After the Burning:
The Economic Effects of the 1921 Tulsa Race Massacre*

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Abstract: The 1921 Tulsa Race Massacre resulted in the looting, burning, and leveling of 35 square blocks of a once-thriving Black neighborhood. Not only did this lead to severe economic loss, but the Massacre also sent a warning to Black individuals across the country that similar events were possible in their communities. We examine the economic consequences of the Massacre for Black populations in Tulsa and across the United States. We find that for the Black population of Tulsa, in the two decades that followed, the Massacre led to declines in home ownership, occupational status, and children's education. Outside of Tulsa, we find that the Massacre also reduced home ownership in communities that were more exposed to newspaper coverage of the Massacre and communities that, like Tulsa, had high levels of racial segregation. Examining effects after 1940, we find that the direct negative effects of the Massacre on the home ownership of Black Tulsans, as well as the spillover effects working through newspaper coverage, persist and actually widen in the second half of the 20th Century. Consistent with historical accounts, we find that, in the years following the Massacre, Black home owners and skilled workers were more likely to leave Tulsa. While the compositional effects due to selective migration are too small to explain the direct effects of the Massacre that we estimate, it is possible that the dynamic growth effects from the loss of entrepreneurial talent explains part of the longer-term adverse effects of the Massacre.

Key words: race, violence, wealth.

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1. Introduction

Between May 31 and June 1 of 1921, Tulsa experienced one of the largest and worst incidents of racial violence, murder, and destruction in postbellum U.S. history. During the course of the Massacre, 35 square blocks of the once-thriving Black community of Greenwood, which was once hailed as "Black Wall Street," had been burned to the ground. Over one thousand houses were burned while thousands of Black people were held in internment centers at gunpoint. While there are official death certificates for thirty-nine victims, estimates for those killed during the event range up to 300. The Greenwood area of Tulsa was known for its affluence. Prior to the Tulsa Massacre of 1921, the area had 191 businesses (including solo-practice lawyers and doctors), a library, two schools, and a hospital.[1] Figure 1 provides photographs of Greenwood prior to, during, and after the Massacre. The images provide a visual representation of the extent of the damage and loss from the event, which we conservatively estimate to be between $32.6 and $47.4 million in 2020 USD ($2.2 and $3.2 million in 1921 USD). This is the sum of damages documented in insurance claim amounts from the Oklahoma Historical Society's Tulsa Race Riot Commission Collection combined and Red Cross reports of the number of residential buildings and businesses destroyed.[2]

The Tulsa Massacre was unique for both the level of property damage and the affluence of the targeted Black community. A common narrative is that the event had long-term and widespread effects on Black people. If the riot had not occurred, "Black Wall Street" would have been an example of the achievement and economic success possible for other Black people across the country. Instead, the Massacre sounded a warning of what would happen if other Black communities became too successful. The view that the Massacre had lasting effects was described

[1] In the past, the Tulsa Race Massacre was commonly called a "Race Riot". The 1921 Centennial Commission changed the official designation to "Massacre" in 2018 (Krehbiel, 2018). In this paper, we follow this decision and use the term "Massacre" throughout.

[2] The claims for damages to residential buildings generally range from $22,074 to $29,432 ($1,500 to $2,000 in 1921 USD), and the Red Cross reports 1,256 destroyed homes. We multiply the damage amount by the number of houses to arrive at $27,724,944 to $36,966,592 in residential damage ($1,884,000 to $2,512,000 in 1921 USD). Following the same procedure, there were 529 looted homes with personal property claims generally ranging from $5,886 to $8,830 ($400 to $600 in 1921 USD), giving $3,113,694 to $4,671,070 in property damages ($211,600 to $317,400 in 1921 USD). There were 39 destroyed businesses with damage claims ranging from $44,148 to $147,160 ($3,000 to $10,000 in 1921 USD), giving $1,721,772 to $5,739,240 in business damages ($117,000 to $390,000 in 1921 USD).

The total amount of claims reported in the Oklahoma Historical Society's records is $21,643,064 ($1,470,712 in 1921 USD). This amount is lower than our estimate since we take into account the total number of buildings damaged (as reported by the Red Cross), even when a claim was not filed. Additionally, these are estimates of insurance claims, not necessarily the worth of the property. There are several instances where the property worth is listed along with the claim amount, and in these instances the claim amount is usually about half of the original worth of the property.

Figure 1: Images from the Tulsa Race Massacre of 1921

(a) Greenwood Neighborhood of Tulsa Prior to the Massacre

(b) Greenwood Burning During the Massacre

(c) Internment of Black Tulsans During the Massacre

(d) Greenwood After the Massacre

by State Senator Maxine Horner in the 2001 Report on the Massacre. She writes that those who had been through the Tulsa Massacre "emerged haunted as a result of that experience...If a people have been terrorized to the degree that North Tulsa survivors and descendants were, it could be expected that they would not make themselves noticed or be noticed by the group that terrorized them in the first place." (Horner, 2001, p. 177).

While many other incidents of racial violence are worth investigating for the sake of understanding their consequences,[3] the Tulsa Massacre was exceptional and marked a turning point in expectations and beliefs about racial violence in the United States. As Lisa Cook (2014, p. 235) puts it, "...before 1921 potential victims implicitly believed that, if implored, the federal government would act. The response to the Tulsa riot was considered a major policy shift in favor

[3]See Craemer, Smith, Harrison, Logan, Bellamy and Darity Jr (2020, p. 26) for a list of incidents of white mob violence against Black communities as well as Cook (2014, pp. 222–227) for tables and context on mob violence and violent events from 1870–1940.

of nonintervention by federal and state governments. Accounts of the Tulsa riot suggest that many at the time believed that government failed at all levels, and that this was a turning point in federal policy and national practice related to property-rights protection, and that the country was likely headed towards racial warfare."

Despite the importance of this event, we have a limited understanding of its effects in either the short- or long-run. In addition to the potential direct impacts on those who experienced the Massacre, other Black communities in the state, region, or country may have also been affected. The Greenwood neighborhood of Tulsa that was looted and destroyed was economically vibrant, dynamic, and affluent. It was one of the finest examples of Black entrepreneurship and success in the early twentieth century. The 1921 Massacre put an abrupt end to this, destroying nearly all of the community's wealth and assets.

Given the widespread newspaper coverage of the Massacre at the time, it is possible that this affected the expectations, aspirations, and economic decisions of Black entrepreneurs, business owners, and homeowners in other parts of the country. If one believed there was a chance of a similar race riot occurring in one's own community, then the incentives to invest in a business or purchase a home may have been significantly reduced. These possible shifts in incentives raise the possibility that knowledge of the Tulsa Massacre may have affected Black entrepreneurship and home ownership in other parts of the United States.

We begin our analysis by first examining the short- and medium-run effects of the Massacre, focusing on its effects on the home ownership and occupational status of Black Tulsans. We examine a panel that has three dimensions: a racial group (white, Black, and other), a location (either cities or counties), and a Census year. The sample begins in 1910, the year of the first Census that includes Tulsa. It also includes 1920, 1930, and 1940 for the baseline analysis, and is extended to 2000 for the long-run analysis. We estimate effects using a triple-difference design, where the coefficient of interest is for the interaction between a post-Massacre indicator, an indicator for the racial group being Black individuals, and an indicator for Tulsa being the location of residence. In the specifications, we control for location-race, location-year, and race-year fixed effects. Thus, the estimates effectively compare Black people to people from other races, within Tulsa versus elsewhere, before versus after the 1921 Massacre.

We begin the analysis by first estimating the specification at the individual level where the sample is restricted to individuals living in Tulsa or a set of 59 cities that are comparable to Tulsa

in terms of racial distribution and size. Specifically, these are cities that, in 1920, had a population between 50,000 and 150,000 people and had a Black population of at least 1,000 individuals. We also expand the sample and examine all individuals living within the United States. We estimate the specification using weighted least squares where the unit of observation is a racial group, county, and census year. Regardless of which specification we use, we find that the Massacre is associated with a sizeable decline in home ownership and occupational status for adults. We also find, lower rates of educational enrollment for their children. These findings are robust to alternative ways of measuring these variables. The estimates are large in magnitude and highly significant.

Having examined the effects of the Massacre on Black Tulsans, we then ask whether the Massacre also affected Black communities in other parts of the country. Using our full sample, we check whether we observe lower rates of home ownership and lower occupational status in Black communities that had greater exposure to information about the Massacre through newspaper articles published at the time of the event. Greater newspaper coverage would mean that the warning the Massacre offered would have been more extensively and clearly communicated, particularly given that a sizeable portion of the articles described the Massacre as justified, a blessing in disguise, or for the greater good of the community. We also test whether we find evidence of effects in communities that, like Tulsa, had high levels of racial segregation. In counties with segregated Black neighborhoods, spatial targeting, looting, and destruction of Black-owned buildings would have been more feasible.

We find evidence of spillover effects along both information and segregation dimensions that are the same direction as the direct effects and most clearly observed in home ownership. Both estimates are sizeable, although the newspaper spillover effects are less precisely estimated compared to the segregation spillover effects. The estimated spillover effect for Black individuals in the state with the greatest newspaper exposure is about 75% the size of the direct effect experienced by Black Tulsans. For those in the least exposed state, there is no spillover effect. The findings are consistent with the Massacre being a warning about the possibility of the destruction of wealth, which in turn affected the decision to invest in assets like homes.

We then turn to an examination of the longer-run dynamic effects of the Massacre. For home ownership, we are able to extend the period of analysis to 2000. We find that the direct effects of the Massacre on Black Tulsans persist and actually increase over time. The estimated effect

of the Massacre on the home ownership of Black Tulsans in 2000 is found to be over twice the magnitude of the effect in 1940. Similarly, we find that the newspaper spillover effect persists past 1940 and increases in size and precision. The estimated effect in 2000 is over 60% greater than in 1940. By contrast, we find that the segregation spillovers do not persist, instead dying out over time and approaching zero by 2000. This is potentially explained by the fact that the cross-county correlation between racial segregation in the early and later twentieth century is very weak.

The last analysis that we undertake examines selective migration. Using linked Census data, we examine migration between 1920 and 1930. Consistent with historical accounts, we find that the Massacre led to the outmigration of Black Tulsans. According to the estimates, the Massacre resulted in a 10.3 percentage point increase in the rate of outmigration among Black individuals living in Tulsa in 1920. Also consistent with historical accounts, we find that wealthier and more-entrepreneurial individuals were more likely to leave Tulsa after the Massacre. We estimate higher outmigration rates for Black Tulsans who, in 1920, were home owners or had higher status occupations.

The evidence for selective migration raises the question of the extent to which this accounts for the direct effects of the Massacre on Black Tulsans, particularly in the decades immediately following the Massacre. Using our estimates, we are able to calculate predicted effects due to compositional changes arising from selective migration. These are very small relative to the effects we estimate. For example, the compositional consequences of selective migration are predicted to have reduced home ownership by Black Tulsans by 0.26 percentage points. This is very small compared to the estimated effect of the Massacre, which ranges from 4.2 to 10.3 percentage points depending on the specification.

Although the compositional effects due to selective migration are too small to explain the direct effects of the Massacre, it is possible that dynamic growth effects, that arise from the loss of entrepreneurial talent, explains part of the longer-term adverse effects of the Massacre. We view this as plausible, consistent with historical accounts, and likely an important factor in the overall effects of the Massacre on the economic wellbeing of Black Tulsans.

Our findings add to the rich existing literature on the history of race, coercion, violence, and unrest in the United States. Cook (2014) studies the effects of race riots and lynchings between 1870 and 1940, and finds that these forms of violence and insecurity reduced patenting by Black people by more than 15% annually from 1882–1940. Williams (2022) estimates the county-level

relationship between lynchings from 1882–1930 and lower rates of voter registration among Black people today. Acharya, Blackwell and Sen (2016) study the lasting consequences of slavery on racial and political attitudes of white people today: Counties with more slavery in the past are more racist today, have strong support for the Republican Party, and are more likely to oppose policies that provide support for Black people, such as affirmative action. Logan (2019) documents a relationship between violence against Black politicians and declines in tax revenues between 1870 and 1880. Collins and Margo (2004, 2007) study the effects of the race riots of the late 1960s. The authors find that the riots had a negative and persistent effect on Black incomes, employment, and property values. Williams (2021) documents a striking micro-spatial relationship between Confederate street names and the worse labor market outcomes of their Black residents. Additional research, some outside the U.S. context, speaks to the detrimental effects of exposure to coercion, violence, or exploitation (Nunn and Wantchekon, 2011, Bautista, 2015, Alsan and Wanamaker, 2018, Archibong and Obikili, 2020, Archibong and Annan, 2021, Bautista, González, Martínez, Munoz and Prem, forthcoming).

Our findings also contribute to the existing literature within economics that studies the historical determinants, be they political, social, economic, or institutional, of the economic success of Black people during the late-19th and 20th Centuries (e.g., Naidu, 2012, Hornbeck and Naidu, 2014, Logan and Parman, 2018, Clarke, 2019, Derenoncourt and Montialoux, 2021, Derenoncourt, 2022, Derenoncourt, Kim, Kuhn and Schularick, 2022, Aneja and Xu, 2022, Darity Jr, 2022, Chelwa, Hamilton and Stewart, 2022). Lastly, our work also adds to descriptive accounts of the Tulsa Massacre and its consequences (e.g., Halliburton, 1972, Horner, 2001, Messer, 2011, Messer, Shriver and Adams, 2018). Our analysis builds on these accounts and provides estimates of the general effects of the Massacre, including spillover effects to all parts of the country.

Before turning to our empirical analysis, we first provide a quantitative and qualitative description of Tulsa, the Massacre, and its aftermath (section 2). This is followed by an analysis of the short-run effects (until 1940) of the Massacre for Black Tulsans (section 3). We then turn to an examination of the effects of the Massacre on Black communities outside of Tulsa, looking specifically at spillover effects due to newspaper coverage of the event and for communities that, like Tulsa, were highly segregated making targeted destruction a possibility (section 4). We then examine the persistence of the direct and spillover effects on homeownership until 2000 (section 5). The penultimate section examines whether the Massacre affected migration from Tulsa and

whether this was selective (section 6). The final section concludes.

2. Historical Background

A. *Tulsa Prior to the Massacre*

The origins of Tulsa, Oklahoma can be traced to an oil boom in the 1910s that was due to an oil field called Glenn Pool, which was viewed as the "richest small oil field in the world" at the time. By 1921, Tulsa was home to more than 400 oil and gas companies, four railroads, and a commercial airport (Ellsworth, 2001). Excitement about the prospects of oil and broader economic opportunity meant that Tulsa's population boomed between 1910 and 1920. According to the U.S. censuses, Tulsa county more than tripled in total population from around 35,000 in 1910 to 109,000 residents in 1920. Among all counties in the U.S. at the time, Tulsa's population growth was the ninth highest.

When Oklahoma was established as a state in 1907, the area was seen as an opportunity for Black people seeking freedom from Southern oppression. In fact, of the approximately 50 "all-Black towns" (i.e., municipalities established for or by a predominantly Black population), more than 20 were located in Oklahoma (Ross, 2001). Despite the promising setting, the first bill that was passed after Oklahoma statehood was "Senate Bill One," which segregated the state. The Greenwood neighborhood in Tulsa and its vastly different racial makeup from the rest of Tulsa was a direct consequence of these strict Jim Crow laws.

Since Black people were legally barred from oil industry jobs and most manufacturing facilities, Black Tulsans were largely unable to take up many of the professions that their white counterparts could during the county's oil boom. A consequence of this was that, while some of Greenwood's Black population were business owners, the vast majority worked for white employers (Ellsworth, 2001). About a third of the Greenwood population lived in servant's quarters of white Tulsa. The city's tight segregation laws meant that money earned in the white downtown area was then spent in the neighborhood of Greenwood (Madigan, 2003). There were doctors, dentists, lawyers as well as two newspaper offices. Residents had access to a public library, two schools, and a hospital. The economic success of a number of Black entrepreneurs such as Loula and John Williams (owners of the 750-seat Dreamland Theater), O.W. Gurley (owner

of the Gurley Hotel), and J.B. Stradford (owner of the 65-room Stradford Hotel) added to the view of Tulsa as the "Black Wall Street" (Messer, 2021).

To provide an empirical sense of the extent of the segregation, we compare the segregation in Tulsa to that of other counties in the U.S. at the time using Logan and Parman's (2017a) measure of racial similarity of neighbors. The segregation of Tulsa is shown in Figure 2, which is a histogram showing the distribution of county-level segregation across the United States in 1920. The vertical line indicates Tulsa's measure of segregation. Consistent with descriptive accounts, Tulsa was one of the most segregated counties in the U.S. at the time.

The high level of segregation is an important aspect of Tulsa that facilitated the events that followed. Because there was a Black neighborhood, where commercial buildings and homes were located, it was feasible for white mobs to target Black-owned property. Relative to a setting with integration, it was easy to know which properties were Black-owned and which were white-owned. In addition, segregation meant there was less worry that if a Black-owned structure was set on fire, then it might spread to any nearby white-owned structures. In Tulsa, the neighboring structure was almost certainly also Black-owned.

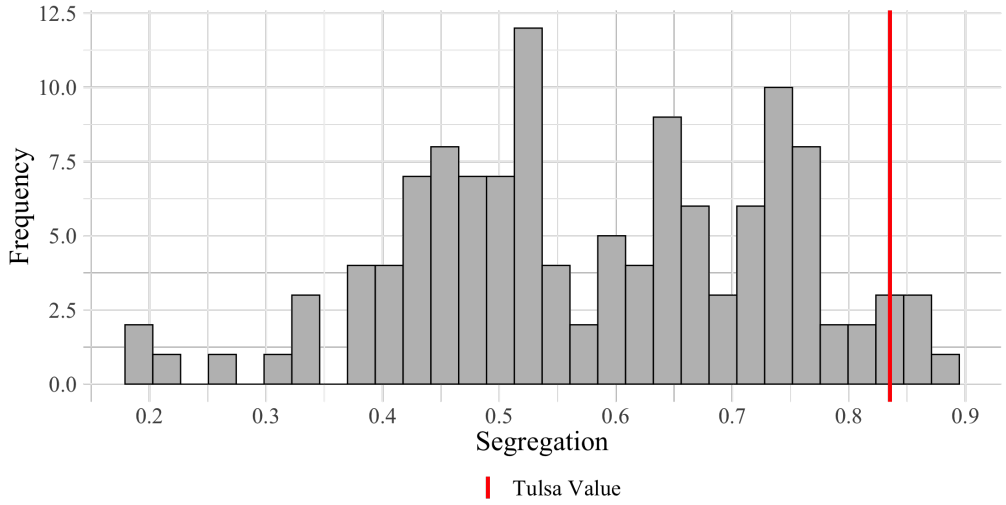
The link between segregation and the ease of targeting Black-owned buildings has potentially important implications for the extent to which Black communities might be worried about similar events happening in their city. We might expect that the more spatially segregated a community was, the more feasible and likely an event like the Tulsa Massacre might be, and this would affect home ownership. Consistent with this hypothesis, Logan and Parman (2017b) show that during this period, in the cross-section, there is a negative relationship between segregation and homeownership for Black households. The relationship between the effects of the Tulsa Massacre, segregation, and home ownership is something that we explore in our empirical analysis.

Although the extent of segregation within Tulsa was exceptional, in other dimensions the Black population of Tulsa was not so different from other Black communities across the country. Figure 3 reports the same histogram as in Figure 2 but for four measures of the Black population of Tulsa.[4] In each of these dimensions, Tulsa appears fairly typical.[5] The one exception is the

[4]The comparison is restricted to counties that, in 1920, had a population of at least 50,000 individuals and a Black population of at least 1,000 individuals. This is a similar restriction to the one we make when selecting comparison cities for the analysis of Section 3. All conclusions made here are the same if we look at all counties, even those that are sparsely population or with few Black residents.

[5]If one restricts the comparison to other counties that are also in the segregated U.S. South, the same picture emerges. This is shown in Appendix Figure A5.

Figure 2: Segregation in Tulsa County Compared to the National Distribution of County Segregation in 1920



Notes: Data from Logan and Parman (2017). Restricted to counties that, in 1920, had a population of at least 50,000 individuals and a Black population of at least 1,000 individuals.

proportion of individuals who are in white-collar occupations. Though still low, at approximately 1.5%, the share of Tulsa's Black population with white-collar occupations was higher than nearly every other county. This may be an important factor behind the perception of Tulsa as the "Black Wall Street."

We probe the racial differences within Tulsa further by examining the differences between the white and Black populations of Tulsa. Figure 4 reports a series of graphs that have the value of the characteristic of the white population on the x-axis and the value of the characteristic for the Black population on the y-axis.[6] Each graph also reports the 45-degree line which indicate Black-white equality for the dimension of interest. Tulsa is denoted by a solid red circle, while all other counties are denoted by opaque gray circles. The figures show clearly that, within a county, the Black population tended to be smaller, have a lower likelihood of home ownership, less white-collar employment, lower average occupational status, and a higher proportion of individuals participating in the labor force. To understand how typical the Black-white differences in Tulsa were, we examine the location of Tulsa, particularly its distance to the 45-degree line, relative to the other counties. From the figures it is clear that Tulsa was not an extreme outlier.

From the data, it is clear that Black Tulsa (i.e., Greenwood) was economically successful. Black

[6]The analogous figure but with the comparison counties restricted to those also in the segregated U.S. South is reported in Appendix Figure A6.

Figure 3: Characteristics of Black Tulsa County Compared to Black National County Distributions in 1920

Notes: Restricted to counties that, in 1920, had a population of at least 50,000 individuals and a Black population of at least 1,000 individuals.

Figure 4: Characteristics of the Black and White Populations of Tulsa County Relative to Other U.S. Counties in 1920

Notes: Restricted to counties that, in 1920, had a population of at least 50,000 individuals and a Black population of at least 1,000 individuals. The green line shows the 45 degree line where metrics are equal for the Black and white populations.

wealth, as measured by the likelihood of home ownership, was high at nearly 30%. Average occupational status was also high, with a relatively high proportion of population engaged in white-collar jobs. However, the data also suggest that many other counties in the U.S., and even in the segregated South (see Appendix Figure A6), were similarly successful. This is also true when looking at the differences between the relative success of the white and Black populations. What appears most exceptional about Tulsa was not the absolute level of prosperity of the Black community – there were other communities within the country that were similar – but the level of segregation in the county.

The existence of many other prosperous Black communities is particularly important for potential spillover effects. A common perception was that an important determinant of the Massacre was the economic success of the Black population in a community relative to its white population. For example, a 1921 NAACP report wrote that "[t]he negro in Oklahoma has shared in the sudden prosperity that has come to many of his white brothers, and there are some colored men there who are wealthy. This fact has caused a bitter resentment on the part of the lower order of white people, who feel that these colored men [...] are exceedingly presumptuous in achieving greater economic prosperity than they who are members of a divinely superior race." Knowledge of the events of the Tulsa Massacre may have been particularly salient for Black people living in counties that were similarly prosperous to Tulsa. Given that Tulsa was comparable to other counties in terms of both the absolute level of economic prosperity of the Black community and its level of relative prosperity relative to the white population, a large proportion of the Black population in other parts of the United States may have felt that their communities were also susceptible to the same events.

