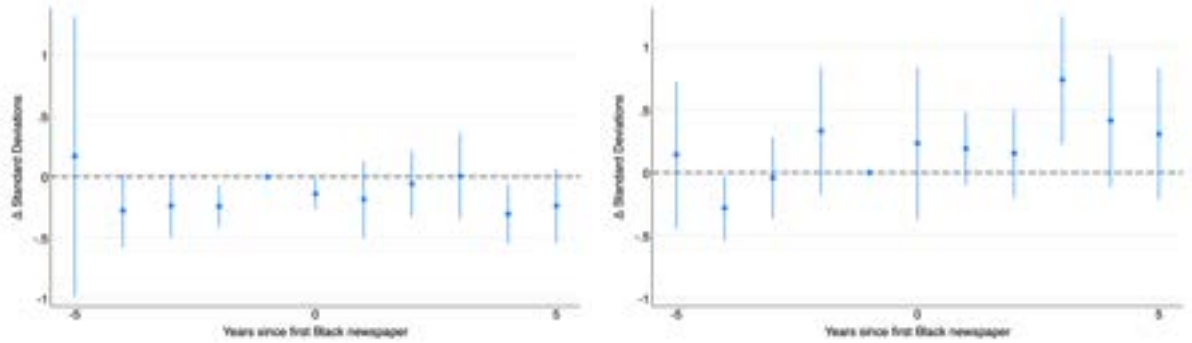
We find that newspapers in more and less segregated markets behave symmetrically, with more segregated counties decreasing coverage of race-related topics and less segregated counties increasing coverage. We refrain from offering an explanation to reconcile these patterns until we better understand the county characteristics and publisher characteristics that are also correlated with residential segregation.

Figure 6: Event Studies - Segregation Split



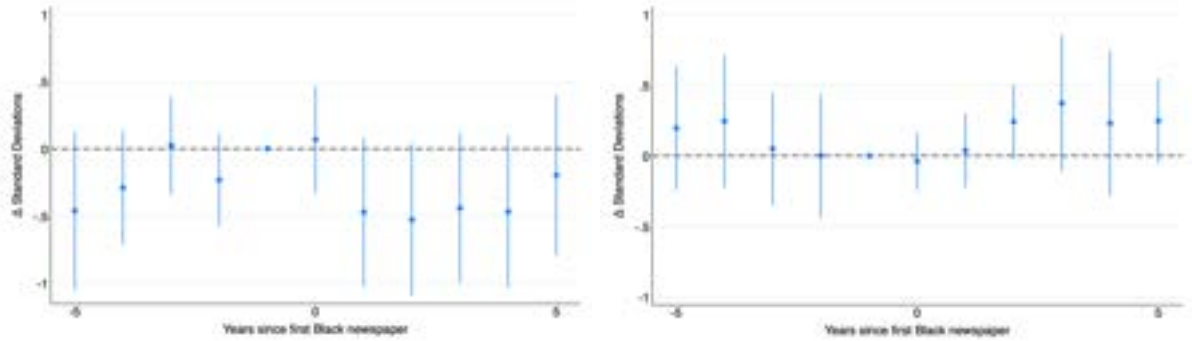
(a) Organized Politics - Above Median

(b) Organized Politics - Below Median



(c) Politics and War - Above Median

(d) Politics and War - Below Median



(e) Violence - Above Median

(f) Violence - Below Median

5.3 Robustness Checks

We perform a series of sensitivity tests to our results. First, we restrict the sample to only Southern counties, where the majority of treated counties are located. Event study specifications are shown in Figure A3. These results are qualitatively equivalent to our main specification, showing that Southern counties are the main drivers of our results.

One potential concern is that the change in the aggregate coverage of race-related topics is the

product of changes in market structure. To address that, we estimate Equation 1 on newspaper-level data to show that our results are robust to the use of within-newspaper variation. We use newspaper-by-year cells and restrict sample to non-Black newspapers. Similarly, we assign treatment at the county level: once a Black newspaper opens in a county, that county and all of its newspapers remain treated forever. We cluster standard errors at the county level. Results are presented in Table 4 and Event Studies are shown in Figure 7.

