Racial Climate and Homeownership

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An important question aside from outright discrimination is whether poor underlying race relations in an area might create a chilling effect on decision-making for minorities. To explore this, we examine homeownership among recent movers, which is a more costly decision to reverse than renting. From 2012 onward, there were a series of high-profile events in the U.S. related to police brutality which highlighted racial tension. Using Google Trends, we characterize a locality's underlying racial climate based on search interest in these charged events. Using data from the American Community Survey prior to any of these flare ups, we show that the ownership decision for African-Americans is responsive to the racial climate; African-American home ownership in localities with the most charged racial climates is 12 percent lower than in the least charged racial climates. (JEL: J15, R31, K42)

I. Introduction

For more than 80 years, United States government policy has explicitly sought to promote homeownership. One way in which it has done so is by making homeownership a more lucrative investment. The tax code offers a multitude of advantages for homeownership, including the mortgage interest deduction, exclusion of significant portions of capital gains, property tax deductions, exclusion of imputed rental income, and implicit subsidization of interest rates through government sponsored entities (Poterba and Sinai, 2008; Davis, 2012).

Why the preference for ownership? There are several conceptual arguments that relate to private or societal benefits. First, on the investment side, owner-occupied housing can be viewed as a hedge against rent risk.[1] In addition, homeownership has been found to increase wealth accumulation, often with magnitudes of approximately an additional $10,000 in wealth per year of ownership.[2] Second, some studies find that ownership is associated

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[1]Sinai and Souleles (2005) find that the probability of homeownership increases faster with rent volatility for long-horizon households than for short-horizon households.

[2]See, for example, Turner and Luea (2009).

with more favorable outcomes for the family's children and the larger community. Haurin, Parcel and Haurin (2002) find that ownership leads to a higher quality housing environment, greater cognitive ability and fewer child behavior problems.[3] Other work examines positive spillovers from homeownership. DiPasquale and Glaeser (1999) find that homeowners invest more in social capital.

Those benefits—whether causal or not—have created policy interest in the racial gap in home ownership. In 2002, President George W. Bush said, "We must begin to close this homeownership gap by dismantling the barriers that prevent minorities from owning a piece of the American dream."[4] Shapiro (2006) argues for homeownership as a main strategy for closing the overall racial wealth gap. Despite these calls, Census Bureau data shows persistent gaps in ownership between whites and African-Americans of 25 percentage points for the past two decades. Despite major swings in the economy, white ownership has never fallen below 67 percent, while African-American ownership has never exceed 50 percent.[5]

One cause of this ownership gap is outright, illegal discrimination in housing and mortgage lending markets. A voluminous literature explores these issues. This type of discrimination represents a restriction in the supply of housing for African-Americans. In one recent audit study using paired test subjects, African-American homebuyers were informed about and shown roughly 17 percent fewer homes than white homebuyers (Turner et al., 2013). There are also concerns about geographic steering and discrimination known as "redlining" (Tootell, 1996; Ondrich, Ross and Yinger, 2001, 2003; Ross and Tootell, 2004). Evidence on lending discrimination reveals that minorities are more than twice as likely to be denied a mortgage as whites, although correcting for omitted variables bias significantly diminishes the impact of race (Munnell et al., 1996).

Our work focuses on the impact of a locality's overall "racial climate" on the decision of African-Americans to own homes. Racial climate would include both factors that affect the supply of housing to African-Americans such as housing and mortgage discrimination, but additionally demand-side factors that influence the decision to "plant one's roots" and invest in a community. Obvious factors would include labor market discrimination, unequal

[3]However, Holupka and Newman (2012) argue that such beneficial homeownership effects may be due to selection bias.

[4]See http://www.presidency.ucsb.edu/ws/?pid=25063.

[5]See https://www.census.gov/housing/hvs/files/annual16/ann16t_22.xlsx.

educational opportunity and racism. We view "racial climate" in our setting as parallel to "chilling effects" in other recent work. For example, in the context of the 1996 U.S. welfare reform which included anti-immigrant language, the general policy environment can matter for decision making apart from the formal rules, and such indirect effects are termed chilling effects (Watson, 2014).[6] Such chilling effects are inherently difficult to measure, and researchers attempt to find proxies for the overall climate.[7]