B. *The 1921 Race Massacre*

On May 31, 1921, Dick Rowland, a Black man, was accused of assaulting a white woman named Sarah Page. Mr. Rowland was a shoe-shiner who had taken an elevator, operated by Ms. Page, to use a restroom in a nearby building since the shine parlor where he worked had no restrooms for Black people. There is no record of what Sarah Page initially said to the police who interviewed her (Ellsworth, 2001).

Following the accusation, Mr. Rowland was brought to the local courthouse, where crowds of white people soon gathered. Members of the Black community grew concerned that the white

mob might try to lynch Rowland. People were skeptical of law enforcement's ability to keep defendants safe, as a mob had successfully taken a man from the courthouse and lynched him a year prior (Ellsworth, 2001, p. 55). A confrontation in the crowd between Black and white Tulsans led to mob violence against the Black community. Armed white people broke into Black homes and businesses, which they looted before setting them on fire with oil-rags and torches.[7] As many as five-hundred white men and boys were sworn-in by police officers as "special deputies" during the riot who then participated in burning homes (Ellsworth, 2001).

Thousands of Black Tulsans were taken to internment centers at gunpoint. They were detained in makeshift centers at the Convention Hall, the fairgrounds, and a baseball park (Goble, 2001, Ellsworth, 2001). Even after the restoration of order, it was official policy to only release a Black detainee upon the request of a white person, typically their employer (Goble, 2001). The Frissell Memorial Hospital, the only hospital that served Black people, was burned down. As a result, Black victims with injuries went untreated in internment centers or were eventually treated in a converted basement of a white hospital called the Morningside Hospital. While there are 39 deaths confirmed by death certificates, the Red Cross estimates as many as 300 deaths (Snow, 2001, Brooks and Witten, 2001). One hundred years later, the city of Tulsa is still searching for mass graves.

In terms of property damage, 1,256 homes were burned down, leaving thousands homeless (Goble, 2001). In all, 35 square blocks of the Black community were completely destroyed. About $25 million (in 2020 dollars) of property damage was estimated using Tulsa Real Estate Exchange Commission records, claims from Tulsa City Commission meetings, and court cases (O'Dell, 2001). This is surely an underestimate of actual losses since not all residents took insurance companies or the city to court. Professor Alicia Odewale estimates financial losses at $50–100 million (Chang, 2019). Black residents who filed insurance claims were never compensated since companies, as it was standard in their contracts, were not liable for loss caused by "riot." The cases against insurance companies were inert for years before eventually being dismissed in 1937 (Brophy, 2001).[8]

The Red Cross remained in Tulsa for months to provide relief. Despite the Red Cross's enormous relief efforts, Ellsworth (2001) writes that "thousands of black Tulsans were forced

[7]Some account also mention the dropping of incendiaries from airplanes.

[8]See Appendix Figure A1 for the "riot exclusion clause" language in contracts, as found in court documents at the Oklahoma Historical Society.

to spend the winter of 1921–22 living in tents. Others simply left. They had had enough of Tulsa, Oklahoma" (pp. 88–89). For example, the two most prominent Black businessmen in Tulsa, J.B. Stradford, owner of the Stradford Hotel, and O.W. Gurley, owner of the Gurley Hotel, both left Tulsa after the Massacre. Both started businesses in their new locations, Stradford in Chicago and Gurley in Los Angeles (Ross, 2001, Wills, 2019). Another prominent example is A.J. Smitherman, who had founded the Tulsa Star. After the Massacre, he left for Springfield, M.A. and eventually founded the Buffalo Star newspaper in Buffalo, N.Y. (Magliulo, 2006).

In the autumn of 1921, Dick Rowland's case was dismissed because Sarah Page failed to appear in court (Brophy, 2001). During this same time, the *Tulsa World* ran an article saying "Grand Jury Blames Negroes for Inciting Race Rioting: Whites Clearly Exonerated" (Brophy, 2001). In the decades after 1921, Tulsa and Oklahoma practiced "historical amnesia" when it came to the Massacre, leaving it out of textbooks and newspapers. Even the *Tulsa Tribune*'s "Fifteen Years Ago" feature in 1936 failed to mention the Massacre on its 15th anniversary. It was "as if the greatest catastrophe in the city's history simply had not happened at all" (Franklin and Ellsworth, 2001, p. 26). The words of James B.A. Robertson, who was the Governor of Oklahoma from 1919–1923, illustrate the manner in which the Massacre was approached: "riots are unfortunate affairs at all times and the less said about them the better for all concerned."[9]

While our analysis estimates the average effects of the Massacre, each person behind the aggregate numbers has their own story and experience. Concrete accounts of experiences during the Massacre were collected in January and February 1999 by the *Tulsa World* and the *Oklahoma Eagle* newspapers, which put out calls requesting information on the 1921 Massacre from its readers. More than 150 people called in with family stories, eye-witness accounts, and more. These accounts were then converted to draft write-ups of telephone conversations. Images of the text from four conversations (from the Oklahoma Historical Society's Tulsa Race Riot Commission Collection) are shown in Appendix Figure A3. The accounts, although brief, provide rich first-hand context to the experiences of those who experienced the Massacre. They describe a man who, after hearing of the riot, "tore down the stairs" to his family's apartment and "stationed himself with a shotgun at the top" (no. 25); firemen in Greenwood who were forced to "let it burn by armed white civilians" and who witnessed "two flat bed trucks with bodies" (no. 71); a private trash hauler who was forced to transport "six bodies to a hole. . . in Oaklawn Cemetery" (no. 76);

[9]See Appendix Figure A2 for the full letter from which the quote is taken.

and a man "who had been in the riot and shot many Blacks... He said hundreds of them were buried under the railroad. He was proud of this and said he would do it again." (no. 37).

C. *Consequences of the Massacre*

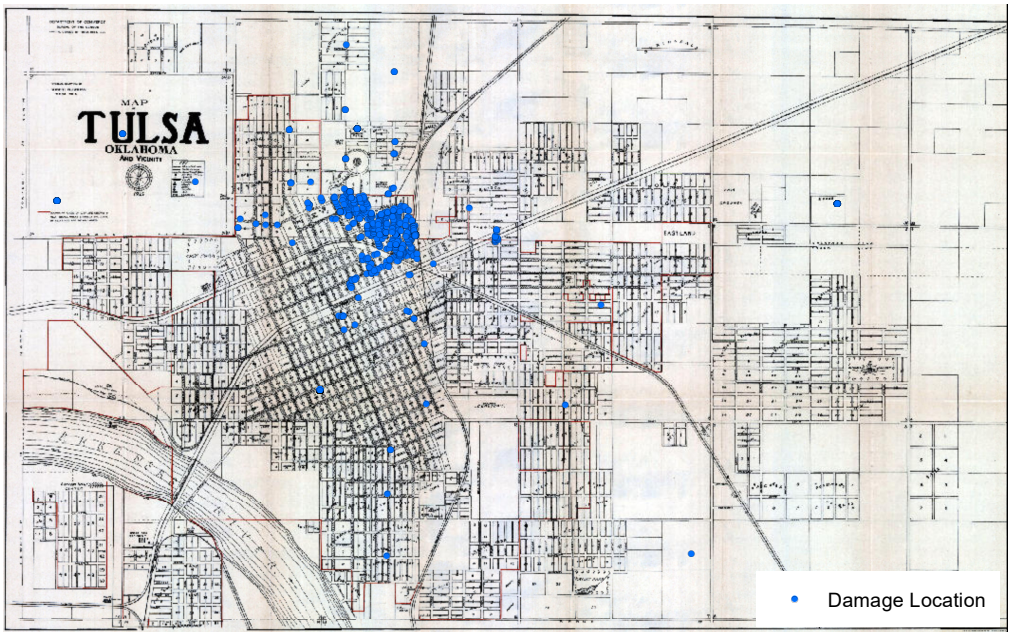
Our analysis examines a number of consequences of the Massacre. The most obvious is home ownership. Nearly every Black-owned business or home was looted and then burned. The locations of the destroyed buildings are shown in Figures 5a for Tulsa as a whole and Figure 5b for the neighborhood of Greenwood. The locations shown on the figures are georeferenced using the addresses of destroyed buildings as sourced from three archival sources: a database compiled by the Oklahoma Historical Society of cases filed by Tulsa residents against Insurance Companies and the City of Tulsa; a list of property losses reported in Parrish (1998); a document from the Oklahoma Historical Society that lists churches in Tulsa that received structural damage. It is clear that the destruction was concentrated within the Black neighborhood of Greenwood and that it was extensive, with full city blocks being burned to the ground. The high rate of segregation in Tulsa (previously shown in Figure 2) made it easy to target Black-owned buildings.

Despite years of litigation, no compensation, either from insurance companies or the government, was received by any of the victims. Thus, the Massacre resulted in the permanent destruction of assets, buildings, and capital. Therefore, the Massacre may have resulted in a decrease in home ownership.

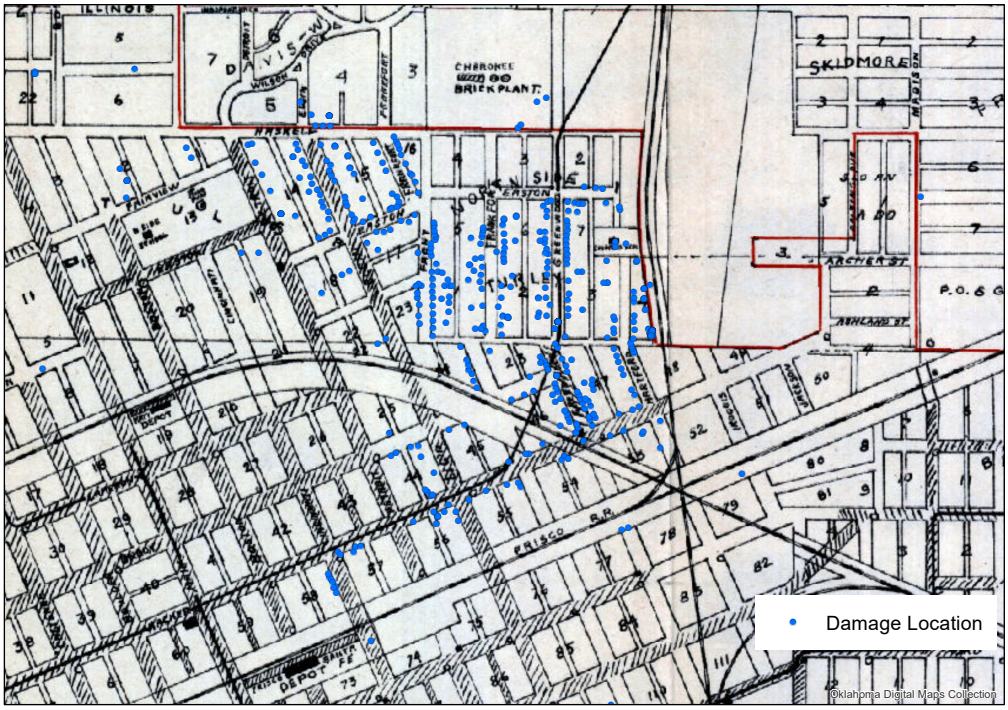
We also expect that the Massacre may have resulted in occupational downgrading. There are numerous accounts of individuals losing not only their home but also their business as well. Because compensation was not received, they were unable to rebuild and instead had to take less skilled employment to survive. A typical case can be seen in the example of Pressley and Mable Little. Before the Massacre, Mabel owned a beauty salon, while Pressley ran a cafe. The couple also owned their own home, two rental properties, and a Model T Ford. All were destroyed during the Massacre. The couple fled their home after the first night of looting and destruction. After fleeing North, they were intercepted by the National Guard and brought back against their will to Tulsa. After the Massacre, the couple, with fifty dollars to their name, built a three-room shack without electricity, running water, or gas. To survive, Pressley, the once entrepreneur and landlord, did manual labor and carpentry until his death three years later (Hirsch, 2002,

Figure 5: Locations of Damaged Property in Tulsa and Greenwood.

(a) The Broader City of Tulsa



(b) Zooming in to the Greenwood neighborhood



pp. 145–147). Thus, at least in this example, the Massacre resulted in significant occupation downgrading.

Beyond the direct effect of the Massacre for those who experienced it, we also expect that the event may have had effects on Black communities outside of Tulsa. In the aftermath of the Massacre, it became clear that such an event could easily occur again. The narrative that emerged from those in positions of power was that the blame for the Massacre fell squarely on the shoulders of the Black community. There was no regret or remorse for the events that had occurred. The mayor of Tulsa, T.D. Evans, in a statement to city commissioners on June 14, 1921, made clear his views that the Black community was to blame: "Let the blame for the Negro uprising lie right where it belongs – on those who armed negroes and their followers who started this trouble and who instigated it... Any person who seeks to put half the blame on the white people are wrong and should be told so in no uncertain terms." He continued, arguing that "it was good generalship to let the destruction come to that section where the trouble hatched up... All regret the wrongs that fell upon the innocent Negroes [but] the fortunes of war fall upon the innocent as well as the guilty." (Hirsch, 2002, pp. 126–127).

Ironically, the only blame that was placed on white individuals was to ask why those in positions of power allowed the Black community to exist in the first place. An editorial titled "It Must Not Be Again," published in the Tulsa Tribune on June 4, 1921, argued that the area must never be allowed in Tulsa again: "Such a district as the old "N*****town" must never be allowed in Tulsa again. It was a cesspool of inquiry and corruption... In this old "N*****town" were a lot of bad n*****s and a bad n***** is about the lowest thing that walks on two feet." The article goes on to ask why the community was not eradicated earlier and to blame the Police Commissioner for not doing so. "Well, the bad n*****s started it. The public would now like to know: why wasn't it prevented? Why were these n*****s not made to feel the force of law and made to respect the law?" (Titcomb, 1921)

This same narrative appeared in newspapers across the country. Greenwood was commonly described as a cesspool that should never have existed and the Massacre as a welcome event that made Tulsa better off. As an example, The Fresno Morning Republican, in a July 18, 1921 article titled "The Tulsa Crime Belt," wrote "The city administration is being asked why it permitted such places as "N*****town" dives to exist. The city administration has created a special committee of prominent citizens to help cover the ash-covered acres in a much needed warehouse district

which would give the land greater value and with the money from which the negroes might buy a better residential subdivision which might be carefully plotted and made sanitary and parked." The article continues, "The cause of the Tulsa race riot was the cause that is common to all race riots plus a city too busy building to give thought or care to the spawning pools of crime. . . Most such disasters bring their resultant good. Tulsa teaches a lesson to other cities. Don't neglect the 'over there.' Teach the 'over there' to live more like the 'over here.' It is that kind of living that cultivates understanding and levels the rough prejudices into a smoother friendliness." (The Fresno Morning Republican, 1921).

To the Black population outside of Tulsa, the message was clear. Rather than regretting the destruction of Greenwood, authorities and the white population, in general, lamented that the neighborhood existed in the first place and felt that the Massacre resulted in a better city. This sent a clear message to Black populations across the country that an event like the Tulsa Massacre was easily possible in their community.

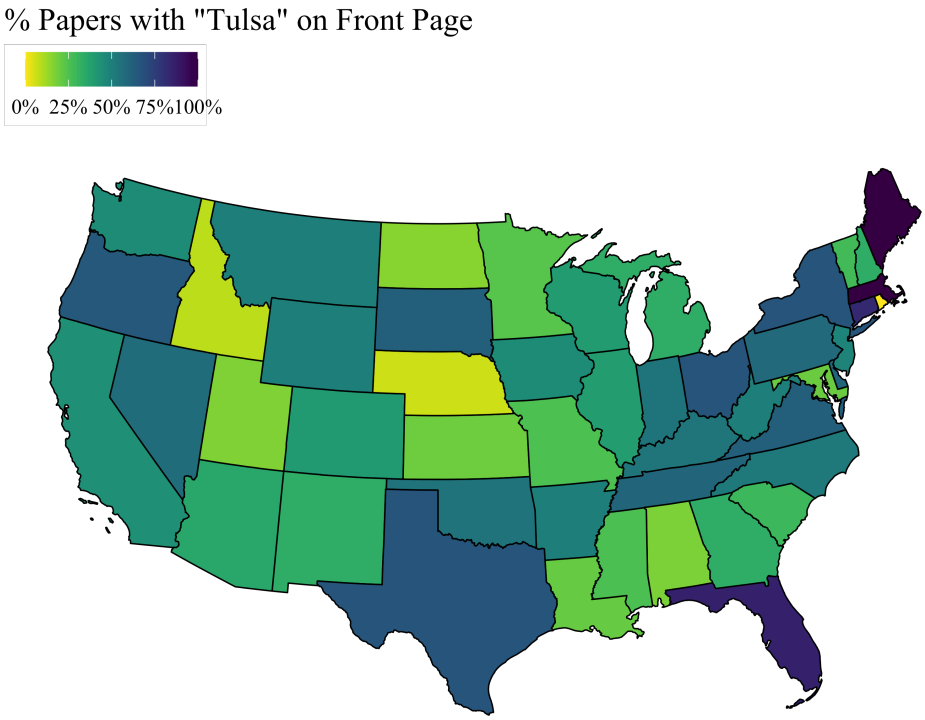
Coverage of the Massacre traveled well beyond Oklahoma. Examining available digitized newspapers from the days immediately following the Massacre (June 1–4, 1921), we calculate the proportion of newspapers that mention "Tulsa" on their front page.[10] This proportion is shown in Figure 6. For most states, more than half of the newspaper editions mentioned the Tulsa Massacre on their front cover. Using coverage within Oklahoma as a baseline, we see that most states had coverage that was at least as extensive as Oklahoma's. In addition, this coverage was not superficial. The Massacre often comprised nearly all of the content on the front page. An example is provided in Appendix Figure A4, which shows the front page of The Selma Times-Journal from June 21, 1921, which featured eight articles about the Tulsa Massacre. In all, there appears to have been extensive and widespread coverage of the event.[11]

The Massacre had additional effects on the Black children of Tulsa. Due to the Massacre, the two colored elementary schools in Tulsa were destroyed. Dunbar Grade School and Washington School are both listed in the 1920 and 1921 City Directory but disappear after 1922. Figure 7a

[10]The data are from `newspapers.com`. Although the source does not contain complete nor representative coverage of all newspapers, the sample does provide some sense of the extent to which the news of the Tulsa Massacre immediately spread across the country.

[11]It is easy to under-estimate the importance of the newspaper at the time. It is important to remember that this was the only widely used medium at the time. In fact, a key contributor to the Massacre itself was the May 31, 1921 edition of the *Tulsa Tribune* which reported on the alleged assault of Sara Page by Dick Roland. It was the coverage of the allegation that caused white Tulsans to assemble at the local courthouse in an attempt to lynch Dick Roland (Messer and Bell, 2010, p. 853). This illustrates the importance and power of the print medium at the time.

Figure 6: Fraction of Newspapers that Contain the Word "Tulsa" on the Front Page, June 1–4, 1921



Notes: Data are from Newspapers.com, June 1-4, 1921.

shows the remains of Dunbar school, which was located on Hartford Avenue between Easton and Cameron Streets, after the Massacre. Fortunately, the one colored high school in Tulsa, the Booker T. Washington High School which was located on the edge of Greenwood, survived the destruction of the Massacre. However, after the Massacre, the building was used by the Red Cross as a medical facility and its headquarter for relief activities, leaving the Black community without any schools in the year following the Massacre. Figure 7b shows the school being used as a relief headquarters following the Massacre.

Testifying before Congress in 2021, Viola Fletcher, survivor of the Massacre who was 7 at the time, recounted the impact that Massacre had on her own life, noting the personal consequences of the Massacre on her educational attainment: "I have lived through the Massacre everyday. Our country may forget this history but I cannot. . . I lost my chance at an education. I never finished school past the fourth grade. I have never made much money in my country."

Figure 7: Effects of the Massacre on Education Infrastructure

(a) The Destruction of Dunbar School

(b) Booker T. Washington High School After the Massacre

3. Empirical Analysis of the Short and Medium-Term Effects of the Massacre, 1910–1940

A. *Data*

We now turn to an overview of the primary outcomes of interest in our analysis. The finer details of each measure are provided in the Appendix. The measures are constructed using the complete count U.S. census microdata from 1910, 1920, 1930, and 1940 (Minnesota Population Center, 2019).

Our primary outcome of interest is home ownership. The census collected information on whether the home in which the enumeration took place was owned or rented by its inhabitants. The first measure we consider examines all household heads and creates an indicator variable that equals one if the household head lives in a house that is owned rather than rented. Assuming that the person who owns the home is the household head, this measure captures direct home ownership. We also create a second broader measure, which is intended to measure family home ownership, and therefore does not depend on a respondent's status as the household head. It is an indicator variable that equals one if a respondent lives in an owned home and is a family member of the household head.

Another outcome of interest is economic wellbeing. Because the census does not record income directly before 1940, it must be proxied by an individual's reported occupation. Occupations have been assigned income values which are based on "the median total income (in hundreds of 1950 dollars) of all persons with that particular occupation in 1950."[12] We take the natural log of the

[12]For further details, see the data description located at: `https://usa.ipums.org/usa-action/variables/OCCSCORE`

income measure since this makes the variable less skewed (and more normally distributed) than the raw income measure. We also generate an indicator variable that equals one if an individual works in an occupation that the census defines as "professional" or "technical," which we call "white-collar" occupations. Common examples in Tulsa in 1920 were teachers and nurses for women, and accountants, lawyers, physicians, and clergymen for men. Further details on these variables can be found in Appendix A1, including a list of the top 10 white-color occupations for men and women in Appendix Tables A3 and A4.

B. *Estimates Using Comparison Cities*

We begin our empirical analysis by first studying the direct effects of the Massacre on Black inhabitants of Tulsa by using a set of comparison cities that have a similar population to Tulsa. We pool unlinked individuals living in Tulsa and the comparison cities from 1910 to 1940 and analyze home ownership and occupational earnings.

We estimate a difference-in-difference-in-differences specification, where we compare outcomes of Black Tulsans with control groups for which the Massacre should have no direct effect: white Tulsans and Black and white individuals in comparison cities. The identifying assumption of our DDD approach is that there exist no changes, contemporaneous to the effects of the Massacre, to black-white trends between Tulsa and the other cities.

We begin by comparing Tulsa to a set of comparable cities. In 1920, Tulsa had a total population of 72,203, with 8,901 Black residents. The comparison cities that we consider are those that, in 1920, had a population between 50,000 and 150,000 and had a Black population of at least 1,000 individuals. In total, 59 cities satisfy these criteria. These are reported in Appendix Table A5.