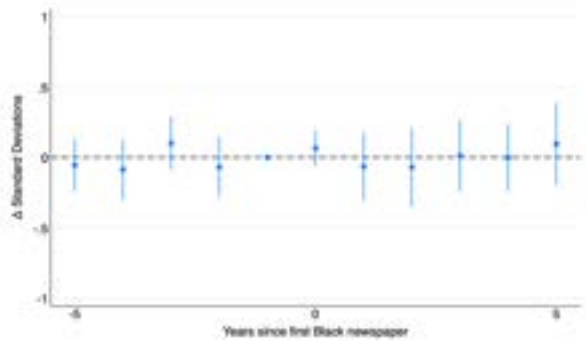
Table 4: Newspaper Level analysis - 2x2 DiD estimates

	All Topics	Organized Politics	Politics and War	Violence
	(1)	(2)	(3)	(4)
DiD estimate	0.016	0.004	0.003	-0.014
	(0.026)	(0.004)	(0.002)	(0.013)
N	8,396	8,396	8,396	8,396
Mean of Topic	0.360	0.033	0.032	0.094

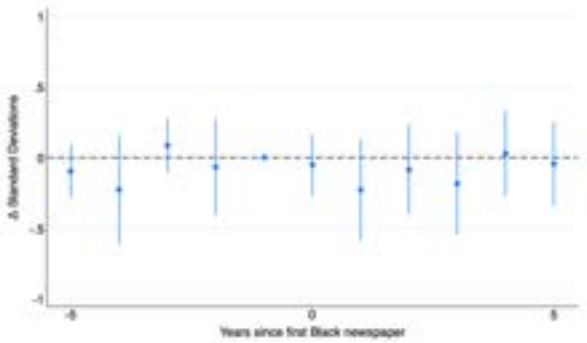
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses clustered at the county level.

While the results lose their statistical significance, the event study shows that most estimates retain their dynamic treatment effects, particularly those related to violence.

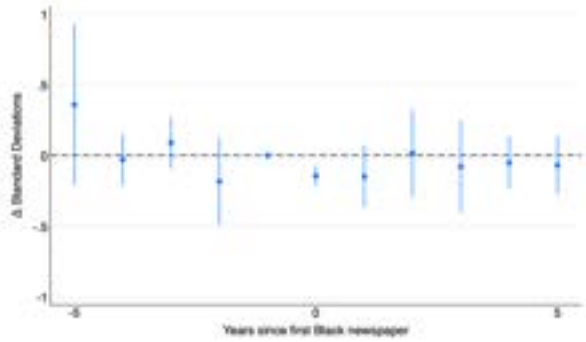
Figure 7: Newspaper-level analysis



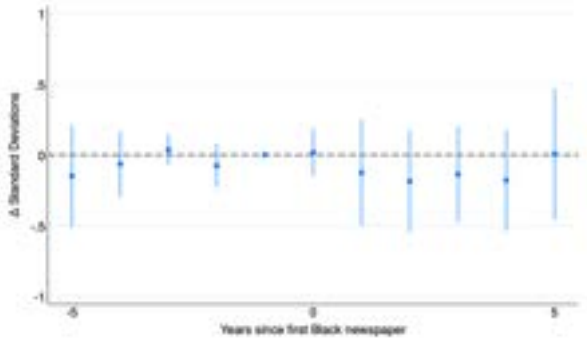
(a) All Topics



(b) Organized Politics



(c) Politics and War



(d) Violence

6 Conclusion

The Black press experienced a long period of growth between the postbellum and Jim Crow eras. We use the digitized Library of Congress *Chronicling America* archive to study how the entry of Black newspapers into local media markets changed market composition and coverage of race-related topics. We find that existing newspapers respond symmetrically depending on their underlying level of residential segregation: existing firms in more segregated areas decrease coverage of Black-related topics, while newspapers in less segregated markets increase such coverage.