In our context, since virtually all standard microdata is wholly inadequate for measuring racism or racial climate spatially (and likely subject to misreporting), we follow an approach pioneered by Stephens-Davidowitz (2014) in using Google Trends. In his study, racial animus at the state-level was proxied by searches related to racial epithets. In our approach, we use a variety of search terms and topics related to "Police Brutality" to measure the long-run state of race relations by locality. In particular, the 'Black Lives Matter' movement was formed in the aftermath of the shooting of 17-year-old Trayvon Martin by a private citizen in February 2012.[8] Other high profile incidents involving African-Americans and the police (rather than private parties) include the shooting of 18-year-old Michael Brown in Ferguson, Missouri in 2014, the shooting of 12-year-old Tamir Rice in Cleveland, Ohio in 2014, and the death of 25-year-old Freddie Gray in Baltimore, Maryland in 2015. Our work uses Google search interest related to these high-profile policing events occurring in 2012 onward as a proxy for a locality's racial climate, where heightened interest in such topics is arguably associated with a more charged racial climate. Drawing upon data from the American Community Survey (ACS) prior to these events occurring, we examine the ownership decision among a large sample of recent movers. After controlling for other factors, we find that homeownership of African-Americans in the most racially charged localities is 12 percent lower than in the least charged localities.

II. Data Description

We use the ACS, a nationwide survey administered by the Census Bureau asking detailed questions about population and housing characteristics, as our principal data source. The

[6]Other examples include internet use by Muslim-Americans in the aftermath of the September 11th attacks (Sidhu, 2007) and college applications following affirmative action bans (Antonovics and Sander, 2013)(Antonovics and Sander, 2013).

[7]Watson (2014) proxies for the chilling effect on Medicaid participation for children of immigrants using spatial and temporal variation in federal enforcement actions from the Immigration and Naturalization Service.

[8]See http://blacklivesmatter.com/herstory/

ACS samples approximately one percent of the U.S. population; we use respondents in the years 2005 to 2011, prior to the high profile incidents used to measure race relations. Like the decennial Census, participation in the ACS is mandatory, and the survey can be completed online or by mailing in a paper questionnaire. The ACS identifies all 50 states and the District of Columbia, and additionally identifies localities known as Public Use Microdata Areas (PUMAs)—approximately 2,300 areas of at least 100,000 people nested entirely within a state. The ACS contains sufficient information to identify localities, which we map into metro areas in a similar fashion as in Courtemanche et al. (2017). In thinking about our principal outcome—homeownership—it is important to recognize that the vast majority of households are established in a location and plausibly made their homeownership decision at a time in the past that reflects a different racial climate than the present climate. For example, ACS tabulations indicate that nearly 56 percent of all homeowners in 2011 had lived in their residence for 10 or more years. Consequently, we focus on households that moved in the last year who made an active decision to rent or purchase taking into account the racial climate.[9] Nonetheless, it is important to recognize that movers are inherently different from non-movers.[10]

There is a persistence in homeownership across moves due to preferences and home equity. Although the ACS does not contain information on the previous homeownership status of movers, it does contain information on the household's original location. To account for differences in the likelihood that a household owned a home, we construct a measure for the average homeownership rate of non-movers in the location from which the household moved with similar characteristics.[11] Figure 3 shows the distribution of homeownership for non-movers based on demographic group and location. For example, the likelihood of homeownership in the previous location for individuals that graduated from high school, were male, and aged 35 to 55 was 33 percent in the Bronx of New York City and 86 percent in Nashville, Tennessee in 2012.

[9]Economic theory predicts that households should only respond to changing racial climate in the short-run inasmuch the costs of a poor racial climate exceeds moving costs (Ihlanfeldt, 1981). Furthermore, using all households in a cross-sectional analysis induces measurement error as the independent variables have changed since households made the decision to rent/own (Ihlanfeldt, 1981).

[10]Painter (2000) uses a method to correct for sample selection of movers.

[11]For characteristics we use gender, age bins 18-34, 35-54, 55+, high school graduation, and biennial year within the same Migration Public Use Microdata Area (MIGPUMA). Household observations are mapped into MIGPUMAS using Ruggles et al. (2015). We exclude observations where there are not at least 100 observations for the particular location/demographic cell. Overall, households are mapped into 21,709 unique cells based on demographics, year, and 972 former locations.

The primary variable of interest, Racial Climate, is derived from Google Trends data. Google data, which aggregates millions of searches, provide insights in to social perceptions that are hard to accurately elicit from survey data (Stephens-Davidowitz, 2017). Surveys, such as the widely used General Social Survey, which seek to understand concerns and attitudes are wholly inadequate at analyzing racial climate at a metro area level due to insufficient sample sizes, lack of fine geographic locations, and concerns about reporting. Researchers have used Google data in a wide variety of contexts such as studying the influence of racial animus on elections (Stephens-Davidowitz, 2014), the incidence of child abuse during the Great Recession (Stephens-Davidowitz, 2013), and the user base of Bitcoin (Yelowitz and Wilson, 2015).