Our estimating equation is given by:

$$y_{ijrt} = \psi_{rt} + \theta_{jt} + \tau_{jr} + \alpha_1 \left(I_j^{Tulsa} \times I_r^{Black} \times I_t^{Post}\right) + \mathbf{X'}_{it}\mathbf{\Gamma} + \varepsilon_{ijrt}, \tag{1}$$

where i denotes individuals, j cities (Tulsa and comparison cities), r race (Black, white and other), and t census years (1910, 1920, 1930 and 1940).[13] y_{ijrt} is an outcome of interest measured for individual i living in city j who reports being of race r in census year t. I_j^{Tulsa} is an indicator that equals one if individual i lives in Tulsa, I_r^{Black} is an indicator that equals one if they report their

[13] In 1920, among those living in Tulsa county, 89% were white, 10% were Black, and 1% belong to another racial category, which primarily comprised indigenous populations. This share was higher in Tulsa and Oklahoma due to the forced relocation of indigenous populations from the eastern United States to the land that is today part of Oklahoma (including Tulsa).

race as being Black, and I_t^{Post} is an indicator that equals one if the census decade t is after 1920. $\mathbf{X}'_{it}$ denotes a vector of individual level covariates that includes age, age squared, an indicator for being married, an indicator for having children, and a gender indicator (for specifications that include men and women). We cluster all standard errors at the city level.

Our interest is in the coefficients on the interaction term α_1, which captures the difference in the outcome of interest for Black Tulsans, relative to other races, before relative to after the 1921 Massacre. The double interactions of the triple interaction are absorbed by the fixed effects that are included in the specification, which are race-year fixed effects ψ_{rt}, city-year fixed effects θ_{jt}, and city-race fixed effects τ_{jr}.

The estimates of equation (1) are reported in Table 1. Due to the fact that men were the primary home owners and income earners at the time, our baseline specification examines men, although for completeness we also report the same estimates for a sample of men and women (see Appendix Table A7). In general, we find that the estimates are similar in either case. Column 1 reports estimates where the sample is all household heads and the dependent variable is an indicator that equals one if the household head reports owning their home. Column 2 reports estimates that also examine home ownership but looks at all individuals, not only household heads. The dependent variable in this specification is an indicator that equals one if the home in which the individual lives is owned by someone in their family. For both specifications, we find evidence that the Massacre resulted in a statistically significant decrease in home ownership. The magnitude of the estimates suggest that, for the sample of male household heads (column 1 of Table 1), the Massacre is associated with a decline in the likelihood of home ownership of 1.3 percentage points. This can be compared to the home ownership rate of Black individuals in Tulsa in 1920, which was 31.6 percent. The Massacre reduced the rate of men living in a home owned by a family member by 3.0 percentage points (column 2 of Table 1), which is relative to a baseline rate of 27.5 percent among Black Tulsans in 1920. The estimate for the sample of women is very similar (see column 2 of Appendix Table A7). The Massacre led to a 3.0 percentage point reduction, relative to a baseline rate of 28.4 percent.

Columns 3 and 4 of Table 1 and Appendix Table A7 report estimates that provide evidence of the effect of the Massacre on occupational status. In both specifications, the sample comprises individuals who are in the labor force and report a (valid) occupation code. In column 3, the outcome of interest is the natural log of the occupation score, and in column 4, it is an indicator

Table 1: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men from Comparison Cities

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.013**	−0.030***	−0.065***	−0.026***
	(0.006)	(0.007)	(0.007)	(0.001)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.316	0.275	2.934	0.036
Observations	4,661,498	10,601,425	5,983,634	5,983,634

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city, and observed in a census year. The sample includes individuals living in Tulsa or one of the 59 comparison cities. The dependent variables are reported at the top of the table. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

variable that equals one if an individual is employed in an occupation that is "professional" or "technical", which we refer to as a white-collar occupation. This corresponds to all 1950 IPUMS occupation codes from 000 to 099 and includes occupations such as accountants, engineers, lawyers, judges, nurses, doctors, etc. The estimates indicate that the Massacre led to a decline in occupational status – i.e., occupational downgrading – for Black Tulsans. This decline is consistent with historical accounts of former professionals, after losing their businesses, having to enter into manual occupations in order to survive economically following the Massacre.

Given the imperfections associated with any measure of occupational status, we check the robustness of our occupation findings by using four alternative measures of occupation-based income, each of which is described in detail in the Appendix. The estimates for the sample of men are reported in columns 1–4 of Table 2. Across all four measures, we see consistent evidence of occupational downgrading among the Black male population of Tulsa following the Massacre. All coefficients are negative. The effects are sizeable in magnitude and can be compared to the mean values for Black Tulsans in 1920, which are reported in the final row of the table. We also check the sensitivity of our white-collar findings to alternative definitions of white-collar. Since

Table 2: Occupational Effects of the Tulsa Massacre, 1910–1940, Sample of Men from Comparison Cities

	Dependent variable:							
	SEI Score	Earnings Score	Prestige Score	Status Score	Professional and Management Worker 0/1	Professional, Management, and Clerical Worker 0/1	In Labor Force 0/1	In Labor Force with Valid occscore 0/1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tulsa × Black × Post	−1.493***	−7.377	−0.488*	−6.920	−0.004	−0.014***	0.054***	0.001
	(0.340)	(6.382)	(0.284)	(6.297)	(0.003)	(0.005)	(0.004)	(0.005)
Year-City FEs	Y	Y	Y	Y	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y	Y	Y	Y	Y
Sample	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	Age>=16	Age>=16
Dep. Var. Avg. for Black Tulsans, 1920	14.163	37.312	23.305	29.820	0.059	0.062	0.953	0.835
Observations	5,983,634	5,983,634	5,983,634	5,983,634	5,983,634	5,983,634	8,079,477	8,079,477

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city, and observed in a census year. The sample includes individuals living in Tulsa or one of the 59 comparison cities. The dependent variables are reported at the top of the table. SEI Score (column 1) measures occupational status based on 1950 income level and educational attainment. Earnings Score (column 2) measures "the percentage of persons in occupations having lower standardized median earnings than the respondent's occupation." Prestige Score (column 3) is a Siegel prestige score constructed using surveys conducted by NORC in the 1960s. Status Score (column 4) measures occupational status and "can be interpreted as the percentage of persons in the civilian labor force who are in occupations having combined levels of education and earnings below that occupation." Professional and Management Workers (column 5) is an alternative definition of the White-Collar variable and indicates workers who report occupations that IPUMS classifies as "Professional, Technical" or "Managers, Officials, and Proprietors." Professional, Management, and Clerical Workers (column 6) is an alternative definition of the White-Collar variable and indicates workers who report occupations that IPUMS classifies as "Professional, Technical", "Managers, Officials, and Proprietors", or "Clerical and Kindred." The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

the baseline definition is fairly restrictive, we examine two alternative, more-inclusive, definitions. In one we also include "managers, officials, and proprietors" as white-collar.[14] These include occupations like railroad conductors, building managers and superintendents, postmasters, floor managers, merchandise purchasers, etc. The second alternative measure additionally includes "clerical" workers; which include bank tellers, bookkeepers, cashiers, mail carriers, office machine operators, stenographers, telegraph messengers, ticket station agents, etc.

The estimates using these alternative definitions, which are reported in columns 5 and 6 of Table 2, are qualitatively identical to our baseline estimates. The Massacre is associated with a significant decline in the likelihood that a Black Tulsan had a white-collar occupation. As with the baseline estimates, the magnitudes of the effects are sizeable.

An alternative set of comparison cities

Throughout our analysis, we are restricted to using a panel that begins in 1910, the first Census for which Tulsa is present. This is due to the fact that prior to this date, the city of Tulsa had not been established. Oil was not discovered at the Glenn Pool Oil Reserve, 15 miles south of Tulsa, until 1905 and drilling did not begin in earnest until 1907. In addition, Oklahoma did not receive statehood until 1907.

Tulsa's history provides a unique setting for thinking about parallel trends in our empirical setup, which presents challenges but also a potential advantage. When thinking about treatment and control groups, there is a potential concern that the youth of Tulsa, and its growth from infancy, might invalidate the parallel trends assumption. Given this, we restrict our analysis to a set of cities that, like Tulsa, were not present in the 1900 Census and appear for the first time in the 1910 Census. This sample comprises 94 cities in total. Given the concern that many of these might not be comparable to Tulsa in terms of initial (1910) size and racial composition, we further restrict the sample to only include cities with a total population of 5,000 and a Black population of 250 individuals. This sample comprises 45 cities, which can be viewed as also being 'boom towns' that sprung up in 1910 with a sizeable Black population.[15] A benefit of this strategy is that it exploits the 'natural experiment' nature of the fact that all cities in the sample did not exist prior to 1910. In this sense, parallel trends are satisfied before this period.

[14]These correspond to 1950 IPUMs occupation codes from 200 to 290.

[15]The list of cities in both samples is reported in Appendix Table A6.

Table 3: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men from Cities that are in 1910 Census but not in 1900 Census ($n = 94$)

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.039***	−0.064***	−0.058***	−0.025***
	(0.009)	(0.008)	(0.011)	(0.002)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.316	0.275	2.934	0.036
Observations	1,563,855	3,447,672	1,927,172	1,927,172

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city that was in the 1910 Census but not the 1900 Census, who is observed in a census year. The dependent variables are reported at the top of the table. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Using the two samples, we then re-estimate equation (1). The estimates of effects on the male population using the 94-city sample are reported in Table 3 and the estimates using the 45-city sample are reported in Table 4. We find that the estimates closely mirror our findings using the larger sample of cities. The estimated effects on home ownership is negative and highly significant (columns 1 and 2). We also see that the Massacre caused significant occupational downgrading, measured using either the occupational score or participation in a white-collar occupation (columns 3 and 4). Estimates examining both men and women, which are reported in Appendix Tables A8 and A9, are very similar.

Effects on child education

Having documented an adverse effect of the Massacre on wealth and income, we next turn to an examination of whether the education of their children was affected. This is motivated by the well-documented importance of income for child schooling (Edmonds, Pavcnik and Topalova, 2010), as well as the destruction of all schools in Greenwood, which would suggest that the Massacre may have reduced school attendance. We examine this by estimating a version of

Table 4: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men from Cities that are in 1910 Census but not in 1900 Census and with a total population $\geq$ 5,000 and a Black population $\geq$ 250 ($n = 45$)

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.048***	−0.070***	−0.063***	−0.025***
	(0.008)	(0.008)	(0.012)	(0.003)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.316	0.275	2.934	0.036
Observations	818,214	1,813,243	1,019,824	1,019,824

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city that was in the 1910 Census but not the 1900 Census and had a total population in 1910 that was 5,000 or more and a Black population in 1910 that was 250 or more, who is observed in a census year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

equation (1) where the sample is children that are of school-attending age (7–18 years old) and the dependent variable variable is an indicator variable that equals one if they were reported in the Census as being enrolled in school.

While it is natural to expect to find adverse effects of the Massacre on school enrollment, the recent findings of Becker, Grosfeld, Grosjean, Voigtlaender and Zhuravskaya (2020) raise the possibility that in this setting, where there is significant uncertainty about the safety of investments in physical capital, there may be increased investment in human capital, which cannot be expropriated.

Table 5: Educational Effects of the Tulsa Massacre for Ages 7–18, 1910–1940

	Dependent variable: In School (0/1)								
	Cities with total population ≥50,000 and ≤150,000 and Black population ≥1,000 (60 Cities)			Cities in 1910 census but not 1900 census (94 Cities)			Cities in 1910 census but not 1900 census and total population ≥5,000 and Black population ≥250 (45 Cities)		
	In School 0/1	In School 0/1	In School 0/1	In School 0/1	In School 0/1	In School 0/1	In School 0/1	In School 0/1	In School 0/1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Tulsa × Black × Post	−0.032***	−0.015***	−0.024***	−0.045***	−0.042***	−0.043***	−0.047***	−0.042***	−0.044***
	(0.008)	(0.005)	(0.006)	(0.008)	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)
Year-City FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sample	Boys Ages 7-18	Girls Ages 7-18	Full Ages 7-18	Boys Ages 7-18	Girls Ages 7-18	Full Ages 7-18	Boys Ages 7-18	Girls Ages 7-18	Full Ages 7-18
Dep. Var. Avg. for Black Tulsans, 1920	0.814	0.787	0.800	0.814	0.787	0.800	0.814	0.787	0.800
Observations	2,210,961	2,286,203	4,497,168	744,129	775,093	1,519,247	399,012	422,801	821,827

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city, and observed in a census year. All specifications include controls for year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

The estimates, which are reported in Table 5, show that the Massacre generated a decline in school attendance. This is found for both boys and girls and for all three sets of comparison cities. In this setting, it appears that the importance of the income effect seems to greatly outweigh the potential Becker et al. (2020) effect. The magnitudes of the estimated effects are also sizeable. Compared to a baseline school enrollment rate of about 80% among Black children in Tulsa before the Massacre, the average decline for boys and girls is estimated to be between 2.4 and 4.4 percent depending on the sample of comparison cities, which is a non-trivial decline.

C. *National County-Level Estimates*

The next step in our analysis examines variation across all counties in the United States. We begin by first considering the case without spatial spillovers to Black populations outside of Tulsa. While the assumption of no spillovers is likely unrealistic, it provides a useful benchmark against which to compare our estimates that allow for spillovers. If the spillover effects are the same sign as the direct effects, then not accounting for them will tend to bias the estimated direct effects towards zero. The (control) observations that we compare the treated group to will also be affected, resulting in a smaller difference between the two groups. As we will see, the estimates suggest that this is the case.

In our first specification, we continue to estimate a standard diff-in-diff-in-diff regression where we compare individuals who are living in Tulsa, before and after the Massacre, and who are white or Black. While we could continue to estimate the regression at the individual-level as above, for computational efficiency, we aggregate the data and perform the analysis at the county, race, and census year level using weighted least squares. Our estimating equation is as follows:

$$y_{crt} = \psi_{rt} + \theta_{ct} + \tau_{cr} + \beta_1 \left(I_c^{Tulsa} \times I_r^{Black} \times I_t^{Post}\right) + \mathbf{X'}_{crt}\mathbf{\Gamma} + \varepsilon_{crt}, \tag{2}$$

where c denotes U.S. counties, r race (Black, white, or other), and t census years (1910–1940).[16] The dependent variable, y_{crt}, is the group mean of one of our outcomes of interest discussed above. I_c^{Tulsa} is an indicator that equals one if county c is Tulsa, I_r^{Black} is an indicator that equals one if the racial category r is for Black individuals, and I_t^{Post} is an indicator that equals one if decade t is after 1920. Our interest is in the coefficient on the interaction term β_1, which captures the difference in the outcome of interest for Black Tulsans after the 1921 Massacre. The relevant

[16]Observations from Alaska and Hawaii exist for 1910 but no other years in our time period of interest (likely due to the fact that they were not yet states). We exclude the 1910 observations for those two states in our analysis.

double interactions are absorbed by the fixed effects included in the specification: decade-race fixed effects ψ_{rt}, decade-county fixed effects θ_{ct}, and county-race fixed effects τ_{cr}. The equation also includes a set of covariates, denoted by $\mathbf{X}'_{crt}$, that are intended to account for the 1919 race riots; namely, a triple interaction comprised of an indicator for the presence of a riot in the county, a post-1919 indicator, and an indicator for the race being Black individuals. We estimate equation (2) using weighted least squares (WLS) with weights given by the population of each observation. All standard errors are clustered at the county level.

Estimates of equation (2) are reported in Table 6 for men and Appendix Table A10 for men and women combined. In columns 1 and 2, we report estimates examining home ownership as the dependent variable. As before, the dependent variable in column 1 is the fraction of household heads who report owning their home. In column 2, the dependent variable is the fraction of individuals who live in a home that is owned by a family member. For both measures, we find a significant negative effect. For example, the Tulsa Massacre is associated with a decline in the share of male household heads who own their home by 4.2 percentage points and a decline in the share of men who live in a home owned by a family member by 4.7 percentage points. These estimates are qualitatively identical and quantitatively similar to the estimates from the individual-level regressions where the comparison locations were restricted to a set of control cities.

We next turn to an examination of income as proxied by the natural log of the occupation score of those in the labor force. As reported in column 3, for the sample of men, we find that the Massacre had an adverse effect on the occupational score. For men, the Massacre resulted in an occupational score decline of 2.3%.

As in the previous subsection, because the occupation-based income measure is only a rough proxy of actual income, we examine an alternative measure of occupational success, measured as employment in a professional or technical position, which we call white-collar jobs. The estimates are reported in column 4. We find a statistically significant decline in employment in white-collar occupations. For men, the Massacre resulted in a decline of white-collar employment by 2.2 percentage points, which is enormous given that the baseline share for Black male Tulsans was 3.2 percent in 1920. The estimates are consistent with the estimate of occupational downgrading found in column 3. They are also consistent with historical accounts of individuals who were previously in professional occupations having to take jobs as manual laborers after the Massacre.

Table 6: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.042***	−0.047***	−0.023***	−0.022***
	(0.007)	(0.008)	(0.005)	(0.001)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.298	0.255	2.971	0.032
Observations	28,654	29,815	29,004	29,004

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

We check the robustness of our occupation findings by examining alternative measures of occupation-based income. The estimates for the sample of men are reported in columns 1–4 of Table 7. Across all four measures, we see consistent evidence of occupational downgrading among the Black male population of Tulsa following the Massacre. We also check the robustness of our findings of white-collar employment using our two more-inclusive alternative definitions of white-collar. The estimates, which are reported in columns 5 and 6 of Table 7, show that these measures also yield strong evidence of occupational downgrading due to the Massacre.

The final two columns of the table examine how the Massacre affect participation in the labor force. In column 7, we report estimates where the dependent variable is an indicator if the census records the individual as being in the labor force. We find that the Massacre led to a 4.6% increase in labor force participation, which could explain some of the occupational downgrading we estimate since individuals tend to enter the labor force in lower-status occupations. However, the magnitude of this effect is fairly modest, especially given that the mean of labor force participation is 94.2% among Black Tulsan men prior to the Massacre.

Since the occupation measures that we examine are only defined when individuals have a valid occupation scores, the criteria for inclusion in our analysis of occupational outcomes is effectively

that the individual is in the labor force and has a valid occupation score. In column 8, we report estimates where this is the outcome of interest. Effectively, we are checking how the Massacre affected a person's inclusion in our analysis. The estimates show that the Massacre is associated with a 0.9% increase in the labor force sample, an effect that, while significant, is quite small compared to the 81.7% mean for Black Tulsans in 1920. This is important since it indicates that it is unlikely that extensive margin effects (i.e., entry in and out of our sample) explain the effect that the Massacre had on occupational downgrading.

In our setting, the "other" racial category is important. In the early 19th century, the U.S. government forcibly removed many indigenous peoples from the eastern United States to the land that is today part of Oklahoma (including Tulsa). Eventually known as Indian Territory, more than 30 different Native American nations and tribes were living in Oklahoma by the late nineteenth century. However, to be thorough, we check the sensitivity of our findings to the exclusion of this racial category, which by construction is fairly heterogeneous. As reported in Appendix Table A11, we obtain virtually identical estimates when we do this.

The last effect that we examine is on education. We do this by estimating equation (2), where the outcome is the share of children, aged 7–18, who are reported as being enrolled in school. The estimates are reported in Table 8 for boys only, girls only, and then all children. We find that, consistent with the city-level estimates, the Massacre resulted in a decline in school enrollment. The effect is sizeable and is found for both boys and girls. In the pooled sample, the estimates suggest that the massacre resulted in a decline of 4.7 percentage points, which is sizeable compared to the pre-Massacre mean of 78.2 percent among Black children in Tulsa (a 6% decline).

Table 7: Occupational Effects of the Tulsa Massacre, 1910–1940, Sample of Men

	Dependent Variable:							
	SEI Score	Earnings Score	Prestige Score	Status Score	Professional and Management Worker 0/1	Professional, Management, and Clerical Worker 0/1	In Labor Force 0/1	In Labor Force with Valid occscore 0/1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tulsa × Black × Post	−2.179***	−11.519***	−0.898***	−12.665***	−0.011***	−0.024***	0.046***	0.009***
	(0.168)	(1.334)	(0.173)	(1.266)	(0.001)	(0.002)	(0.003)	(0.003)
Year-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y	Y	Y	Y	Y
Sample	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	Age>=16	Age>=16
Dep. Var. Avg. for Black Tulsans, 1920	13.807	34.898	24.159	28.168	0.053	0.056	0.942	0.817
Observations	29,004	29,004	29,004	29,004	29,004	29,004	29,620	29,620

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. SIE Score (column 1) measures occupational status based on 1950 income level and educational attainment. Earnings Score (column 2) measures "the percentage of persons in occupations having lower standardized median earnings than the respondent's occupation." Prestige Score (column 3) is a Siegel prestige score constructed using surveys conducted by NORC in the 1960s. Status Score (column 4) measures occupational status and "can be interpreted as the percentage of persons in the civilian labor force who are in occupations having combined levels of education and earnings below that occupation." Professional and Management Workers (column 5) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical" or "Managers, Officials, and Proprietors." Professional, Management, and Clerical Workers (column 6) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical", ''Managers, Officials, and Proprietors", or ''Clerical and Kindred." Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table 8: Educational Effects of the Tulsa Massacre, 1910–1940, Ages 7-18

	Dependent Variable:		
	In School 0/1	In School 0/1	In School 0/1
	(1)	(2)	(3)
Tulsa × Black × Post	−0.052***	−0.041***	−0.047***
	(0.007)	(0.007)	(0.007)
Year-County FEs	Y	Y	Y
Race-County FEs	Y	Y	Y
Year-Race FEs	Y	Y	Y
1919 Riot Controls	Y	Y	Y
Sample	Men Ages 7-18	Women Ages 7-18	Full Ages 7-18
Dep. Var. Avg. for Black Tulsans, 1920	0.79	0.774	0.782
Observations	25,652	25,315	26,443

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

4. Effects of the Massacre Outside of Tulsa

We next turn to estimates that allow for the possibility that the Tulsa Massacre also affected the behavior of Black residents living in other communities. There are a number of potential dimensions for such spillover effects but we focus on two that we expect to be the most important. One is of spillover effects that occur through the media coverage of the Massacre. Locations with extensive news coverage, much of which justified the Massacre and described it as being in the long-term best interest of all involved, would have experienced a stronger warning and a more salient signal to Black people of what was possible in their own community.

A second characteristic that was also likely important in this regard was the extent to which a county was segregated at the time. Places that, like Tulsa, were highly segregated were vulnerable to large-scale violence, theft, and destruction that targeted Black neighborhoods. In integrated counties, precise racial targeting would be much more difficult or even impossible. Without segregated neighborhoods, common knowledge of which houses were Black-owned and which were white-owned would have been limited. Beyond this, burning a home would have been risky to the neighbors. If the neighbors of a burned home were white, this risk would have different

consequences than if the neighbors (and the whole nearby neighborhood) were Black-owned.

We measure information flows about the Massacre using information on newspaper coverage of the event using data from `Newspapers.com`, which covers about 31,000 pages of newspapers from about 2,000 different publications across the United States. We search all pages from June 1–4, 1921 of all papers in the database for mentions of "tulsa" or "tulsa riot." We also search for the term "june." Since the date of each search is in June 1921, all pages should include this phrase and this count serves as a measure of the total number of newspapers or pages.