Our results seem to speak to the degree of market competition between these two types of newspapers. In highly segregated areas, the opening of a Black newspaper creates separate markets for Black and non-Black readers. Thus, white newspapers' profit maximizing strategy may be to cater exclusively to white audiences, adjusting their content please their customer base. Such incentives may not materialize in less segregated areas, perhaps because white customers' disutility from Black-related content may be lower or demand is higher due to a higher level of social integration that makes those articles "newsworthy" for white readers. In this situation, the profit maximizing response to a Black newspaper opening is for existing firms to increase coverage of Black people and activities, appealing to a wider customer base.

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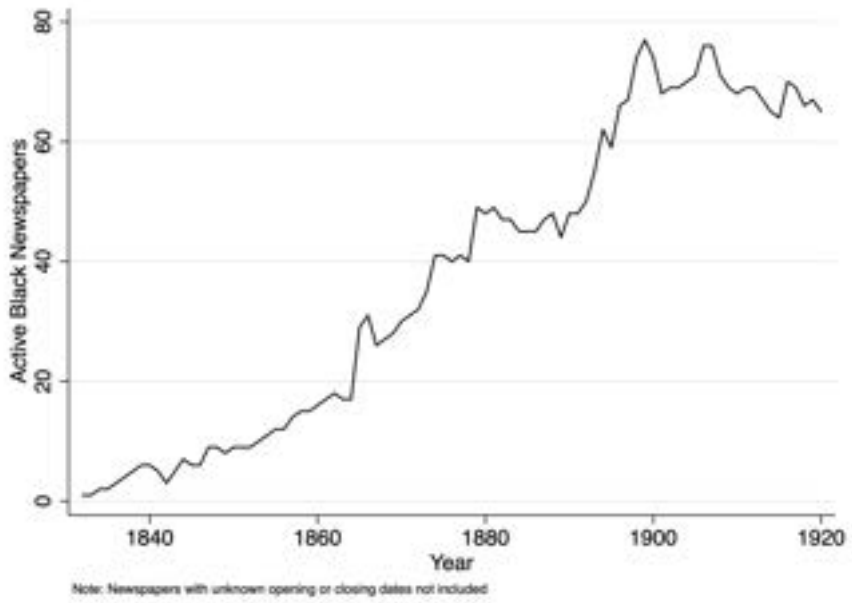
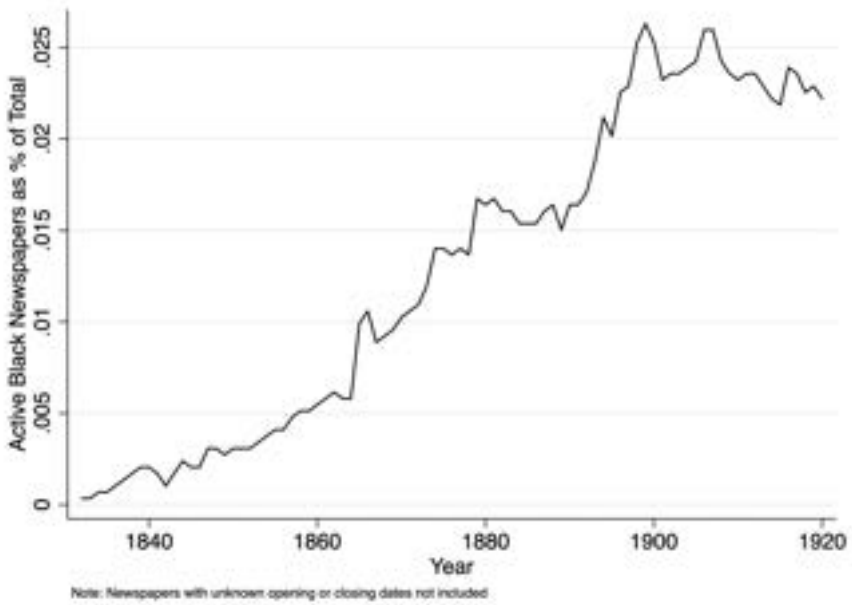
A Appendix