Google data is available at the Designated Market Area (DMA) level, which we map into metro areas.[12] We focus on term/topics related to police brutality. Interdisciplinary studies, such as Chaney and Robertson (2013), take the view that such policing events reflect racism and discrimination, as well as greater range of social problems including racial profiling and harsh treatment in the criminal justice system. Furthermore, Fryer (2016) find that police use of force is greater for blacks relative to whites. Racial climate based on search interest in police brutality represents racial tension at an institutional level, which arguably captures race relations better than the use of racial slurs like in Stephens-Davidowitz (2014). To gauge the racial climate we create an average Z-score index using the following search terms/topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray, and Shooting of Tamir Rice.[13] Figure 1 illustrates the average Z-scores for racial climate in the metro areas used in the analysis. Furthermore, Appendix Table A1 illustrates the variation in the indexes by metro area. Several of the metro areas with the largest index for racial climate are from areas where the incidents occurred. The regression analysis will evaluate the relationship between racial climate and African-American homeownership. Anecdotally, Salem, Oregon and Jacksonville, North Carolina provide an example of a negative relationship between

[12]There are a total of 210 DMA in the U.S., which correspond to different media markets as defined by Nielsen. We use Sood (2016) to map DMAs into counties and then a crosswalks from Missouri Census Data Center (2012) to map counties into metro areas.

[13]We use the average indexes for these measures over time rather than exploiting any time variation in the metrics. The average Z-score is created by subtracting the mean and dividing by the standard deviation for each of the search terms. We then sum the scores and divide by the standard deviation of the sum to get an index of mean zero and standard deviation one (Chetty et al., 2011; Kling, Liebman and Katz, 2007).

racial climate and homeownership. Oregon with one of the best racial climates has an African-American homeownership rate of 39.7 while Jacksonville, North Carolina that has one of the worst racial climates has an African-American homeownership rate of 32.7.

The earliest incident that we use to gauge underlying racial climate or tension was the Shooting of Trayvon Martin that occurred on February 26, 2012.[14] To avoid any reverse causality from these charged incidents (i.e., decreased African-American homeownership due to actual violence/destruction), we focus on a sample from the ACS that entirely predates any of the actual events, using the years 2005-2011. The racial climate metric is based on the assumption that search interest in these events is a manifestation of latent racial tension in an area.

There are 940,346 households who moved within the last year from 2005 to 2011. We narrow this large sample down in several ways by restricting the sample to: (a) households whose head is either African-American or white (non-Hispanic) (b) heads who reside in metropolitan areas[15] (c) metro areas that have information on monthly Fair Market Rents (FMR) from the Department of Housing and Urban Development, Housing Price Index (HPI) from the Federal Housing Finance Agency (FHFA), and crime statistics as reported in the FBI Uniform Crime Report. After restricting the data, we are left with 433,751 households from 354 metro areas.[16] Overall, the metro areas used in the analysis contain 84.0 percent of the U.S. population as reported in the 2010 census.

Table 1 shows the summary statistics for the sample of households used in the analysis. Roughly 20 percent of the sample of household heads are African-American and about half are male. The average income is $67,000 (in 2015 dollars) with the modal head having some college education. The homeownership rate in the new location for movers is 28.8 percent, while a sample of household heads that did not move with similar demographics have a homeownership rate of 64.9 percent. This difference likely reflects the practice of renting in a new location to gather information about the area prior to purchasing a home. As illustrated by the HPI, housing prices peaked in 2007 and then decreased. Additionally, households that move across state lines account for 16.7 percent of the sample. Crime Z-score is calculated in a similar fashion as the racial climate index and shows a decline in

[14] See Appendix Figure A1 for an illustration of the timing of search interest in each event/topic.

[15] We exclude all micropolitan areas and areas and Public Use Micro Areas that do not map into a CBSA.

[16] Respectively, restrictions of race, metro area, and crime rates account for 48.0, 31.4, and 20.6 percent of the sample size reduction from 940,346 to 433,751.

crime over the sample period.[17]

III. Empirical Methodology

To test for the influence of racial climate on black homeownership, we estimate the following linear probability model, in the spirit of Watson's (2014) analysis of chilling effects of INS enforcement actions on non-citizens.