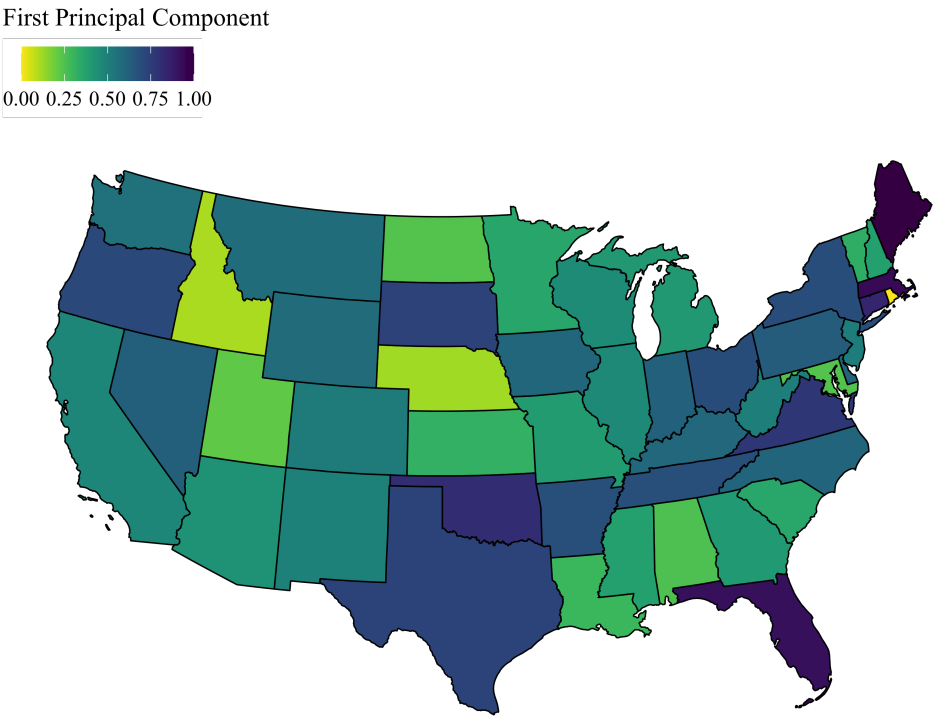
We use these data to construct six state-level measures of newspaper coverage of the 1921 Tulsa Massacre. For each term ("tulsa" or "tulsa riot"), we calculate the fraction of: (1) all newspaper pages with the term, (2) newspapers with the term anywhere on the pages, and (3) newspapers with the term somewhere on their front page. As reported in Appendix Table A12, the six state-level measures tend to be positively correlated with each other. In most cases, the pairwise correlations are positive and above 0.5. In only two cases is the coefficient positive but below 0.16, and it is never negative.

While it is reassuring that the variables tend to be positively correlated, the differences in the strength of the correlations also indicate that there is variation in the underlying variables even though they were each constructed to capture the extent to which the newspapers in a county discussed the Tulsa Massacre. To back out this underlying variable of interest from our multiple measures, we use factor analysis and calculate the first principal component of the six measures. The factor loadings are reported in Appendix Table A13. All loadings for the first principal component are positive, with weights ranging from 0.18 to 0.49. The fact that all loadings are positive is reassuring. The weights on each variable are very similar, except for the fraction-of-pages measures, which are slightly less informative, and perhaps driven more by the type and length of the paper and so are given less weight than the other four variables.

We normalize the principal component to lie between zero and one and, to facilitate a clean interpretation of the estimates as spillovers, we assign a value of zero to Tulsa. The resulting variable, which we denote $Newspaper_{s(c)}$, is mapped in Figure 8. The distribution of the variable and the measure for each state is reported in Appendix Figure A7. There appears to be rich variation between states and even between those located within the same region.

A potential concern is that the newspaper measure is correlated with other state-level characteristics that could be relevant for the differential economic outcomes of Black individuals relative

Figure 8: Index of Newspaper Coverage of the Tulsa Massacre Using Principal Components Analysis



Notes: Data are from Newspapers.com, June 1-4, 1921. The first principal component is calculated as a weighted average of the six state-level newspaper coverage measures and then normalized to lie between zero and one.

to white individuals after 1920. Figure 8 provides initial visual evidence that the measure is not obviously correlated with regional differences in state characteristics. For example, states in the South have both high and low measures of newspaper coverage, and this coverage is also true of states in the Midwest, West, and Northeast. We also examine this more systematically by estimating state-level correlations between our measure of newspaper coverage (and each of its components) and various race-related state-level characteristics (e.g. home ownership, prevalence of occupational categories, education, etc among the Black population; prevalence of Confederate memorials or lynching; Southern state; or share of population that was Black). The pairwise correlation coefficients, which are reported in Appendix Table A14, show no evidence of a systematic relationship between any characteristic and newspaper coverage. For example, of the 21 state-level characteristics considered, no relationship is significant at the 1% level, two are significant at the 5% level, and one is significant at the 10% level. These numbers are what one would expect simply by chance when there are no underlying relationships in the data.

To account for spillovers that depend on the extent of segregation in a county at the time, we

rely on Logan and Parman's (2017a) measure of the racial similarity of neighbors of a county. We use the 1920 measure and normalize it to range between zero and one. To facilitate a clean interpretation of spillovers, we assign the measure the value of zero for Tulsa. We denote the variable $Segregation_c$.

With our constructed spillover variables, we estimate the following equation:

$$\begin{aligned} y_{crt} &= \psi_{rt} + \theta_{ct} + \tau_{cr} + \kappa_1 \left(I_c^{Tulsa} \times I_r^{Black} \times I_t^{Post}\right) + \kappa_2 \left(Newspaper_{s(c)} \times I_r^{Black} \times I_t^{Post}\right) \\ &\quad + \kappa_3 (Segregation_c \times I_r^{Black} \times I_t^{j}) + \mathbf{X'}_{crt}\mathbf{\Omega} + \varepsilon_{crt}, \end{aligned} \tag{3}$$

where c continues to denote counties, t census years, and r a racial group (either Black, white, or other). The index $s(c)$ denotes the state of county c. All variables are as defined above. As noted, $Newspaper_{s(c)}$ is our state-level measure of newspaper exposure, and $Segregation_c$ is the measure of segregation of a county in 1920. Since for Tulsa, which directly experienced the Massacre, the spillover variables take on the value of zero, κ_1 captures the total (direct) effect of the Massacre on Black inhabitants of Tulsa, and κ_2 and κ_3 provide measures of the (indirect) effect of the Massacre on locations other than Tulsa through newspaper articles about the Massacre and the extent of segregation in their county (as of 1920).

We begin by considering the newspaper spillovers. Estimates of equation (3) with newspaper spillovers only and for the sample of men are reported in Table 9, and the robustness estimates examining alternative measures of occupation and white-collar are reported in Appendix Table A15. Accounting for spillovers does not diminish our estimates of the direct effect of the Tulsa Massacre. The estimates remain positive, significant, and are larger than the estimates of equation (2) reported in Table 6. We find evidence of large spillover effects on home ownership. Despite being sizeable, the estimates lack precision and are not significant at conventional levels. For Black people living in counties outside of Tulsa, home ownership rates after 1921 (relative to before and relative to other races) tend to be lower the greater the newspaper coverage of the Tulsa Massacre. According to the magnitude of the estimates, if a Black community lived in a state with the maximum news coverage in the sample (Maine), then the effect of the Massacre on home ownership was approximately the same as for Tulsa. For the median state, with a value of 0.37, the estimated effect is approximately 37% of the direct effect.

A potential concern is that the estimates may be driven by states with a particularly small number of newspapers, so the Tulsa-coverage measure takes on extreme values with high lever-

Table 9: Estimates Allowing for Newspaper Coverage Spillovers, 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.071***	−0.080***	−0.031**	−0.026***
	(0.018)	(0.023)	(0.015)	(0.003)
Black × Post × News Coverage	−0.052	−0.061	−0.015	−0.007
	(0.033)	(0.041)	(0.027)	(0.005)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.298	0.255	2.971	0.032
Observations	28,654	29,815	29,004	29,004

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

age. Given this concern, we check the sensitivity of our estimates to omitting the states with the lowest number of newspapers. Estimates of equation (3) with the five, ten, and fifteen states with the fewest papers omitted are reported in Appendix Tables A16–A18. The estimates are very similar for each of the smaller samples of states.

The most likely explanation for the spillover effects is that the Massacre altered the beliefs and expectations of Black people across the country. At the time, the Massacre was the largest single episode of property destruction experienced by a Black community. It provided a warning of the danger of wealth accumulation through home ownership. In an instant, one's home and possessions could be destroyed. This could have certainly affected one's decision of whether to accumulate wealth through housing stock. Our findings are consistent with this reasoning.

We next turn to our estimates that also allow for spillovers to the Black community of a county depending on the extent of racial segregation in the county in 1920. The baseline estimates are reported in Table 10, and the alternative occupation and white-collar estimate are reported in Appendix Table A19. In columns 1 and 2 of Table 10, the estimates of the direct effects of the

Table 10: Estimates Allowing for Segregation and Newspaper Coverage Spillovers, 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.087***	−0.092**	−0.008	−0.027***
	(0.031)	(0.038)	(0.027)	(0.003)
Black × Post × News Coverage	−0.052	−0.061	−0.016	−0.007
	(0.035)	(0.042)	(0.029)	(0.005)
Black × Post × Segregation	−0.036	−0.026	0.050	−0.002
	(0.035)	(0.042)	(0.030)	(0.004)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.298	0.255	2.971	0.032
Observations	28,654	29,815	29,004	29,004

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Massacre on home ownership remain negative and significant when accounting for spillovers by both newspaper coverage and segregation. In addition, the newspaper spillover estimates remain very similar when we account for segregation spillovers. We find that the segregation spillover estimates for home ownership are negative and significant, which is consistent with the Massacre reducing rates of Black homeownership in counties across the country that, like Tulsa, were highly segregated. In segregated counties, which tended to have distinctively Black neighborhoods, after 1921, there was the legitimate concern of the entire neighborhood being targeted and experiencing the same fate as Greenwood. We also find a spillover effect for being in a white-collar occupation (column 4). This is potentially explained by the fact that these occupations are typically associated with the ownership of a place of business (e.g., law firms, newspaper offices, etc.), which is also a potential target of destruction.

We find that when the occupation score is the dependent variable, the estimated segregation

spillover effect is positive, and the direct effect becomes insignificant. However, as reported in Appendix Table A19, this pattern does not appear to be robust. Thus, we interpret the occupation estimates with caution given their sensitivity.

5. Long-Term Effects of the Massacre on Home Ownership, 1910–2000

To this point, we have focused on the effects of the Massacre until 1940. We now turn to an examination of the longer-term effects of the Massacre on home ownership. For the post-1940 census years, we do not have access to the micro-Census. However, we are able to use county-level data by race from the NHGIS, which are available for 1980, 1990, and 2000. The NHGIS include data on the number of household heads living in owned housing units and the number living in rented housing units, broken down by county and race. We use these data to construct a measure of the home ownership rate (owners divided by the sum of owners and renters).[17] While there are some slight differences between the post- and pre-1940 Census measures, the full series provides measures that are comparable for 1910, 1920, 1930, 1940, 1980, 1990, and 2000, allowing us to examine longer-term effects.

We begin the analysis by extending our panel to include 1980, 1990, and 2000. Because the post-1940 data do not allow us to focus specifically on the sample of men, we must use the full sample. Thus, for comparison, we report estimates for the full sample where the dependent variable is the share of household heads that are home owners. As reported in Appendix Table A20, the estimates are nearly identical to the same estimates when the sample of men is used.

The estimates of equations (2) and (3) for a panel that includes 1980, 1990, and 2000 are reported in Table 12. Column 1 reports estimates of equation (2), which is our baseline equation without spillovers. Columns 2–4 then report estimates of equation (3), where newspaper and/or segregation spillovers are included in the equation. We continue to estimate a negative and statistically significant negative direct effect of the Tulsa Massacre on home ownership. In addition, the magnitude of the estimated direct effect is about twice as large when we extend the sample period to 2000. This can be seen by directly comparing the estimates from each column in Table 11 with the estimates from the same column in Table 12. The 1910–1940 estimates of

[17]For the finer details of the data construction and differences between the pre-1940 and post-1940 measures, see the Appendix.

Table 11: Estimates for HH Head Home Ownership, 1910–1940

	Dependent Variable: Average of HH Head Home Ownership			
	No Spillovers	News Spillovers	Segregation Spillovers	News and Segregation Spillovers
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.042***	−0.064***	−0.076***	−0.097***
	(0.007)	(0.018)	(0.020)	(0.025)
Black × Post × News Coverage		−0.042		−0.041
		(0.033)		(0.035)
Black × Post × Segregation			−0.073**	−0.071**
			(0.034)	(0.035)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	HH Heads	HH Heads	HH Heads
Dep. Var. Avg. for Black Tulsans, 1920	0.296	0.296	0.296	0.296
Observations	28,853	28,853	27,712	27,712

Notes: The table reports WLS estimates for the sample of household heads. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages among all household heads in that group. Regressions are weighted by the relevant population in each county, racial group, and year, which is also indicated by the "Sample" row. All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

the direct effect range from −0.042 to −0.097. By contrast, the 1910–2000 estimates range from −0.130 to −0.198.

We find that in the sample that is extended to 2000, the estimated newspaper effects are larger in magnitude but the segregation effects are smaller. As before, accounting for the spillover effects also increases the estimated magnitude of the direct Tulsa effect. The newspaper spillover estimate is either −0.042 or −0.041, depending on whether or not we also account for segregation spillovers. In the longer-run sample, the same estimates are −0.115 and −0.114. By contrast, we find the longer-term estimates of the segregation spillover effects to be noticeably smaller in magnitude, which suggests that, unlike the other effects, these may have been temporary.

These estimates provide evidence that the effects of the Massacre – namely, the direct effects and newspaper spillover effects – were not only temporary but have been quite persistent, and that the effects may be widening overtime. The Massacre may have put Black Tulsans and some Black communities on a different trajectory, at least in terms of home ownership. We now turn to

Table 12: Estimates for HH Head Home Ownership, 1910–2000

	Dependent Variable: Average of HH Head Home Ownership			
	No Spillovers	News Spillovers	Segregation Spillovers	News and Segregation Spillovers
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.130***	−0.191***	−0.135***	−0.198***
	(0.012)	(0.039)	(0.041)	(0.061)
Black × Post × News Coverage		−0.115*		−0.114*
		(0.062)		(0.061)
Black × Post × Segregation			−0.011	−0.015
			(0.078)	(0.078)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	HH Heads	HH Heads	HH Heads
Dep. Var. Avg. for Black Tulsans, 1920	0.296	0.296	0.296	0.296
Observations	54,757	52,275	52,063	49,648

Notes: The table reports WLS estimates for the sample of household heads. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages among all household heads in that group. Regressions are weighted by the relevant population in each county, racial group, and year, which is also indicated by the "Sample" row. All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

a more detailed examination of these dynamics by estimating a flexible dynamic equation, which allows the post treatment effects of the Massacre to vary by decade:

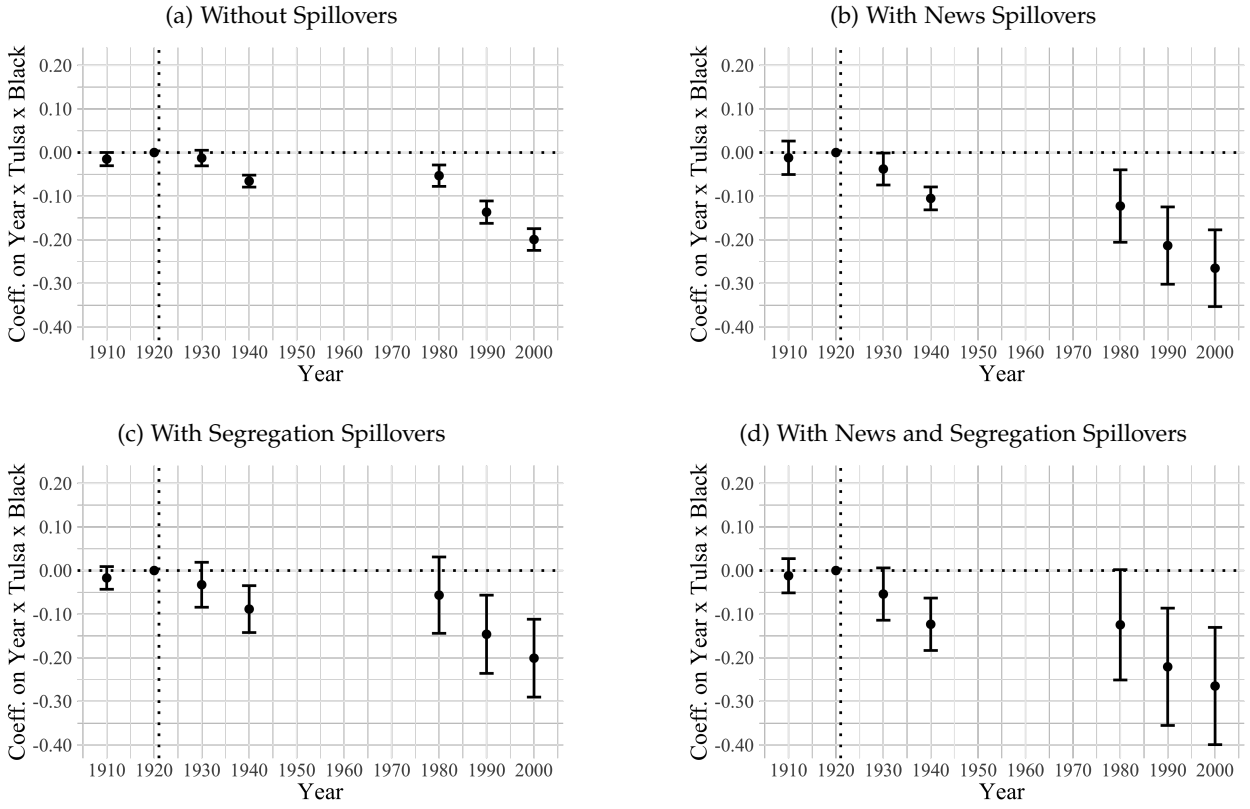
$$\begin{aligned} y_{crt} &= \psi_{rt} + \theta_{ct} + \tau_{cr} + \sum_{j \in J} \kappa_1^j \left(I_c^{Tulsa} \times I_r^{Black} \times I_t^j \right) + \sum_{j \in J} \kappa_2^j \left(Newspaper_{s(c)} \times I_r^{Black} \times I_t^j \right) \\ &\quad + \sum_{j \in J} \psi_2^j \left(Segregation_c \times I_r^{Black} \times I_t^j \right) + \mathbf{X'}_{crt} \mathbf{\Omega} + \varepsilon_{crt}, \end{aligned} \tag{4}$$

where all variables are as defined prior, except now t denotes the larger set of Census years: 1910, 1920, 1930, 1940, 1980, 1990, and 2000. I_t^j is an indicator variable that equals one if year $t = j$, where $j \in \{1910, 1930, 1940, 1980, 1990, 2000\}$. We estimate versions of equation (4) without and with each of the spillover measures: $Newspaper_{s(c)} \times I_r^{Black} \times I_t^j$ and $Segregation_c \times I_r^{Black} \times I_t^j$.

The estimates of equation (4) are reported in Appendix Table A21.[18] To help visualize the dynamics, we also graph the estimated coefficients and 95% confidence intervals for the direct

[18]The table, which has the same structure as Table 12, reports estimates that do not account for the spillover measures in column 1 and estimates with either the newspaper and/or the segregation spillover measures in columns 2–4.

Figure 9: A21 Dynamic DD Estimates, 1910–2000: Direct Tulsa Effects on Home Ownership



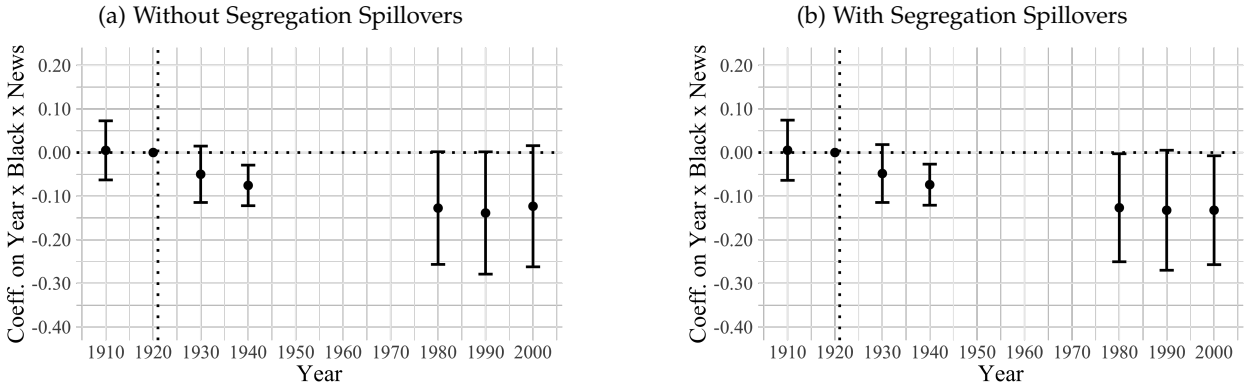
Notes: The reported estimates are for the sample of all household heads. Point estimates are displayed as dots, 95% confidence intervals are displayed as bars.

effect estimates (Figure 9), newspaper spillover estimates (Figure 10), and segregation spillover estimates (Figure 11).

A number of interesting patterns emerge from the estimates. As shown in Figure 9, as long as we account for either newspaper or segregation spillovers, we find no evidence for pre-trends in either the direct effect or the spillover effect. This is reassuring. For both spillover effects, we also find no evidence of pre-trends (Figures 10 and 11).

We also find that for both the direct effect and for the newspaper spillover effects, the estimates show that the legacy of the Massacre persists in the long-run. For both effects, we see an immediate short-run effect that is large in 1930 and then grows slightly in 1940. The direct effects appear to then remain constant until 1980, after which the adverse effects grow over time until 2000, the last period in our sample. The newspaper spillover effects also grows over this time but is much more muted than the direct effects. The fact that the effects appear to be larger in the 1980–2000 periods relative to the 1930 and 1940 is potentially explained by the well-known

Figure 10: Table A21 Dynamic DD Estimates, 1910–2000: News Spillover Effects on Home Ownership



Notes: The reported estimates are for the sample of all household heads. Point estimates are displayed as dots, 95% confidence intervals are displayed as bars.

practice of redlining, which was implemented by the Home Owners Loan Corporation starting in the 1930s. It is now well-established that the program severely restrained Black home ownership in the United States until the middle of the 1970s, when many federal policies intended to promote fair lending were implemented (Aaronson, Hartley and Mazumder, 2021).[19] Thus, it is not surprising that the of the Massacre on home ownership are particularly pronounced in an era in which Black people are able to obtain the financing necessary if wanted.