Figures

Figure A1: Participation of Black Newspapers in the Media Market

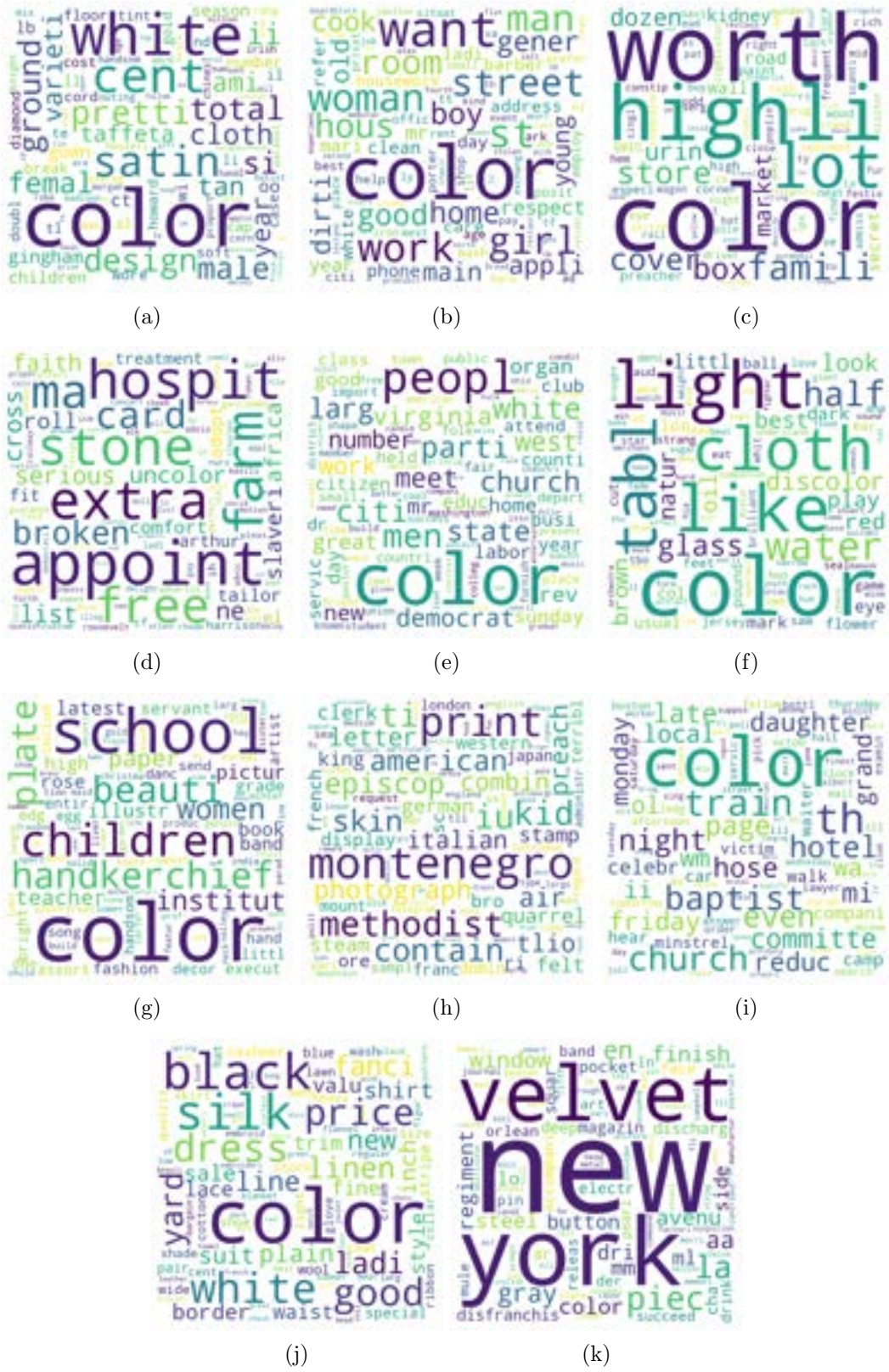


(a) Number of active Black Newspapers over time



(b) Share of Black Newspapers

Figure A2: Other Topics Produced by Language Model



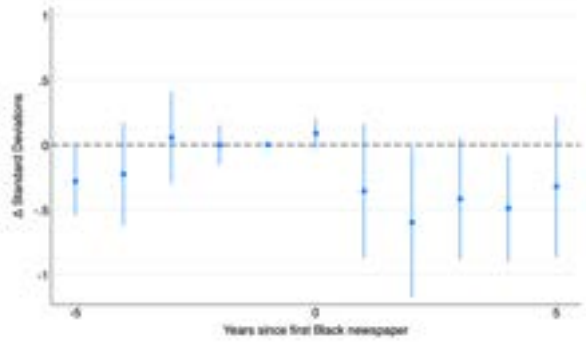
(a) (b) (c)

(d) (e) (f)

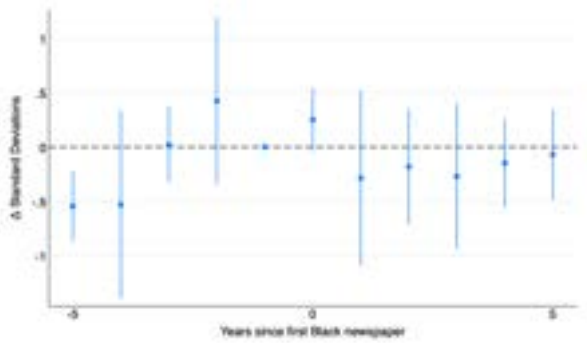
(g) (h) (i)

(j) (k)

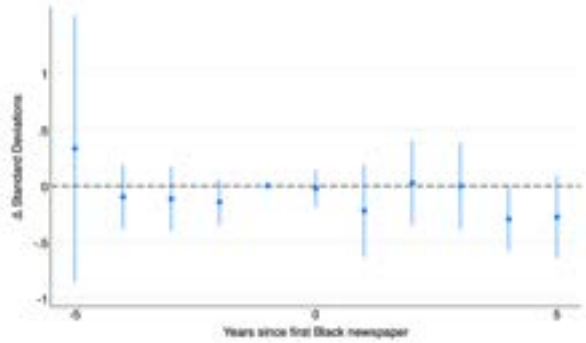
Figure A3: County Level Analysis - Southern Sample



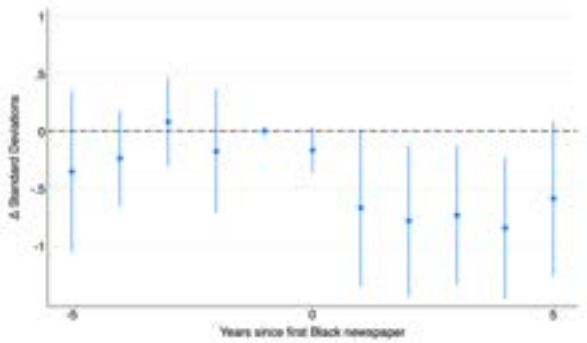
(a) All Topics - Southern Sample



(b) Topic 3 - Organized Politics - Southern Sample



(c) Topic 8 - Politics and War - Southern Sample



(d) Topic 14 - Violence - Southern Sample

Tables

Table A1: Market Composition

	All Topics	Above Median Segregation	Below Median Segregation
	(1)	(2)	(3)
Non-Black Newspapers	0.171	-0.067	1.043***
	(0.550)	(0.598)	(0.141)
N	7,505	3,588	3,332
Pre-Treatment Newspapers	1.170	1.202	1.142

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses clustered at the county level.