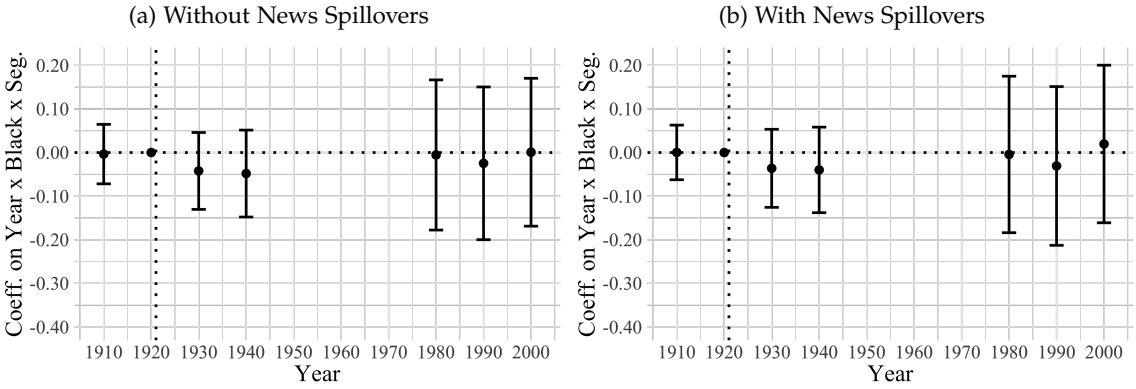
We also find that, as expected, the magnitudes of the direct effects are much greater than the spillover effects. To see this, consider the state with the greatest newspaper exposure with a normalized exposure measure of one. For this state, the estimated newspaper effect in 2000 is only half the size of the direct effect.

Lastly, we find that the segregation spillover effects do not persist. After 1940, the estimated effects are close to zero (and sometimes positive and sometimes negative). We do not see persistently lower rates of home ownership after 1921 among Black inhabitants in counties that were more segregated in 1920.

One may have expected the segregation effect to persist. A potential explanation for the lack of persistence in the importance of 1920 segregation is that what is important is the contemporaneous measure of segregation and that the extent of segregation does vary over time. The relationship between segregation measures in different years from 1880 to 1940 is reported in

[19]Examples include the 1968 Fair Housing Act, the 1974 Equal Credit Opportunity Act, and the 1977 Community Reinvestment Act.

Figure 11: A21 Dynamic DD Estimates, 1910–2000: Segregation Spillover Effects on Home Ownership



Notes: The reported estimates are for the sample of all household heads. Point estimates are displayed as dots, 95% confidence intervals are displayed as bars.

Appendix Table **??**. As shown, there is change in segregation over time. For example, while the correlation between segregation in 1880 and 1900 is 0.70, the correlation weakens over time. The same correlation between 1880 and 1940 is 0.53. Because micro-Census data are not available after 1940, we cannot examine these same relationships for later years. However, given what we know about white-flight and sorting within the destination cities of the Great Migration (Boustan, 2010), we expect the persistence of the segregation measure to weaken further after 1940. In all, the lack of persistence of the segregation spillover might be due to the fact that the importance of segregation works through a contemporaneous effect and over time 1920 segregation becomes a weaker predictor of current segregation.

6. Selective Migration

A. *Direct Effects of the Massacre on Migration*

We now consider the effects that the Massacre had on migration. While it is unlikely that the spillover effects found outside of Tulsa are due to selective migration, it is possible that an important part of the direct effects of the Massacre on Black individuals living in Tulsa is due to selective migration. Such selective migration depleted Tulsa of Black entrepreneurs and business-owners, which would have had detrimental effects on the longer-run economic growth of the community. Anecdotally, there are many accounts of individuals leaving Tulsa and enriching and improving their communities elsewhere (Ross, 2001, Wills, 2019).

To examine migration, we use linked census data from two sources from 1920 to 1930 that allow us to study whether men remained in their 1920 city of residence in 1930 or whether they moved away.[20]

The first linked data source is the Census Linking Project (CLP). The CLP has recently made available datasets of links between each pair of complete count US censuses from 1850 to 1940 (Abramitzky, Boustan, Collins, Eriksson, Feigenbaum, Ferrie, Helgertz, Perez, Price and Rashid, 2021a). We use the first set of links from the project for 1920 to 1930, which are generated via the "ABE algorithm," described in detail in Abramitzky, Boustan, Eriksson, Feigenbaum and Perez (2021b).[21] The second linked data source is the IPUMS Multigenerational Longitudinal Panel (MLP), which comprises a new set of crosswalks between pairs of adjacent censuses from 1900 to 1940 (Helgertz, Ruggles, Warren, Fitch, Goeken, Hacker, Nelson, Price, Roberts and Sobek, 2020, Ruggles, Fitch, Goeken, Hacker, Nelson, Roberts, Schouweiler and Sobek, 2021).[22]

We combine the linked data in the following way: Of the 1920-1930 links identified by either source, 33% were identified in both the CLP and MLP crosswalks; 59% were in MLP only, and 7% were in CLP only. For 0.8% of the links, the MLP and CLP links were different. In these cases, we used the MLP link.[23] Since women tended to change their last name upon marriage, linking them from census to census is much more difficult. Thus, our analysis only considers men.

We examine the nature of migration of Black people out of Tulsa with the following set of equations:

$$I_{icr}^{Migrate} = \alpha_c + \alpha_r + \beta(I_c^{Tulsa\,1920} \times I_r^{Black}) + \mathbf{X'}_{icr}\mathbf{\Gamma} + \varepsilon_{icr} \quad (5)$$

[20]Our analysis follows in the footsteps of other studies that also link Black and white individuals during this era using the same or very similar methods. These include include Collins and Wanamaker (2014), Ward (2022), and Aneja and Xu (2022).

[21]Links are identified according to matches on first name, last name, state of birth, and year of birth across two censuses. To minimize false-positive linkages, we use only the "exact conservative" links, which require first and last name to match exactly and require potential matches to be unique within a five-year age band around year of birth (within $\pm$ 2 years of the birth year implied by age as recorded in the census).

[22]The links differ from those produced by the ABE algorithm in several respects. Most importantly, they are probabilistically generated via a machine-learning regression model calibrated with hand-linked training data. Also, unlike most historical record linkage approaches, the model augments time-invariant individual-specific characteristics (name and birth information) with household and extended individual characteristics. Linked women are included in MLP dataset, but only insofar as they are matched with a linked man in both censuses. They do not, therefore, represent unique household links across censuses. For a complete description of the approach, see Helgertz, Price, Wellington, Thompson, Ruggles and Fitch (2022). To mitigate bias that could arise in our empirical analysis from linkage error (Bailey, Cole, Henderson and Massey, 2020b), we follow Bailey, Cole and Massey (2020a) and create custom weights for our linked samples.

[23]The findings we report here are robust to using the CLP link over the MLP link or to removing these observations from the analysis.

and

$$
\begin{aligned}
I_{icr}^{Migrate} &= \alpha_c + \alpha_r + \alpha_c y_i^{1920} + \alpha_r y_i^{1920} + \beta_1 (I_c^{Tulsa\,1920} \times I_r^{Black}) \\
&\quad + \beta_2 (I_c^{Tulsa\,1920} \times I_r^{Black} \times y_i^{1920}) + \mathbf{X'}_{icr} \mathbf{\Gamma} + \nu_{icr}, \qquad (6)
\end{aligned}
$$

where i denotes an individual, c their city of residence in 1920, and r their race. The sample comprises men who were residents of Tulsa or one of our Tulsa-comparison cities in 1920. The dependent variable $I_{icr}^{Migrate}$ equals one if individual i, with race r, who was living in city c in 1920 changed their city of residence between then and 1930 and zero otherwise. $\mathbf{X'}_{crt}$ is a vector of individual-level covariates, which are measured in 1920: age, age squared, an indicator for being married, and an indicator for having children. α_c denotes 1920 city-of-residence fixed effects and α_r denotes race fixed effects. y_i^{1920} denotes a 1920 (i.e., pre-Massacre) characteristic of individual i, either occupational status or or home ownership.

Equation (5) examines whether outmigration was different for Black Tulsans after the Massacre relative to individuals living in other cities. This is given by the estimate of β. Equation (6) examines whether outmigration was selective. The primary coefficients of interest are β_1 and β_2. If we take the case where y_i^{1920} measures home-ownership, then β_1 captures whether Black Tulsans who did not own a home in 1920 were more likely to leave after the Massacre relative to Black individuals living in other cities. β_2 informs us about the nature of selection and tells us whether home ownership increased or decreased the incidence of Black Tulsans moving away after the Massacre.

The estimates of equations (5) and (6) are reported in Table 13. Column 1 reports estimates of equation (5). The estimates show that, on average, Black Tulsans were more likely to migrate out of their location after 1920. This is not surprising given the accounts of victims leaving Tulsa after the Massacre.

We next turn to the question of whether the outmigration was selective. Column 2 reports estimates of equation (6), where y_i^{1920} is 1920 home ownership. We find that the average effects reported in column 1 mask important heterogeneity and that outmigration was selective. According to the estimates of column 2, while the estimated effect of interest for Black Tulsans who did not own a home was 5.7 percentage points, if one owned a home, the effect was 8.6 percentage points greater, and the total effect was 14.3 percentage points. Thus, household heads with more wealth were more likely to leave Tulsa following the Massacre. The result is not surprising. Those

Table 13: Estimates for Migration Out of Tulsa, 1920–1930, Sample of Linked Men

	Dependent Variable: Migration 0/1				
	No Selection	HH Head Home Ownership 0/1 Selection	Family Home Ownership 0/1 Selection	ln(Occscore) Selection	White-Collar 0/1 Selection
	(1)	(2)	(3)	(4)	(5)
Tulsa × Black	0.103***	0.057**	0.085***	−0.376***	0.089***
	(0.012)	(0.023)	(0.011)	(0.059)	(0.021)
Tulsa × Black × HH Head Home Ownership 0/1		0.086***			
		(0.030)			
Tulsa × Black × Family Home Ownership 0/1			0.022		
			(0.014)		
Tulsa × Black × ln(Occscore)				0.155***	
				(0.018)	
Tulsa × Black × White Collar 0/1					0.106***
					(0.026)
Race-City FEs	Y	Y	Y	Y	Y
Sample	All	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg.	0.311	0.289	0.311	0.308	0.308
Effect of Tulsa × Black at 1920 Char. Avg.	0.103	0.092	0.094	0.146	0.095
Observations	711,785	498,413	696,166	504,817	504,817

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual. The dependent variable is an indicator for migration, defined by an individual changing their city of residence between 1920 and 1930. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, an indicator for being married, an indicator for having children, and race-city fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

individuals who had more destroyed during the Massacre, effectively experiencing greater loss and were more likely to leave.

We obtain comparable findings when we examine all individuals (not just household heads) and look at whether they lived in a home that was owned by a family member. These are reported in column 3. In this case the differential effect is smaller and underpowered. This is not surprising given that this is a less-direct measure of the wealth of an individual themselves.

The findings are also similar when we look at differential migration depending on one's 1920 (log) occupation score (column 4). The log occupation score measure ranges from 1.38 to 4.39 and has a mean of 3.36 (and a median of 3.25). Thus, for Black Tulsans with the lowest occupation score (e.g., newsboys, farm laborers, etc.) the Massacre is associated with their being 16.2 percentage points less likely to leave Tulsa ($-0.376 + 0.155 \times 1.38 = -0.162$). For the occupations with an average score (e.g., postmasters, brickmasons, meat cutters, etc.), they are 14.5 percentage

points more likely to leave ($-0.376 + 0.155 \times 3.36 = 0.145$), and for the highest occupations (e.g., physicians, dentists, lawyers, etc.), they are 30.4 percentage points more likely to leave ($-0.376 + 0.155 \times 4.39 = 0.304$). In effect, following the Massacre, Black Tulsans in more-skilled occupations were more likely to leave the city, while those in less-skilled occupations were more likely to stay.

We come to the same conclusion when examining differential migration depending on whether a person had a white-collar occupation in 1920. According to the estimates reported in column 5, the estimated migration effect is 8.9 percentage points for those not in white-collar occupations, but was significantly higher at 19.5 percentage points for those in a white-collar occupation.

The findings suggest that a part of the estimated place-based direct effects of the Massacre may be due to selective migration away from Tulsa. The estimates of equation (6) can be used to provide a sense of the importance of this mechanism. Consider the example of home ownership by household heads (column 2). According to the estimates, Black Tulsan household heads who owned a home had a migration rate of 14.3% relative to 5.7% for those who did not own a home. In 1920, the share of Black household heads living in Tulsa who owned a home was 29.8%. Thus, ignoring any effects due to selective in-migration, within the first decade, out-migration is predicted to have decreased average home ownership by 0.26 percentage points ($-(0.298 \times 0.143) + (1 - 0.298) \times 0.057 = 0.0026$). This can be compared to the estimated decline in home ownership due to the Massacre, which was 1.3% (column 1 of Table 1), which was 4.2% (column 1 of Table 6), 7.1% (column 1 of Table 9), or 10.3% (column 1 of Table 10) depending on the specification.

Thus, the adverse effects of the Massacre cannot be explained by selective outmigration and simple accounting. This is not to say that selective migration did not have effects beyond reducing the statistics about occupation or home ownership that resulted in Tulsa's economic decline. Certainly, losing much of Greenwood's best entrepreneurial talent and skilled business people likely had persistent and dynamic adverse effects on the economic prosperity of the Tulsa's Black community.

Spillover Effects of the Massacre and Migration

Having examined the importance of migration in explaining the direct effects of the Tulsa Massacre on Black Tulsans, we now turn to study whether the spillover effects can be explained

by migration. Ex ante, it is far less plausible that the spillover effects that we find are due to migration. However, to be as thorough as possible, we check for this empirically. We do this by estimating variants of equation (5) that also allow for spillover effects due either to segregation or newspapers coverage.

The estimates, which are reported in Appendix Table A22, show that, in contrast to the direct effect of the Massacre, we find no evidence that the spillover effects resulted in greater migration from a location. In all specifications, while the estimated direct effects are positive and significant, the spillover effects are small in magnitude and statistically insignificant. The estimates are reassuring since the expectation is that, unlike the Massacre itself, the spillover effects were not significant enough to cause people to leave their communities in large numbers within the next decade. Instead, the spillover effects led to changes in home ownership and investment behaviors, but not to relocation.

7. Conclusions

We have studied the effects of the 1921 Tulsa Massacre, an event that leveled the prosperous Black community of Greenwood. Our analysis uses a place-based triple-differences approach and estimates the effects of the Massacre on the Black population of Tulsa. The estimates compared Black people to individuals from other races, within Tulsa versus elsewhere, and the Massacre relative to after.

We found that the Massacre is associated with a decline in home ownership, occupational downgrading, and reduced enrollment of children in school. We also found evidence of spillover effects on Black people in other parts of the United States who were either exposed to extensive newspaper coverage of the Massacre (much of it supportive of the violence and destruction) or lived in locations that, much like Tulsa, had high levels of racial segregation, which made widespread and targeted destruction of Black homes and businesses possible. The spillover effects tended to be in the same direction as the direct effects, although smaller in magnitude, and are most clearly seen in home ownership. The impact on home ownership is consistent with the Massacre being a warning about the potential destruction of wealth, which in turn affected the decision to invest in physical assets like homes.

When we examined the long-term effects of the Massacre on home ownership, extending the analysis past 1940 and to 2000, we found that the direct effects of the Massacre persist and

actually grow. The same was found for the newspaper coverage spillover effects. However, we found that the spillover effects working through historical racial segregation (measured in 1920) do not persist over time, a fact that is explained by the weak persistence of county-level relative segregation over this time period.

The last consequence of the Massacre that we examined was migration. Consistent with historical accounts, we found that the Massacre had a positive effect on the outmigration of Black Tulsans and that the outmigration was selective. Individuals who were more wealthy and entrepreneurial were more likely to leave Tulsa in the decade following the Massacre. Using our estimates, we calculated the extent to which compositional changes due to selective migration explain our baseline effects of the Massacre on Black Tulsans. The estimates indicated that effects through this specific mechanism are a tiny fraction of the total direct effects that we estimate. However, it is possible that there were additional effects, beyond static compositional effects, that were due to Tulsa's loss of entrepreneurial talent, which explains part of the longer-term adverse effects of the Massacre that we find.

In short, our findings suggest that the Tulsa Massacre did have important effects, in both the shorter- and longer-terms, not only for Black people in Tulsa but for many Black communities across the nation.

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Online Appendix

(Not for Publication)

A1. Data: Measurement and Sources

Outcomes of Interest

We use complete count U.S. census microdata from 1910, 1920, 1930, and 1940 (Minnesota Population Center, 2019). These datasets include detailed information at the person-level. We describe below the outcome variables of interest in this draft.[24]

HH Head Home Ownership

For household head home ownership, we require that a respondent report living in an owned home and also report being the household head. We assume household heads of owned home are the people who own the homes. For the household head home ownership measure, we restrict the sample to household heads, so that the variable is missing for all non-household heads.

Family Home Ownership

We want to capture whether someone in a person's family owns their home. In its raw form, the ownership variable sometimes only shows whether someone in the household head's family owns the home, meaning a servant can have an "owned" value for her home even though it is really her employer who owns the home.

The family home ownership measure we construct excludes these non-primary-family members by only counting individuals living in an owned home if the home is owned by someone living there and that owner is a family member. On a technical level, under our definition, a person owns a home if and only if they are marked as living in an "owned home" in the census and they are in the primary family unit.

Our slight alteration to this variable makes it consistent over time.[25] The way the home ownership variable was assigned to non-family household members differs based on census year. For instance, in 1930 the questionnaire instructions differentiate between family units in the same household. In 1940, they do not.

[24] Highest grade of schooling and educational attainment are also variables of interest but are only available in 1940.

[25] See the questionnaire text at: `https://usa.ipums.org/usa-action/variables/OWNERSHP`

As such, we make the variable equivalent of the question "does someone in your family own the house you live in?" to get at a *person-level* measure of "home ownership" rather than a *household-level* measure of home ownership. Our home ownership variable is a binary variable for each person that is the same at the family-level.

Home Ownership, 1980, 1990, 2000

In addition to the micro-census data, we use county-level data on home ownership from the NHGIS to examine longer-run impacts in the years 1980, 1990, and 2000. We use the following NHGIS data files on tenure: nhgis0011_ds104_1980_county, nhgis0011_ds104_1990_county, and nhgis0011_ds104_2000_county. These data and corresponding codebooks can be downloaded from `https://data2.nhgis.org/main`, with additional documentation and source information at `https://www.nhgis.org/documentation/tabular-data`.

To construct a measure of county-level household head ownership by race, we rely on the counts of householders who live in an owner-occupied housing unit and householders who live in a renter occupied housing unit (for example, variables CY001 through CY010 in the 1980 data). A "householder" is 'The person, or one of the people, in whose name the home is owned, being bought, or rented. If no such person is present, any household member 15 years old and over can serve as the householder. Two types of householders are distinguished: a family householder and a nonfamily householder. A family householder is a householder living with one or more people related to them by birth, marriage, or adoption. The householder and all people in the household related to him are family members. A nonfamily householder is a householder living alone or with nonrelatives only.

The variables draw from the universe of occupied housing units and are available for 1980, 1990, and 2000. We take the number of owner-occupied housing units in the county as the numerator and the number of owner-occupied housing units plus the number of renter-occupied housing units as the denominator. To create the ownership measure for Black individuals in 1980, our calculation is C7Y002 / (C7Y002 + C7Y007). For white individuals it is C7Y001 / (C7Y001 + C7Y006). The NHGIS describes these count variables as the number of units, which we take to be the same as the number of householders.

As with the complete-count measures, we combine other races into one category, so that the races we analyze are Black, white, and other. For example, in the 1980 data,

we take the sum of American Indian, Eskimo, and Aleut owners (C7Y003), Asian and Pacific Islander owners (C7Y004), and Other owners (C7Y005) to create the other category. The ownership share for the other category is calculated as (C7Y003+C7Y004+C7Y005) / (C7Y003+C7Y004+C7Y005+C7Y008+C7Y009+C7Y010).

We use the population of householders as weights in the regressions. As with the complete count data, weights vary by census year, county, and racial group.

Our measure of home ownership in the NHGIS corresponds closely with the household head ownership measure in the complete count census (described above). Both samples restrict the analysis to householders (in the NHGIS) or household heads (in the complete count census), and calculate home ownership rates at the year, race, and county level. Since the NHGIS does not include a gender breakdown, we append the NHGIS data to the complete count data and report estimates using this dataset.

Occupation-Based Income Proxy

We use a measure of income constructed based on occupation responses, called the occupational income score, `occscore`. The variable "assigns each occupation in all years a value representing the median total income (in hundreds of 1950 dollars) of all persons with that particular occupation in 1950." The measure converts occupational responses in the census to median income values. IPUMS documentation explains that "[f]or years prior to 1940, information on occupation was collected for persons who had not permanently retired," but, in 1940, "only persons in the labor force responded to the occupation inquiry." Therefore, to "construct a fully compatible universe," we follow IPUMS recommendations and restrict the sample to persons currently in the labor force with valid occupational responses.[26]

White-Collar Jobs

We also capture if someone reports a professional or technical job in the census, which we call white-collar jobs. Specifically, these are the occupations for which the occ1950 variable in IPUMS has a value less than 100. For reference, the ten most common white-collar occupations in Tulsa in the 1920 census, broken down by race, are reported in Appendix Tables A3 (for men) and A4

[26]See the description section at: `https://usa.ipums.org/usa-action/variables/OCCSCORE`.

(for women). We restrict all regressions using the white-collar variables to those individuals who report being in the labor force, are 16 and older, and have a valid occupational score.

Labor Force Participation

We also measure labor market participation and sometimes restrict our sample to individuals in the labor force. The 1910–1930 and 1940 labor force definitions are different within the census.[27] From 1910 to 1930, "participation is defined as reporting any gainful occupation."[28] In 1940, "participation follows the modern labor force definition," meaning "within a specific reference week, having a job from which one is temporarily absent (e.g., on vacation), working, or seeking work." As such, in the census data, people can be in the labor force, but have an invalid occupational response. By invalid, we mean that their `occ1950` value is one of the following: not classified, non-occupational response, occupation missing/unknown, or N/A (blank). Non-occupational responses include: Keeps house/housekeeping at home/housewife, Imputed keeping house (1850–1900), Helping at home/helps parents/housework, At school/student, Retired, Unemployed/without occupation, Invalid/disabled w/ no occupation reported, Inmate, New Worker, Gentleman/lady/at leisure, Other non-occupational response. A respondent can also have a valid occupational response, but not be coded as being in the labor force. To create a consistent definition across all years in our sample, we measure labor force participation using a variable that equals one if an individual is in the labor force and has a valid occupational response.

In our analysis, we restrict the sample to individuals who are 16 years or older. This is aimed at removing mechanical effects due to children not being in the labor force.[29]

The alternative labor force participation variable that we use in our robustness check is the off-the-shelf `labforce` census variable.

Additional Occupation-Based Measures

Our baseline occupation-based measure, `occscore`, is the median 1950 income of each occupation. IPUMS also provides other variables on occupational standing that we use for robustness. These

[27] See the discussion about comparability at: `https://usa.ipums.org/usa-action/variables/LABFORCE`

[28] On a technical level, this means you have a valid occupation response for `OCC1950`, which must be from 0 to 970.

[29] In 1910-1930, the universe of the labor force question was those 16+. In 1940 the universe was 14+. As such, restricting to the 16+ sample also provides better consistency in the sample of interest over time.

capture different elements of occupations. Similar to the occupational income score measure, these variables are an intensive measure of labor market position, meaning we only have entries for the variables for individuals who are in the labor force with a valid occupation code. The alternative measures that we use are summarized below.

SEI: Quoting from IPUMS, "SEI is a constructed measure that assigns a Duncan Socioeconomic Index (SEI) score to each occupation using the 1950 occupational classification scheme available in the OCC1950 variable. The SEI is a measure of occupational status based upon the income level and educational attainment associated with each occupation in 1950."[30]

Occupational Earnings Score: This variable, ERSCOR50 in IPUMS, assigns a measure of the median earned income for each occupation. "In order to maximize comparability over time, the median earned income reported in ERSCOR50 is standardized as a z-score and then converted to a percentile rank. ERSCOR50 reports the percentage of persons in occupations having lower standardized median earnings than the respondent's occupation."[31]

Occupational Prestige Score: This variable, PRESGL in IPUMS, assigns a Siegel prestige score to each occupation. This assignment was based on surveys conducted at NORC in the 1960s.[32]

Occupational Status Score: Quoting from IPUMS, "The NPBOSS50 is a measure of occupational status based upon the median earnings and median educational attainment associated with each category in the occupational scheme available in OCC1950 variable. Occupational status score gives equal weights to education and earnings, and can be interpreted as the percentage of persons in the civilian labor force who are in occupations having combined levels of education and earnings below that occupation. The scores can vary from 0 to 100."[33]

[30]More information here: https://usa.ipums.org/usa-action/variables/SEI

[31]More information here: https://usa.ipums.org/usa-action/variables/ERSCOR50

[32]More information here: https://usa.ipums.org/usa-action/variables/PRESGL

[33]More information here: https://usa.ipums.org/usa-action/variables/NPBOSS50

A2. Archival Data

To supplement our complete count census data, we also use archival data on Massacre causalities and property losses.

Deaths

We compiled our list of those killed from four sources, all of which we digitized from the Oklahoma Historical Society's Tulsa Race Riot Commission Collection. The first is the table of 39 confirmed causalities (killed) according to death certificates, which is referenced as "Table 1: Tulsa Race Riot Deaths" in the Oklahoma Commission Report. The second is "Race Riot Dead" by Dick Warner, which is a listing of people proven dead by cemetery burial records or funeral home records. The third is "Computations as to the Deaths from the 1921 Tulsa Race Riot," also written by Dick Warner, which lists individuals who were issued death certificates or were listed as dead in funeral home records, legal claims, or newspapers or were mentioned dead by family or neighbors. Lastly, we use the "A working list of the confirmed victims of the riot compiled by Dick Warner, Dr. Scott Ellswoth, and Dr. Clyde Snow," which includes names from death certificates, funeral home records, newspapers, court case petitions, and interviews.

These four sources identify deaths based on the following distinct kinds of primary sources: death certificates (issue by the City of Tulsa), funeral records (from Stanley & McCune and Mitchell-Flaming), cemetery burial records, legal claims, newspaper articles[34], and interviews.[35] The list of those killed and the source of information is provided in Appendix Table A1.

Injuries

Since no comparable listing of individuals injured during the Massacre has been made available by the Oklahoma Historical Society, we relied on listings by the June 1, June 2, and June 3, 1921 editions of Tulsa World, the June 1 and June 2, 1921 editions of the Tulsa Tribune and the 1921 Red Cross report to assemble a list of individuals admitted to hospitals due to Massacre-induced

[34]The main newspapers reporting on mortalities were the June 1, June 2, and June 3 1921 editions of Tulsa World, the June 1 and June 2 1921 editions of the Tulsa Tribune, the June 1 1921 edition of the Guthrie Daily Leader, and the June 1 1921 edition of the Muskogee Phoenix.

[35]We cross-validated these listings, which have been compiled by the Oklahoma Historical Society, against a listing of Tulsa Race Riot victims compiled by I. Marc Carlson, a librarian at the University of Tulsa. All names in our listing were also in his listing.

wounds.[36] The final list, which contains 98 injured individuals, is reported in Appendix Table A2.

Property Losses

We compiled our list of those who lost property from three sources. First, we used the "Database of damage claims filed through the City of Tulsa by Blacks and Whites after the riot," which we digitized from the Oklahoma Historical Society's Tulsa Race Riot Commission Collection. This source includes names and amounts of losses in dollars. Second, we use a partial list of financial and property losses in the Massacre from the book "Race riot 1921" by Mary E. Jones Parrish (we digitized pages 115–126). The list includes losses in dollar amounts by addresses, businesses, and people. Third, and largest, we use the "Cases Filed Database" as compiled by OHS during the preparation of the 2001 report on the Massacre.[37] This source includes the plaintiff's names, addresses, defendants, property loss details, and an amount in dollars.

[36]The 1921 Red Cross Disaster Relief Report summarizes the impact of the Tulsa Massacre on the health and economic well-being of the local population, and includes the names, ages, and biographical details of 10 patients who were in hospital on December 30th, 1921 due to riot-induced wounds. Although the American Red Cross paid for the hospitalization of 183 (48 black and 153 white) individuals that suffered riot-induced wounds, it does not provide the names of those that were discharged before the publication of the report. As a result, our count necessarily represents a lower bound on the true number of individuals injured by the Massacre.

[37]Larry O'Dell shared a digitized version of this database with us.

A3. Appendix Figures

Figure A1: The Riot Exclusion Clause in Insurance Policies (via OHS)

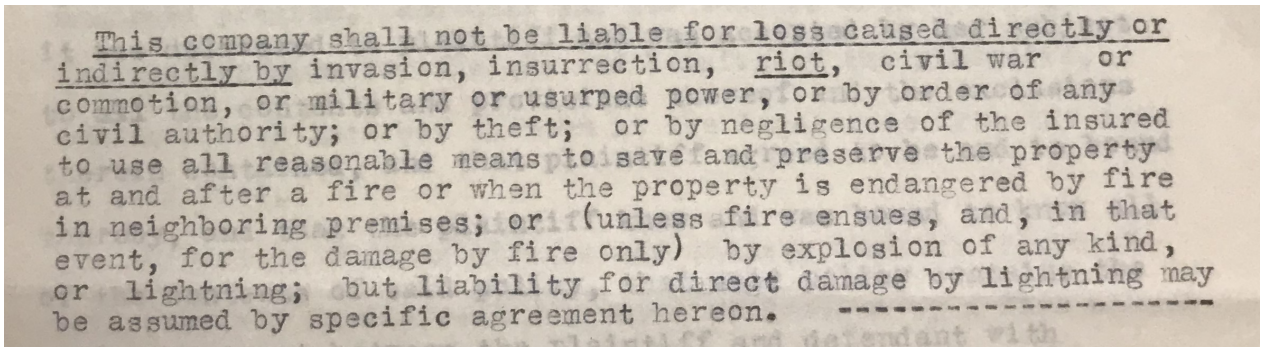
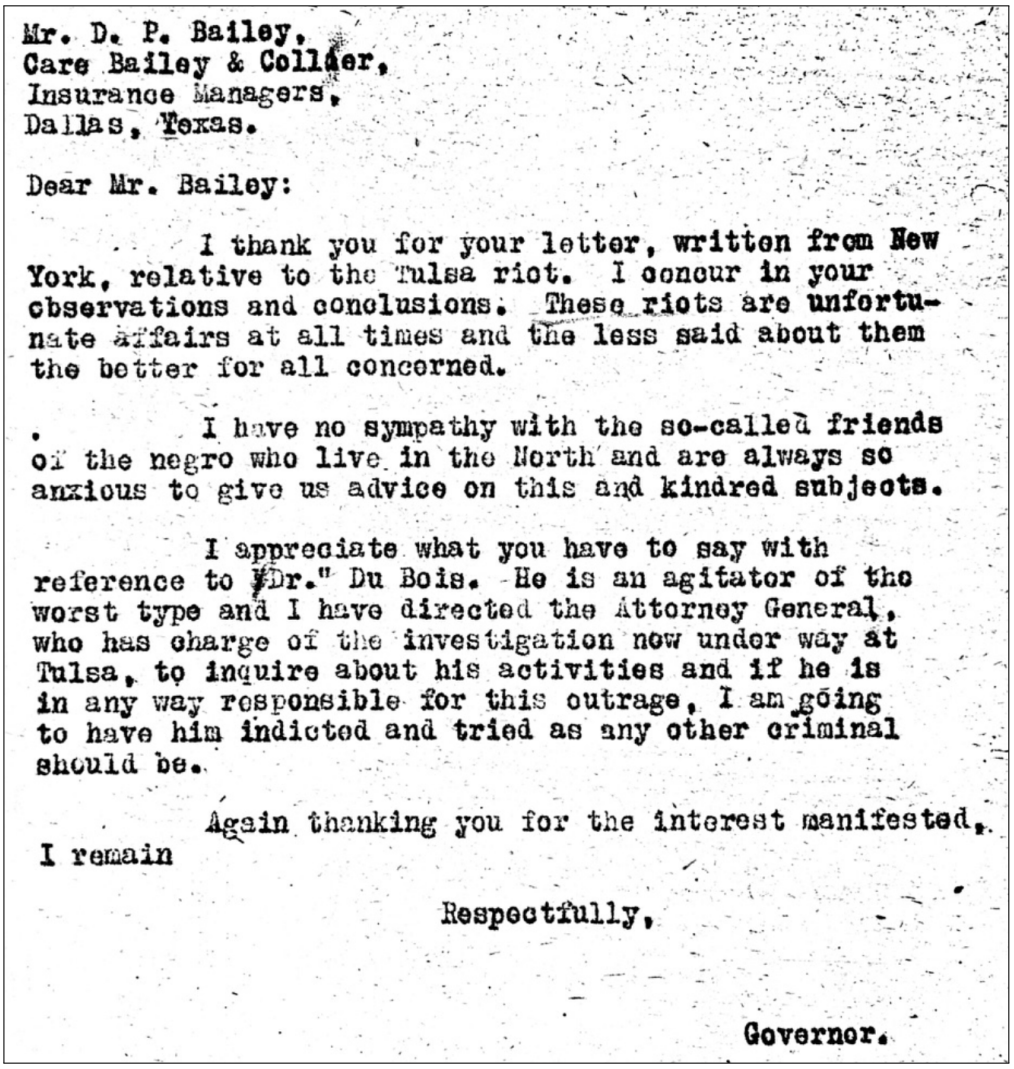

This company shall not be liable for loss caused directly or indirectly by invasion, insurrection, riot, civil war or commotion, or military or usurped power, or by order of any civil authority; or by theft; or by negligence of the insured to use all reasonable means to save and preserve the property at and after a fire or when the property is endangered by fire in neighboring premises; or (unless fire ensues, and, in that event, for the damage by fire only) by explosion of any kind, or lightning; but liability for direct damage by lightning may be assumed by specific agreement hereon. ----------

Figure A2: Letter from Oklahoma Governor (via OHS)



Mr. D. P. Bailey,
Care Bailey & Collder,
Insurance Managers,
Dallas, Texas.

Dear Mr. Bailey:

I thank you for your letter, written from New York, relative to the Tulsa riot. I concur in your observations and conclusions. These riots are unfortunate affairs at all times and the less said about them the better for all concerned.

I have no sympathy with the so-called friends of the negro who live in the North and are always so anxious to give us advice on this and kindred subjects.

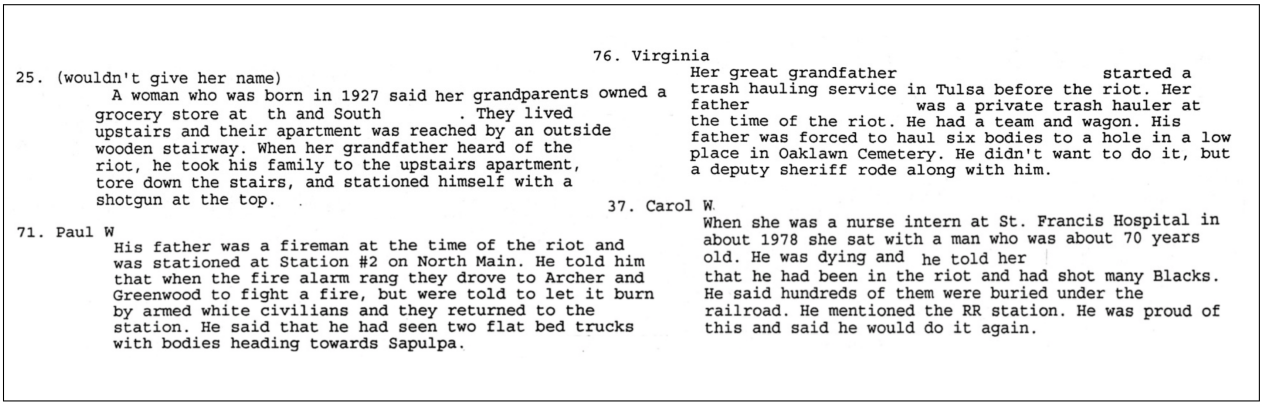
I appreciate what you have to say with reference to "Dr." Du Bois. He is an agitator of the worst type and I have directed the Attorney General, who has charge of the investigation now under way at Tulsa, to inquire about his activities and if he is in any way responsible for this outrage, I am going to have him indicted and tried as any other criminal should be.

Again thanking you for the interest manifested, I remain

Respectfully,

Governor.

Figure A3: Images of the Text of Stories of the 1921 Tulsa Massacre from the Oklahoma Historical Society Archives



25. (wouldn't give her name)
A woman who was born in 1927 said her grandparents owned a grocery store at th and South . They lived upstairs and their apartment was reached by an outside wooden stairway. When her grandfather heard of the riot, he took his family to the upstairs apartment, tore down the stairs, and stationed himself with a shotgun at the top.

71. Paul W
His father was a fireman at the time of the riot and was stationed at Station #2 on North Main. He told him that when the fire alarm rang they drove to Archer and Greenwood to fight a fire, but were told to let it burn by armed white civilians and they returned to the station. He said that he had seen two flat bed trucks with bodies heading towards Sapulpa.

76. Virginia
Her great grandfather started a trash hauling service in Tulsa before the riot. Her father was a private trash hauler at the time of the riot. He had a team and wagon. His father was forced to haul six bodies to a hole in a low place in Oaklawn Cemetery. He didn't want to do it, but a deputy sheriff rode along with him.

37. Carol W.
When she was a nurse intern at St. Francis Hospital in about 1978 she sat with a man who was about 70 years old. He was dying and he told her that he had been in the riot and had shot many Blacks. He said hundreds of them were buried under the railroad. He mentioned the RR station. He was proud of this and said he would do it again.

Figure A4: Front Page of The Selma Times-Journal from June 1, 1921

The Selma Times-Journal

VOL. 2. NO. 93. SELMA, ALABAMA, WEDNESDAY, JUNE 1, 1921. EIGHT PAGES TODAY

175 DEAD-TULSA, OKLA., IN WILD FRENZY OF RACE RIOT

Ten Blocks Set Afire--Planes Hover over Quarter, Potting Blacks from Sky

RIFLE FIRE BREAKS OUT AT DAWN

Rising Sun Reveals 1,000 Whites Facing 500 Negroes, All Armed.

REPORT 4 RAILWAY EMPLOYES ARE SHOT

Refused To Carry Whites On An Engine Into Negro Stronghold.

At Least 75 Dead, Including Six Whites--2,000 Negroes Taken and Prisoned--Machine Guns Arrive; Siren Call Panic at Muscogee

State Troops March In At 9 O'Clock And Take Possession Of City—Negroes Rounded Up And Put In Camps—Threat Of March Of Negroes Of Muscogee To Aid Tulsans, With Siren Call For Guards, Throws City In Panic.

70 Autos Surrounded Negro Section; Planes Hover Overheard

Note To Holland Stirs Dutchmen Up

Gasoline Down Two Cents In Alabama

PALSIED BLACKS FLEE TO SAFETY

Long Lines, With Their Bundles, Stream Out Of Fight Zone Under Guard.

Two Lumber Plants Burn At Monroe, La.

10 BLOCKS OF TULSA BURNING

Fire Spreading And Threatening To Wipe Out Sunset Hill White Section.

ARMED NEGROES DASH SCREAMING OUT OF BURNING HOUSES

Surrender To Grim-Faced Whites And Are Whirled In Autos To Prison Camps.

DERBY IS TAKEN BY HUMORIST

Astor's Crack Horse Second In Great English Classic.

MARTIAL LAW IS DECLARED

Governor Orders Entire County Placed Under Military

REFUSES PLEA OF GA. NEGROES

Supreme Court Will Not Review Charges Of Injustice.

RIOTERS SHOOT FIREMEN DOWN

"Worth A Fireman's Life To Turn Stream On Those Burning Buildings," Says Chief.

Murderer Of Sheriff Catron Will Surrender If Protected

America in Vanguard of Nations in Human Activity, Says Jusserand At Centennial of Uni. of Virginia

"America's Universities, Laboratories, Scientific Periodicals And Libraries Are Envy Of The Whole World," Says French Ambassador—Magnificent Tributes Heaped Upon Famous Old Southern Institution.

New Month

Congressman H. J. Drane of Florida, isn't superstitious. He introduced a bill to add a thirteenth month to the calendar. He'd call it "Center" and have it come between June and July.

LOOT BANK FRONT OF POLICE HDQT.

Five Bandits In Auto Defy Blue Coats Across The Street.

TEXTILE STRIKE BEGAN 10 A. M.

Threat Made Some Time Ago, But No Time Or Date Set.

Thief Steals A Bicycle From Station Of B'gham Police

175 DEAD

BULLETIN, 3:15

Tulsa, Okla., June 1.—Major Charles W. Daley of the police force, this afternoon estimated the number of dead from the race clash here at 175. He said he believed a number of negroes had burned to death when their homes were swept by fire.

Partlesville, Okla., June 1.—Members of a train crew from Tulsa who passed through Partlesville today, told Earl Thompson, day operator at the Union station here, that they had passed three thousand negroes near Owasso, about 30 miles south of here, headed in the direction of Partlesville.

FIVE DEAD NOW FROM U. S. BOMB

Three More In Critical Condition, But May Recover.

HARDING TAKES UP RATES

Makes Personal Visit Afoot To The I. C. C. Members.

WHOLE SUBJECT TO BE THRESHED OUT

Plans To Pay Railroads Every Cent Due Right Now.

SELMA TO HAVE BANG-UP TEAM

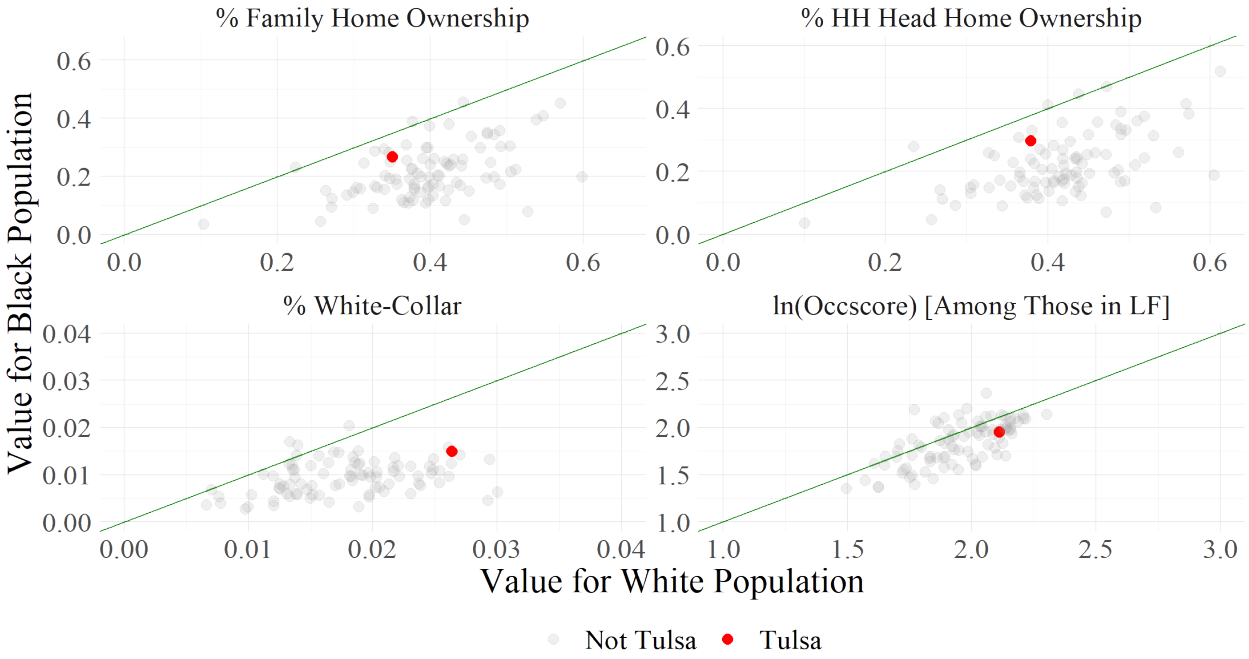
If Necessary League Will Go Outside For Players.

400 Starving In Little Town Of Altoona, Alabama

Figure A5: Characteristics of Black Tulsa County Compared to Black Populations of Other Counties in the Segregated U.S. South in 1920

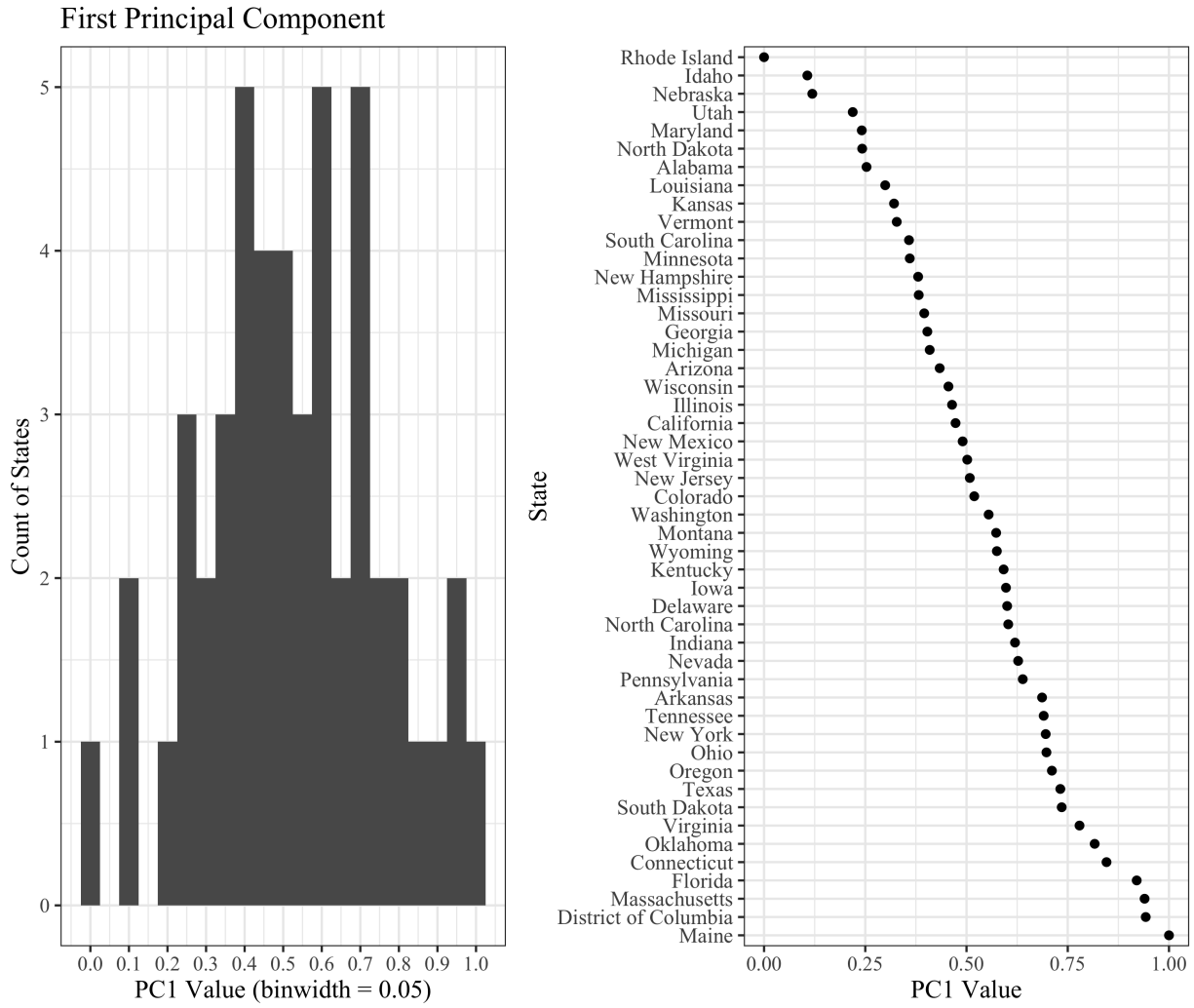
Notes: Restricted to Jim Crow state counties with a 1920 population of at least 50,000 individuals and a Black population of at least 1,000 individuals.

Figure A6: Characteristics of the Black and White Populations of Tulsa County Relative to Other Counties in the Segregated U.S. South in 1920



Notes: Restricted to Jim Crow state counties with a 1920 population of at least 50,000 individuals and a Black population of at least 1,000 individuals. The green line shows the 45 degree line where metrics are equal for the Black and white populations.

Figure A7: Index of State-Level Average Newspaper Coverage of the Tulsa Massacre



Notes: Data are from Newspapers.com, June 1-4, 1921. The first principal component is calculated as a weighted average of the six state-level newspaper coverage measures and then normalized to lie in [0,1].

A4. Appendix Tables

Table A1: Individuals Killed in the Massacre

Last Name	First Name	Gender	Race	Birthplace	Age	Source
Adams	Ed	Male	Black	...	32	Death Certificate, Funeral Record or Grave
Alexander	Greg	Male	Black	...	35	Death Certificate, Funeral Record or Grave
Austin	Edward	Male	White	...	38, 39 †	Newspaper (Source Conflict)
Austin	Earnest	Male	White	NY	39	Death Certificate, Funeral Record or Grave
Baker	F.M.	...	White	KY	48, 28 †	Wrong name reported
Barker	Harry	...	Black	CO	37	Death Certificate, Funeral Record or Grave
Barrens	Howard	...	Black	CO	19	Death Certificate, Funeral Record or Grave
Belshmer	E.F.	Male	White	...	...	Newspaper
Berrell	John	Male	White	PA	85, 86 †	Death Certificate, Funeral Record or Grave
Brown	Andy	Male	Black	...	...	Likely Alive (Source conflict)
Bryant	Tom	Male	Black	...	...	Newspaper
Cline	Homer C.	Male	White	AR	16, 17 †	Death Certificate, Funeral Record or Grave
Curry	H. Lewis	Male	White	...	28	Likely Alive (Source Conflict)
Daggs	George Walter	Male	White	...	27	Death Certificate, Funeral Record or Grave
Deary	... (Mrs.)	Female	White	...	...	Wrong name reported
Diamond	Carrie	Female	Black	...	...	Death Certificate, Funeral Record or Grave
Everett	Reuben	Male	Black	...	...	Death Certificate, Funeral Record or Grave
Fisher	Lee	Male	White	...	21	Likely Alive (Source Conflict)
Gilliland	Norman	Male	White	...	...	Newspaper
Gilmore	Ila	...	White	...	...	Likely Alive (Source Conflict)
Hawkins	George	Male	Black	...	78	Death Certificate, Funeral Record or Grave
Hawkinson	Robert C.	Male	White	IN	22	Death Certificate, Funeral Record or Grave
Hill	Clarence	Male	White	...	...	Newspaper
Hobson	Billy	Male	Black	...	...	Newspaper
Howard	Ed		Black	...	...	Death Certificate, Funeral Record or Grave
Jackson	Andrew C.	Male	Black	...	40	Death Certificate, Funeral Record or Grave

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Individuals Killed in the Massacre (Continued)

Last Name	First Name	Gender	Race	Birthplace	Age	Source
James	Arthur	Male	White	OK	35	Death Certificate, Funeral Record or Grave
James	...	...	White	...	...	Wrong name reported
Jeffrey	George	...	Black	...	36	Death Certificate, Funeral Record or Grave
Johnson	H.	...	Black	...	...	Death Certificate, Funeral Record or Grave
Knox	Commodore	Male	White	MS	21	Death Certificate, Funeral Record or Grave
Lewis	...	Male	Black	...	...	Death Certificate, Funeral Record or Grave
Lockard	Ed	Male	Black	...	33	Death Certificate, Funeral Record or Grave
Lotspeich	Charles D.	Male	White	IO	22	Death Certificate, Funeral Record or Grave
Miller	Joe	...	Black	...	35	Death Certificate, Funeral Record or Grave
Morrison	...	Female	Black	...	...	Newspaper
Olson	...	...	White	...	...	Wrong name reported
Osborne	Robert L.	...	White	CO, IN	25	Death Certificate, Funeral Record or Grave
Palmer	Robert	Male	White	...	23	Likely Alive (Source Conflict)
Palmer	John	...	White	...	28	Likely Alive (Source Conflict)
Paris	James R.	...	White	TX	33	Death Certificate, Funeral Record or Grave
Pierce	S.H.	...	Black	...	...	Death Certificate, Funeral Record or Grave
Ree	Sam	...	Black	...	30	Death Certificate, Funeral Record or Grave
Roberts	Harry	Male	White	OK	27	Death Certificate, Funeral Record or Grave
Sandridge	M.M.	...	Black	...	...	Death Certificate, Funeral Record or Grave
Selby	Olive	Female	White	Tulsa, OK	...	Newspaper
Shelton	Lewis	Male	Black	TN	77	Death Certificate, Funeral Record or Grave
Sherrill	T.J.	...	White	...	51	Death Certificate, Funeral Record or Grave
Shumate	Cleo	...	White	OK	24	Death Certificate, Funeral Record or Grave
Slinkard	L.C.	Male	White	...	25	Newspaper
Stovall	...	Male	Black	...	...	Newspaper

Continued on next page

Individuals Killed in the Massacre (Continued)

Last Name	First Name	Gender	Race	Birthplace	Age	Source
Talbot	...	Male	Black	...	...	Newspaper
Talbot	...	Female	Black	...	...	Newspaper
Turner	William	Male	Black	...	35	Death Certificate, Funeral Record or Grave
Walker	Henry	...	Black	...	40	Death Certificate, Funeral Record or Grave
Walker	Curly	Male	Black	...	30	Death Certificate, Funeral Record or Grave
Weaver	G.E.	...	White	...	24	Death Certificate, Funeral Record or Grave
Wheeler	John	...	Black	...	63	Death Certificate, Funeral Record or Grave
Wilson	J.H.	...	White	...	74	Death Certificate, Funeral Record or Grave
Withrow	Samuel J.	Male	White	IN	19, 28 †	Death Certificate, Funeral Record or Grave
Woffard	Shirly F.	...	Black	...	...	Death Certificate, Funeral Record or Grave

Notes: This table lists individuals killed in the Massacre according to four lists of casualties found in the Oklahoma Historical Society's Tulsa Race Riot Commission Collection. These lists identified deaths on the basis of the following distinct kinds of primary sources: death certificates, funeral records, graves, and newspaper articles. The "Source" column describes the source used to determine that an individual was killed (Death Certificate, Funeral Record or Grave, or Newspaper). A person is listed as Likely Alive (Source Conflict) if post-1920 Census data or other historical records lists the individual as still alive. Individuals are listed alphabetically by last name and first name. † In some cases, sources offer conflicting ages for individuals. We report both ages here.

Table A2: Individuals Injured in the Massacre

Last Name	First Name	Gender	Race	Source
Abernathy	J.L.	...	Black	Newspaper
Arnley	Cal	Male	Black	Newspaper; Red Cross
Arnold	Vance	...	Black	Newspaper
Austin	Edward	...	White	Newspaper
Baker	Johnny	...	Black	Newspaper
Barry	James	...	Black	Newspaper
Baskin	Ed	...	Black	Newspaper
Belshmer	E.F.	...	White	Newspaper
Bentley	William	...	Black	Newspaper
Brown	Willie	...	Black	Newspaper
Carr	Ruth	...	Black	Newspaper
Carter	Charles	Male	...	Newspaper; Red Cross
Chapple	P.A.	...	Black	Newspaper
Collins	J.L.	...	White	Newspaper
Crouch	Garland	Male	White	Newspaper
Curry	H. Lewis	Male	White	Newspaper
Cytron	J.	...	White	Newspaper
Danney	George L.	...	Black	Newspaper
Davis	Dan	...	Black	Newspaper
Dow	A.N.	...	White	Newspaper
Elmer	Robert	...	White	Newspaper
Epps	William	...	Black	Newspaper
Fisher	Lee	Male	White	Newspaper
Foster	Lonnie	...	Black	Newspaper
Gamble	Henry	Male	...	Newspaper
Gamble	V.M.	...	White	Newspaper; Red Cross
Gilliland	Norman	...	White	Newspaper
Gilmore	Ila/S.A.	Female	White	Newspaper
Glaze	Miranda	...	Black	Newspaper
Griffin	Clarence	...	Black	Newspaper
Gurner	William	...	Black	Newspaper
Hartshone	E.	...	White	Newspaper
Hastings	W.R.	...	White	Newspaper
Hileman	Earl R.	...	White	Newspaper
Hode	J.S.	...	Black	Newspaper
Ingram	Ed	...	Black	Newspaper
Jackson	S.	...	Black	Newspaper
Jackson	Ulysses	...	Black	Newspaper
Jenkins	M.J.	...	White	Newspaper
Johnson	Charles	...	Black	Newspaper

Continued on next page

Individuals Injured in the Massacre (Continued)

Last Name	First Name	Gender	Race	Source
Johnson	H.	...	Black	Newspaper
Johnson	Marie	...	Black	Newspaper
Joiner	G.F.	...	White	Newspaper
Knox	Commodore	...	Black	Newspaper
Lane	Oliver	...	Black	Newspaper
Lasley	Leroy	...	Black	Newspaper
Lee	J.	...	White	Newspaper
Lewis	G.J.	...	Black	Newspaper
Lewis	Tony	...	Black	Newspaper
Logsdon	K.G.	...	White	Newspaper
Mardick	C.E.	...	White	Newspaper
Masek	A.E.	...	White	Newspaper
Maynor	Willis	...	Black	Newspaper
McDonald	H.D.	...	White	Newspaper
Meadows	Chester	...	Black	Newspaper
Miller	Curd	Male	White	Newspaper
Miller	Frank	Male	...	Newspaper; Red Cross
Miller	Jake	Male	...	Newspaper; Red Cross
Montgomery	Ben	...	Black	Newspaper
Moore	Ruth	...	Black	Newspaper
Moore	Will	...	Black	Newspaper
Morrison	Arthur	Male	Black	Newspaper; Red Cross
Neel	Andrew	...	Black	Newspaper
Nelson	Tom	...	Black	Newspaper
Oliver	Ruth	...	Black	Newspaper
Owens	Ross G.	...	White	Newspaper
Palmer	Robert	Male	White	Newspaper
Paris	James	...	White	Newspaper
Perry	A.	...	White	Newspaper
Prunkard	G.T.	Male	White	Newspaper
Renkin	Latha	...	Black	Newspaper
Rhodes	Homer	...	White	Newspaper
Rivers	Bob	...	Black	Newspaper
Robinson	Lane	...	Black	Newspaper
Seltzer	R.N.	...	White	Newspaper
Sherrick	Otto	...	White	Newspaper
Shields	Lewis	...	White	Newspaper
Shigley	M.R.	Female	White	Newspaper
Slinkard	L.	...	White	Newspaper
Smith	Florida	...	Black	Newspaper

Continued on next page

Individuals Injured in the Massacre (Continued)

Last Name	First Name	Gender	Race	Source
Smith	Franklin T.	...	Black	Newspaper
Sterling	A.T.	...	White	Newspaper
Stevenson	Alex	Male	Black	Newspaper
Stick	A.B.	Male	White	Newspaper
Switzgood	Gordon	Male	White	Newspaper
Taliafirio	Lily	...	Black	Newspaper
Thomas	C.C.	...	White	Newspaper
Tyson	Sam	...	Black	Newspaper
Vickers	E.F.	...	White	Newspaper
Walker	Elsie	Female	Black	Newspaper; Red Cross
Washington	L.	...	Black	Newspaper
Wheeler	E.L.	...	White	Newspaper
White	George N.	Male	White	Newspaper
Whitty	Celia	...	Black	Newspaper
Williams	Porter	...	Black	Newspaper
Wissenger	J.E.	...	White	Newspaper
Woffard	Shirley	...	Black	Newspaper
Woodard	Ora	Male	Black	Newspaper

Notes: This table lists individuals admitted to hospitals due to Massacre-induced wounds. These individuals come from listings in the June 1, June 2, and June 3, 1921 editions of the Tulsa World, the June 1 and June 2, 1921 editions of the Tulsa Tribune, and the 1921 Red Cross report on the Massacre. The "Source" column describes the documentation used to determine that an individual was injured (Newspaper or Red Cross). Individuals are listed alphabetically by last name and first name.

Table A3: Ten Most Common White-Collar Occupations for Men by Race in 1920 Tulsa

Rank	White Men Top Occupations	White Men Count	Black Men Top Occupations	Black Men Count
1	Accountant	464	Clergyman	29
2	Lawyer or Judge	279	Physician or Surgeon	20
3	Physician or Surgeon	160	Teacher	18
4	Engineers, Civil	105	Musician or Music Teacher	9
5	Teacher	104	Lawyer or Judge	8
6	Pharmacist	99	Pharmacist	7
7	Musician or Music Teacher	62	Actor	2
8	Dentist	59	Dentist	2
9	Clergyman	58	Accountant	1
10	Draftsman	46	Editors/Reporters	1

Notes: The table reports the most common white-collar occupations for white and Black men in 1920 Tulsa. This table uses the standard white-collar definition described in the paper.

Table A4: Ten Most Common White-Collar Occupations for Women by Race in 1920 Tulsa

Rank	White Women Top Occupations	White Women Count	Black Women Top Occupations	Black Women Count
1	Teacher	606	Teacher	51
2	Nurse, Professional	107	Nurse, Professional	6
3	Musician or Music Teacher	60	Musician or Music Teacher	5
4	Accountant	23	Artist or Art Teacher	1
5	Actor	16	Physician or Surgeon	1
6	Nurse, Student Professional	15	NA	NA
7	Photographer	9	NA	NA
8	Professor/Instructor	8	NA	NA
9	Recreation or Group Worker	6	NA	NA
10	Editors/Reporters	5	NA	NA

Notes: The table reports the most common white-collar occupations for white and Black women in 1920 Tulsa. This table uses the standard white-collar definition described in the paper.

Table A5: Comparison Cities, 1920 Characteristics

City	Population	Black Population	Pct. Black
Mobile, AL	60,789	23,926	0.39
Little Rock, AR	65,400	17,624	0.27
San Diego, CA	74,923	1,090	0.01
Bridgeport, CT	143,677	2,228	0.02
Hartford, CT	138,083	4,216	0.03
Wilmington, DE	110,129	10,792	0.10
Jacksonville, FL	91,008	41,511	0.46
Tampa, FL	51,502	11,510	0.22
Augusta, GA	52,567	22,521	0.43
Macon, GA	52,904	23,075	0.44
Savannah, GA	83,322	39,444	0.47
East St. Louis, IL	67,391	7,389	0.11
Peoria, IL	76,095	2,135	0.03
Springfield, IL	59,214	2,771	0.05
Evansville, IN	88,661	6,340	0.07
Fort Wayne, IN	88,613	1,455	0.02
Gary, IN	55,391	5,321	0.10
South Bend, IN	71,156	1,265	0.02
Terre Haute, IN	66,259	3,603	0.05
Des Moines, IA	126,665	5,481	0.04
Sioux City, IA	71,197	1,120	0.02
Kansas City, KS	101,223	14,501	0.14
Topeka, KS	50,042	4,331	0.09
Wichita, KS	72,230	3,553	0.05
Covington, KY	57,126	3,017	0.05
Cambridge, MA	109,709	5,227	0.05
New Bedford, MA	121,396	5,068	0.04
Springfield, MA	129,693	2,650	0.02
Flint, MI	91,600	1,689	0.02
Grand Rapids, MI	137,657	1,100	0.01
Saint Joseph, MO	78,149	4,280	0.05
Atlantic City, NJ	50,711	10,939	0.22
Camden, NJ	116,439	8,631	0.07
East Orange, NJ	50,693	2,317	0.05
Elizabeth, NJ	95,843	1,949	0.02
Paterson, NJ	135,899	1,577	0.01
Trenton, NJ	119,055	4,361	0.04
Albany, NY	113,403	1,202	0.01
Yonkers, NY	100,234	1,957	0.02

Continued on next page

Comparison Cities, 1920 Characteristics (Continued)

City	Population	Black Population	Pct. Black
Canton, OH	87,087	1,298	0.01
Springfield, OH	60,794	7,026	0.12
Youngstown, OH	132,402	6,630	0.05
Oklahoma City, OK	91,463	8,383	0.09
Tulsa, OK	72,203	8,901	0.12
Chester, PA	58,029	7,316	0.13
Harrisburg, PA	75,947	5,280	0.07
Johnstown, PA	67,326	1,658	0.02
Reading, PA	107,805	1,374	0.01
Charleston, SC	70,374	34,349	0.49
Chattanooga, TN	57,909	18,861	0.33
Knoxville, TN	77,821	11,487	0.15
Nashville, TN	118,333	35,712	0.30
El Paso, TX	77,776	1,359	0.02
Fort Worth, TX	106,569	15,904	0.15
Houston, TX	138,275	34,037	0.25
Norfolk, VA	116,103	43,087	0.37
Portsmouth, VA	54,405	23,367	0.43
Roanoke, VA	50,851	9,355	0.18
Huntington, WV	50,439	2,878	0.06
Wheeling, WV	56,140	1,613	0.03

Notes: This table reports 1920s characteristics of the comparison cities (as well as Tulsa) used in our regression analysis. Cities are listed in alphabetical order by state and city name.

Table A6: Cities in 1910 Census but not 1900 Census and their 1910 & 1920 Populations

	Total Population		Black Population	
City	1910	1920	1910	1920
Bellingham, WA	27,221	25,592	54	44
Muskogee, OK*	25,322	30,389	8,011	7,289
Jackson, MS*	21,321	22,818	10,621	9,964
Beaumont, TX*	20,657	40,623	6,969	13,213
Boise, ID	19,784	21,438	235	78
Oak Park Village, IL	19,444	39,767	113	170
Durham, NC*	18,267	21,754	6,905	7,667
Tulsa, OK*	18,238	72,203	2,050	8,901
Gary, IN*	17,486	55,391	381	5,321
Hutchinson, KS*	16,362	23,299	885	1,040
Aberdeen, WA	15,634	15,330	98	53
Sharon, PA	15,278	21,744	177	669
Riverside, CA*	15,224	19,338	418	509
Elyria, OH	14,854	20,477	244	531
Olean, NY	14,769	20,503	180	247
Missoula, MT	14,692	12,669	122	101
Cicero, IL	14,556	44,999	4	4
Lackawanna, NY	14,503	17,766	207	271
Waycross, GA*	14,487	19,157	6,842	9,811
Hot Springs, AR*	14,471	11,694	3,939	2,824
Fargo, ND	14,355	21,962	104	42
Enid, OK*	13,799	16,576	783	472
Selma, AL*	13,649	15,592	7,905	8,212
Salem, OR	13,465	17,681	39	65
Escanaba, MI	13,201	13,139	25	24
Tucson, AZ	13,193	20,291	219	348
Lancaster, OH	13,115	14,707	231	197
Mcalester, OK*	12,956	12,102	3,003	2,091
Ironwood, MI	12,823	15,790	3	0
Anniston, AL*	12,795	17,733	4,659	5,859
Bakersfield, CA*	12,727	18,831	285	231
Coffeyville, KS*	12,686	13,453	1,313	1,469
Du Bois, PA	12,623	13,681	15	19
Shawnee, OK*	12,484	15,347	853	704
Parsons, KS*	12,476	16,028	1,040	1,392
Grand Forks, ND	12,473	14,015	50	29
Champaign, IL*	12,396	15,877	773	1,241
Rome, GA*	12,265	13,257	3,929	3,358
Traverse City, MI	12,134	10,929	6	15

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Cities in 1910 Census but not 1900 Census, 1910 & 1920 Population (Continued)

	Total Population		Black Population	
City	1910	1920	1910	1920
Eureka, CA	11,821	13,119	15	49
Chambersburg, PA*	11,798	13,171	791	626
Berlin, NH	11,781	16,132	12	1
Hattiesburg, MS*	11,765	13,270	4,443	4,958
Santa Barbara, CA	11,664	19,446	79	180
Batavia, NY	11,599	13,530	48	27
Cortland, NY	11,500	13,300	31	18
Waterville, ME	11,460	13,350	109	8
Marshall, TX*	11,455	14,270	4,996	5,841
Hudson, NY*	11,416	11,786	409	349
Cambridge, OH*	11,331	13,111	363	346
Paris, TX*	11,270	15,039	3,160	3,588
Willimantic, CT	11,231	12,331	86	65
Mason City, IA	11,230	20,555	154	341
Alexandria, LA*	11,211	17,511	5,879	8,041
Santa Cruz, CA	11,151	10,800	96	27
Plattsburg, NY	11,144	10,911	5	14
Phoenix, AZ*	11,142	28,807	343	1,093
Bluefield, WV*	11,134	15,277	2,237	2,732
Warren, PA	11,088	14,302	78	5
Albuquerque, NM*	11,040	15,231	250	193
Billings, MT	10,975	15,109	153	127
Temple, TX*	10,972	11,037	2,824	2,137
Moberly, MO*	10,923	12,817	982	827
Peru, IN	10,912	12,564	78	140
Lincoln, IL*	10,895	11,885	284	264
Reno, NV	10,868	12,219	93	59
Adrian, MI	10,763	11,877	157	138
Aberdeen, SD*	10,751	14,565	278	19
Barre, VT	10,736	10,016	3	4
Martinsburg, WV*	10,699	12,513	1,007	997
La Porte, IN	10,642	15,161	41	133
Staunton, VA*	10,604	10,625	2,465	1,814
Gadsden, AL*	10,557	14,742	3,447	4,085
Brownsville, TX	10,513	11,798	48	51
Independence, KS*	10,513	11,922	734	778
Palestine, TX*	10,496	11,039	3,569	2,997
Frederick, MD*	10,488	11,063	1,502	1,224
Fulton, NY	10,479	13,043	16	16
Canton, IL	10,454	10,936	104	146
Tyler, TX*	10,404	13,455	3,005	3,018

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Cities in 1910 Census but not 1900 Census, 1910 & 1920 Population (Continued)

	Total Population		Black Population	
City	1910	1920	1910	1920
Monroe, LA*	10,379	12,672	5,484	5,601
Cleburne, TX*	10,364	12,835	905	950
Boone, IA	10,347	12,504	89	82
Chickasha, OK*	10,329	10,178	1,358	1,188
San Angelo, TX*	10,327	10,139	658	682
Grand Island, NE	10,326	13,995	121	131
Huntington, IN	10,276	14,003	7	0
St. Cloud, MN	10,234	16,025	8	18
Trinidad, CO	10,207	10,920	180	138
Laconia, NH	10,182	10,899	8	12
Anaconda, MT	10,145	11,624	113	92
Iowa City, IA	10,094	11,267	42	53
Keene, NH	10,070	11,165	13	5
Saint Petersburg, FL	4,127	14,224	1,100	2,422

Notes: The table lists the sample of 94 comparison cities that, like Tulsa, were in the 1910 census but were not in the 1900 census. * Indicates the city belongs to the more restricted sample of 45 comparison cities that additionally have a total population above and Black population equal to or above 250. The cities are ordered in descending order by their 1910 total population.

Table A7: Economic Effects of the Tulsa Massacre, 1910–1940, Full Comparison City Sample

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.008	−0.034***	−0.097***	−0.022***
	(0.006)	(0.007)	(0.007)	(0.001)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.311	0.284	2.580	0.036
Observations	5,600,346	21,632,895	8,343,750	8,343,750

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city, and observed in a census year. The sample includes individuals living in Tulsa or one of the 59 comparison cities. The dependent variables are reported at the top of the table. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A8: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men and Women from Cities that are in 1910 Census but not in 1900 Census ($n = 94$)

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.032***	−0.068***	−0.078***	−0.023***
	(0.008)	(0.009)	(0.009)	(0.003)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.311	0.284	2.580	0.036
Observations	1,867,520	7,032,193	2,633,035	2,633,035

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city that was in the 1910 Census but not the 1900 Census, who is observed in a census year. The dependent variables are reported at the top of the table. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A9: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men and Women from Cities that are in 1910 Census but not in 1900 Census and with a total population $\geq$ 5,000 and a Black population $\geq$ 250 ($n = 45$)

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.042***	−0.074***	−0.080***	−0.023***
	(0.007)	(0.008)	(0.010)	(0.003)
Year-City FEs	Y	Y	Y	Y
Race-City FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.311	0.284	2.580	0.036
Observations	984,048	3,722,364	1,419,423	1,419,423

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual, living in a city that was in the 1910 Census but not the 1900 Census and had a total population in 1910 that was 5,000 or more and a Black population in 1910 that was 250 or more, who is observed in a census year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include controls for age, age squared, marriage, and children, year-race fixed effects, year-city fixed effects, and city-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A10: Economic Effects of the Tulsa Massacre, 1910–1940, Full Sample

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.042***	−0.050***	−0.071***	−0.015***
	(0.007)	(0.008)	(0.007)	(0.001)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.296	0.266	2.765	0.034
Observations	28,853	30,277	29,228	29,228

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A11: Economic Effects of the Tulsa Massacre, 1910–1940, Sample of Men Excluding "Other" Race Category

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.046***	−0.051***	−0.021***	−0.023***
	(0.007)	(0.008)	(0.005)	(0.001)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep. Var. Avg. for Black Tulsans, 1920	0.298	0.255	2.971	0.018
Observations	22,656	23,067	22,858	18,899

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A12: Correlation Matrix for Newspaper Coverage Measures

	"Tulsa Riot" Pages	"Tulsa" Pages	"Tulsa Riot" Front Pages	"Tulsa Riot" Papers	"Tulsa" Front Pages	"Tulsa" Papers
"Tulsa Riot" Pages	1.0000					
"Tulsa" Pages	0.8809	1.0000				
"Tulsa Riot" Front Pages	0.2524	0.0923	1.0000			
"Tulsa Riot" Papers	0.2204	0.0846	0.9300	1.0000		
"Tulsa" Front Pages	0.2848	0.1639	0.9415	0.9780	1.0000	
"Tulsa" Papers	0.4302	0.3444	0.8756	0.9412	0.9573	1.0000

Table A13: Factor Loading for Newspaper Coverage PCA

	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
"Tulsa Riot" Pages	0.2401	0.6411	0.5740	-0.4468	-0.0208	-0.0423
"Tulsa" Pages	0.1790	0.6919	-0.4524	0.4932	0.1945	0.0586
"Tulsa Riot" Front Pages	0.4627	-0.1952	0.5290	0.6408	-0.1752	0.1633
"Tulsa Riot" Papers	0.4730	-0.2151	-0.1129	-0.2766	0.6142	0.5133
"Tulsa" Front Pages	0.4836	-0.1599	-0.1068	-0.0391	0.2225	-0.8235
"Tulsa" Papers	0.4885	-0.0173	-0.4024	-0.2615	-0.7101	0.1630

Table A14: Correlation between the Newspaper Coverage Measure (and Components) and Various State-Level Characteristics

	State-Level Correlation Coefficients with p-values						
	"Tulsa Riot" Pages	"Tulsa" Pages	"Tulsa Riot" Front Pages	"Tulsa Riot" Papers	"Tulsa" Front Pages	"Tulsa" Papers	First Principal Component
% Total Population that is Black	0.171	0.015	-0.045	0.004	-0.027	0.004	0.007
	[0.240]	[0.917]	[0.757]	[0.980]	[0.852]	[0.978]	[0.964]
% Black HH Head with Home Ownership	0.284**	0.107	0.053	0.094	0.051	0.101	0.115
	[0.048]	[0.465]	[0.720]	[0.523]	[0.726]	[0.490]	[0.433]
% Black Family with Home Ownership	0.272*	0.097	0.037	0.078	0.033	0.086	0.097
	[0.058]	[0.505]	[0.800]	[0.595]	[0.821]	[0.559]	[0.507]
% Black Age≥16 Pop in Labor Force	0.185	0.027	-0.060	-0.016	-0.045	-0.012	-0.007
	[0.203]	[0.854]	[0.683]	[0.916]	[0.757]	[0.934]	[0.963]
Avg Black Pop ln(Occscore)	-0.237	-0.163	-0.037	-0.007	-0.018	-0.047	-0.069
	[0.100]	[0.263]	[0.803]	[0.962]	[0.902]	[0.749]	[0.639]
% Black Pop with White Collar Occ	0.201	0.267*	0.179	0.316**	0.318**	0.390***	0.335**
	[0.166]	[0.064]	[0.219]	[0.027]	[0.026]	[0.006]	[0.019]
% Black Pop is Professional or Management Worker	-0.046	0.061	0.120	0.170	0.162	0.179	0.150
	[0.752]	[0.677]	[0.411]	[0.244]	[0.265]	[0.217]	[0.302]
% Black Pop is Professional, Management, or Clerical Worker	-0.167	-0.098	0.272*	0.326**	0.325**	0.307**	0.264*
	[0.250]	[0.504]	[0.059]	[0.022]	[0.023]	[0.032]	[0.067]
% Black Pop is Servant	-0.254*	-0.252*	0.360**	0.376***	0.393***	0.288**	0.284**
	[0.079]	[0.081]	[0.011]	[0.008]	[0.005]	[0.045]	[0.048]
% Black Age 6-18 Pop in School	-0.144	-0.066	-0.050	-0.059	-0.011	-0.023	-0.057
	[0.323]	[0.652]	[0.732]	[0.689]	[0.942]	[0.876]	[0.699]
% Black Age≥16 Pop Literate	-0.192	-0.066	0.153	0.090	0.119	0.079	0.076
	[0.187]	[0.651]	[0.295]	[0.538]	[0.416]	[0.588]	[0.606]
Southern State Indicator (0/1)	0.287**	0.191	0.005	0.153	0.120	0.169	0.159
	[0.046]	[0.188]	[0.972]	[0.294]	[0.412]	[0.247]	[0.277]
Southern State w/o Oklahoma (0/1)	0.132	-0.043	0.019	0.157	0.105	0.109	0.105
	[0.364]	[0.770]	[0.897]	[0.280]	[0.475]	[0.455]	[0.471]
Total Memorials Dedicated, 1910–1920	0.259*	0.053	0.042	0.063	0.017	0.047	0.076
	[0.073]	[0.718]	[0.776]	[0.670]	[0.909]	[0.747]	[0.606]
Total Memorials Dedicated, Pre-1920	0.239*	0.036	0.047	0.075	0.025	0.059	0.081
	[0.099]	[0.803]	[0.748]	[0.611]	[0.866]	[0.688]	[0.582]
Total Memorials Dedicated Per 100k Pop, Pre-1920	0.232	0.025	0.056	0.086	0.026	0.067	0.086
	[0.108]	[0.862]	[0.704]	[0.558]	[0.860]	[0.647]	[0.558]
Total Memorials Dedicated Per 100k Pop, 1910–1920	0.262*	0.042	0.034	0.060	0.001	0.039	0.067
	[0.069]	[0.774]	[0.815]	[0.680]	[0.995]	[0.792]	[0.648]
Total Lynchings, 1910–1920	0.200	0.088	-0.074	-0.101	-0.098	-0.094	-0.055
	[0.169]	[0.548]	[0.616]	[0.489]	[0.504]	[0.522]	[0.705]
Total Lynchings, Pre-1920	0.222	0.066	-0.106	-0.118	-0.124	-0.113	-0.077
	[0.126]	[0.653]	[0.468]	[0.419]	[0.395]	[0.441]	[0.598]
Total Lynchings Per 100k Pop, Pre-1920	0.218	0.070	-0.055	-0.071	-0.085	-0.074	-0.036
	[0.132]	[0.635]	[0.707]	[0.630]	[0.560]	[0.613]	[0.809]
Total Lynchings Per 100k Pop, 1910–1920	0.219	0.117	0.010	-0.029	-0.034	-0.034	0.015
	[0.131]	[0.424]	[0.947]	[0.841]	[0.814]	[0.815]	[0.917]

Notes: The table reports pairwise correlation coefficients with p-values in brackets. The unit of observation is state. Population, home ownership, labor force, and human capital variables are the percentage of the Black population with each characteristic within a state. Data are from the 1920 Census. Confederate memorial data are from the Southern Poverty Law Center "Whose Heritage?" database with variables representing the total number of confederate memorials dedicated between 1910 and 1920, and the total number of confederate memorials dedicated prior to 1920 in each state. Lynching data are compiled from the Historical American Lynching (HAL) Data Collection Project, The Lynching Project database (Tolnay and Beck, 1995, Beck, 2015), and Seguin and Rigby (2019), with variables representing the total number of Black lynchings between 1910 and 1920, and the total number of Black lynchings prior to 1920 in each state. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A15: Occupational Effects of the Tulsa Massacre Allowing for Newspaper Coverage Spillovers, 1910–1940, Sample of Men

	Dependent Variable:							
	SEI Score	Earnings Score	Prestige Score	Status Score	Professional and Management Worker 0/1	Professional, Management, and Clerical Worker 0/1	In Labor Force 0/1	In Labor Force with Valid occscore 0/1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tulsa × Black × Post	−2.492***	−11.760***	−0.674	−12.850***	−0.019***	−0.031***	0.041***	0.014
	(0.465)	(3.701)	(0.471)	(3.427)	(0.004)	(0.006)	(0.008)	(0.009)
Black × Post × News Coverage	−0.574	−0.442	0.410	−0.339	−0.015*	−0.013	−0.008	0.010
	(0.805)	(7.128)	(0.647)	(6.631)	(0.008)	(0.011)	(0.014)	(0.014)
Year-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y	Y	Y	Y	Y
Sample	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	Age>=16	Age>=16
Dep. Var. Avg. for Black Tulsans, 1920	13.807	34.898	24.159	28.168	0.053	0.056	0.942	0.817
Observations	29,004	29,004	29,004	29,004	29,004	29,004	29,620	29,620

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. SIE Score (column 1) measures occupational status based on 1950 income level and educational attainment. Earnings Score (column 2) measures "the percentage of persons in occupations having lower standardized median earnings than the respondent's occupation." Prestige Score (column 3) is a Siegel prestige score constructed using surveys conducted by NORC in the 1960s. Status Score (column 4) measures occupational status and "can be interpreted as the percentage of persons in the civilian labor force who are in occupations having combined levels of education and earnings below that occupation." Professional and Management Workers (column 5) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical" or "Managers, Officials, and Proprietors." Professional, Management, and Clerical Workers (column 6) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical", ''Managers, Officials, and Proprietors", or ''Clerical and Kindred." Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A16: Estimates Allowing for Newspaper Coverage Spillovers Omitting Five States with the Fewest Newspapers (Maine, Rhode Island, Wyoming, Georgia, and New Hampshire), 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.069***	−0.076***	−0.029*	−0.024***
	(0.020)	(0.026)	(0.016)	(0.002)
Tulsa × Black × Post × News Coverage	−0.051	−0.057	−0.013	−0.001
	(0.035)	(0.043)	(0.028)	(0.003)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep Var Avg for Black Tulsans, 1920	0.298	0.255	2.971	0.018
Observations	26,743	27,861	27,088	22,164

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A17: Estimates Allowing for Newspaper Coverage Spillovers Omitting Ten States with the Fewest Newspapers (Above List Plus District of Columbia, Colorado, Delaware, Connecticut, and Nevada), 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.070***	−0.075***	−0.030*	−0.023***
	(0.021)	(0.027)	(0.017)	(0.001)
Tulsa × Black × Post × News Coverage	−0.053	−0.054	−0.015	−0.001
	(0.037)	(0.046)	(0.029)	(0.003)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep Var Avg for Black Tulsans, 1920	0.298	0.255	2.971	0.018
Observations	25,834	26,914	26,161	21,435

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A18: Estimates Allowing for Newspaper Coverage Spillovers Omitting Ten States with the Fewest Newspapers (Above Two List Plus South Dakota, Virginia, West Virginia, Massachusetts, Maryland), 1910–1940, Sample of Men

	Dependent Variable:			
	HH Head Home Ownership 0/1	Family Home Ownership 0/1	ln(Occscore)	White-Collar 0/1
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.083***	−0.091***	−0.025	−0.023***
	(0.018)	(0.023)	(0.018)	(0.002)
Tulsa × Black × Post × News Coverage	−0.072*	−0.077	−0.006	−0.001
	(0.038)	(0.046)	(0.035)	(0.003)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	All	In Labor Force	In Labor Force
Dep Var Avg for Black Tulsans, 1920	0.298	0.255	2.971	0.018
Observations	23,264	24,242	23,569	19,312

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A19: Occupational Effects of the Tulsa Massacre Allowing for Newspaper Coverage and Segregation Spillovers, 1910–1940, Sample of Men

	Dependent Variable:							
	SEI Score	Earnings Score	Prestige Score	Status Score	Professional and Management Worker 0/1	Professional, Management, and Clerical Worker 0/1	In Labor Force 0/1	In Labor Force with Valid occscore 0/1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tulsa × Black × Post	−1.255*	−9.978**	0.358	−10.642***	−0.014***	−0.024***	0.061***	0.021
	(0.738)	(3.864)	(0.609)	(3.614)	(0.005)	(0.008)	(0.011)	(0.014)
Tulsa × Black × Post × News Coverage	−0.609	−0.492	0.382	−0.400	−0.015*	−0.013	−0.009	0.010
	(0.848)	(7.366)	(0.612)	(6.904)	(0.008)	(0.011)	(0.012)	(0.013)
Tulsa × Black × Post × Segregation	2.650**	3.816	2.210***	4.727	0.010	0.015	0.042***	0.015
	(1.136)	(7.960)	(0.683)	(7.753)	(0.008)	(0.012)	(0.013)	(0.016)
Year-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y	Y	Y	Y	Y
Sample	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	In Labor Force	Age>=16	Age>=16
Dep. Var. Avg. for Black Tulsans, 1920	13.807	34.898	24.159	28.168	0.053	0.056	0.942	0.817
Observations	29,004	29,004	29,004	29,004	29,004	29,004	29,620	29,620

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. SIE Score (column 1) measures occupational status based on 1950 income level and educational attainment. Earnings Score (column 2) measures "the percentage of persons in occupations having lower standardized median earnings than the respondent's occupation." Prestige Score (column 3) is a Siegel prestige score constructed using surveys conducted by NORC in the 1960s. Status Score (column 4) measures occupational status and "can be interpreted as the percentage of persons in the civilian labor force who are in occupations having combined levels of education and earnings below that occupation." Professional and Management Workers (column 5) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical" or "Managers, Officials, and Proprietors." Professional, Management, and Clerical Workers (column 6) is an alternative definition of the White-Collar variable and measures the share of workers who report occupations that IPUMS classifies as "Professional, Technical", ''Managers, Officials, and Proprietors", or ''Clerical and Kindred." Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. For the sample of individuals in the labor force, we examine individuals who report being in the labor force and who have a valid occupational code (see the Appendix for further explanation). All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A20: Estimates for HH Head Home Ownership, 1910–1940, Sample of Men

	Dependent Variable: Average of HH Head Home Ownership			
	No Spillovers	News Spillovers	Segregation Spillovers	News and Segregation Spillovers
	(1)	(2)	(3)	(4)
Tulsa × Black × Post	−0.042***	−0.071***	−0.077***	−0.103***
	(0.007)	(0.018)	(0.021)	(0.025)
Black × Post × News Coverage		−0.052		−0.051
		(0.033)		(0.034)
Black × Post × Segregation			−0.074**	−0.072*
			(0.035)	(0.036)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	HH Heads	HH Heads	HH Heads
Dep. Var. Avg. Avg for Black Tulsans, 1920	0.298	0.298	0.298	0.298
Observations	28,654	28,654	27,529	27,529

Notes: The table reports WLS estimates for the sample of men. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages among all household heads in that group. Regressions are weighted by the relevant population in each county, racial group, and year, which is also indicated by the "Sample" row. All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A21: Dynamic Difference in Difference for HH Head Home Ownership, 1910–2000

	Dependent Variable: Average of HH Head Home Ownership			
	No Spillovers	News Spillovers	Segregation Spillovers	News and Segregation Spillovers
	(1)	(2)	(3)	(4)
Year 1910 × Tulsa × Black	−0.015*	−0.012	−0.017	−0.012
	(0.008)	(0.019)	(0.013)	(0.020)
Year 1930 × Tulsa × Black	−0.013	−0.038**	−0.033	−0.054*
	(0.009)	(0.018)	(0.026)	(0.030)
Year 1940 × Tulsa × Black	−0.066***	−0.105***	−0.088***	−0.123***
	(0.007)	(0.013)	(0.027)	(0.030)
Year 1980 × Tulsa × Black	−0.053***	−0.123***	−0.056	−0.124*
	(0.012)	(0.041)	(0.044)	(0.063)
Year 1990 × Tulsa × Black	−0.137***	−0.213***	−0.146***	−0.221***
	(0.013)	(0.044)	(0.045)	(0.067)
Year 2000 × Tulsa × Black	−0.199***	−0.265***	−0.201***	−0.265***
	(0.012)	(0.044)	(0.044)	(0.067)
Year 1910 × Black × News Coverage		0.005		0.005
		(0.034)		(0.034)
Year 1930 × Black × News Coverage		−0.050		−0.048
		(0.032)		(0.033)
Year 1940 × Black × News Coverage		−0.075***		−0.074***
		(0.023)		(0.023)
Year 1980 × Black × News Coverage		−0.127*		−0.127**
		(0.064)		(0.062)
Year 1990 × Black × News Coverage		−0.139*		−0.132*
		(0.070)		(0.068)
Year 2000 × Black × News Coverage		−0.123*		−0.132**
		(0.069)		(0.062)
Year 1910 × Black × Segregation			−0.004	0.0002
			(0.034)	(0.031)
Year 1930 × Black × Segregation			−0.042	−0.036
			(0.044)	(0.044)
Year 1940 × Black × Segregation			−0.048	−0.040
			(0.050)	(0.049)
Year 1980 × Black × Segregation			−0.006	−0.004
			(0.086)	(0.089)
Year 1990 × Black × Segregation			−0.025	−0.031
			(0.087)	(0.090)
Year 2000 × Black × Segregation			0.001	0.020
			(0.084)	(0.090)
Year-County FEs	Y	Y	Y	Y
Race-County FEs	Y	Y	Y	Y
Year-Race FEs	Y	Y	Y	Y
1919 Riot Controls	Y	Y	Y	Y
Sample	HH Heads	HH Heads	HH Heads	HH Heads
Dep. Var. Avg. for Black Tulsans, 1920	0.296	0.296	0.296	0.296
Observations	54,757	52,275	52,063	49,648

Notes: The table reports WLS estimates. Coefficients are reported with standard errors, clustered by county, in parentheses. The unit of observation is a racial group (Black, white, and other), living in a county, and observed in a census year. The dependent variables, reported at the top of the table, are averages for each observation. Regressions are weighted by the relevant population in each county, racial group, and year. The relevant population is indicated by the "Sample" row. All specifications include year-race fixed effects, year-county fixed effects, and county-race fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.

Table A22: Estimates for Spillover Effects and Migration, 1920–1930, Sample of Linked Comparison City Men

	Dependent Variable: Migration 0/1			
	(1)	(2)	(3)	(4)
Tulsa × Black	0.103***	0.077*	0.098***	0.081*
	(0.012)	(0.045)	(0.036)	(0.046)
Black × News Coverage		−0.041		−0.030
		(0.064)		(0.064)
Black × Segregation			−0.004	−0.002
			(0.064)	(0.064)
Race-City FEs	Y	Y	Y	Y
Sample	All	All	All	All
Dep. Var. Avg.	0.311	0.311	0.311	0.311
Observations	711,785	711,785	705,087	705,087

Notes: The table reports OLS estimates. Coefficients are reported with standard errors, clustered by city, in parentheses. The unit of observation is an individual. The sample includes individuals living in Tulsa or one of the 59 comparison cities in 1920. The dependent variable is an indicator for migration, defined by an individual changing their city of residence between 1920 and 1930. The relevant population is indicated by the "Sample" row. All specifications include controls for age, age squared, an indicator for being married, an indicator for having children, and race-city fixed effects. Statistical significance is denoted by: *p<0.1; **p<0.05; ***p<0.01.