$$\begin{aligned} Own_{ijt} =& \beta_0 + \beta_1 Black_i \times Climate_j + \beta_2 Black_i + \beta_3 X_i \\ &+ \beta_4 Local_{jt} + \beta_5 Black_i \times Local_{jt} + \delta_j + \delta_t + \varepsilon_{ijt} \end{aligned} \tag{1}$$

where Own_{ijt} is an indicator that the mover i made the decision to purchase a home in location j at time t rather than rent and $Black_i$ is an indicator that the head of the household is African-American. $Climate_j$ is the time-invariant index for racial climate that varies at the Designated Market Area level (higher values represent a worse racial climate). X_i measures characteristics of the head and other family members including age, gender, marital status, educational attainment, and number of children. In addition, the vector contains a control for the likelihood that household i owned a home in their previous location. $Local_{jt}$ measures factors that vary across cities and over time including FMR, HPI, and Crime Rates.[18] Following Cutler and Glaeser (1997) we also include the interaction $Black_i \times Local_{jt}$ to allow for differential location effects on African-Americans relative to whites. δ_j and δ_t are fixed effects for locality and time. The specification does not include $Climate_j$ itself, since it is subsumed with locality fixed effects.[19] The error term ε_{ijt} is corrected for non-nested two-way clustering at the DMA and year level (Cameron, Gelbach and Miller, 2011).

Under the assumption that higher values of $Climate_j$ reflect a worse racial climate, we expect the coefficient β_1—the interaction of a worse racial climate and African-American race—to be negative. The coefficient captures at least two effects. First, black households

[17]The crime Z-score is calculated from statistics on violent crimes, murder/non-negligent manslaughter, robbery, aggravated assault, property crime burglary and motor vehicle thefts by metro area. See Figure for a map of the crime Z-score.

[18]Yelowitz (2007) and Yelowitz (2017) examine the impacts of house prices and rents at the local level over time using data from FHFA and HUD.

[19]The locality fixed effects control for differences in levels for home prices, whereas the HPI controls for differences in growth of housing prices over time. Locality fixed effects also control for racial differences in residential location inside a metro area, which influence homeownership rates (Deng, Ross and Wachter, 2003).

may choose not to invest in a community with a poor racial climate and decide to rent instead. Second, households may select a location based on the racial climate. If this selection occurs, homeownership rates in communities with a good racial climate to be higher while simultaneously reducing the homeownership rate in communities with a poor racial climate.[20] Therefore, β_1 can be interpreted as capturing the net effect of these two behaviors (which work in the same direction). Identification comes from the assumption that the racial climate does not affect the investment/ownership decision of white movers; therefore, our specification nets out other fixed local characteristics with δ_j. In addition to the selection of location, there is also selection in the decision to relocate. The estimate will not capture this effect which could lead to an underestimation of the influence on racial climate on African-American homeownership.

IV. Results

A. Main Specification

Table 2 presents the main results from the specification given in equation (1). The table reports the coefficients for specifications that first exclude the variable for likelihood of homeownership in the former location and then results for specifications that include the covariate. The first column uses the main independent variable as the interaction between $Black_i$ and $Climate_j$, where $Climate_j$ is included as a Z-score. The coefficient on the interaction is negative but not statistically significant. The next columns, compare the the highest and lowest quartile and decile respectively with an indicator rather than a Z-score. The results from the second column indicate that being in a metro area with the worst racial climate (highest quartile) relative to a metro area with the best racial climate (lowest quartile) significantly lowers black homeownership rates by 2.0 percentage points (12.1 percent) relative to whites (p-value=0.018). The results comparing the top and bottom deciles give very similar results. The latter columns as mentioned include a control for the likelihood of homeownership in the former location. Comparing the results with the first columns, the estimates are relatively stable indicating that our results are unlikely to be driven by omitted variable bias.

[20]The discussion of this second factor relies on the assumption that potential homeowners exhibit this behavior more than renters. Given the investment associated with homeownership, this is likely a reasonable assumption.

Across the specifications, African-Americans are significantly less likely to be homeowners. Homeownership is generally increasing in age (except for the oldest population) and married households are significantly more likely to own a home. Homeownership is also higher for those with children, more education, and income. Interstate movers are less likely to own a home while movers that remain (or return) to their state of birth are more likely to purchase a home.

Given the difficulty of measuring racial climate, individuals that are familiar with an area with a poor racial climate might be more likely to forgo purchasing a home relative to an outsider. In Table 3 we restrict the sample to households that either moved back to their home state or moved within their home state who are likely to understand the underlying racial climate. The results show that individuals that move within or back to their home state are significantly more likely to be influenced by the racial climate. For example, switching from the best to the worst racial climate leads to a 25.3 percent decrease in black homeownership if using quartiles and a 36.6 percent decrease if using deciles.

B. Low Persistence in Home/Rent Decision

Given the persistence of the decision to purchase a home (i.e., previous homeowners are more likely to purchase a home in the new location due to preferences and home equity), we restrict the sample to households that are the least likely (lowest quartile) to own a home previously based on demographics and former location. Table 4 shows that using the Z-score interaction term implies that a one standard deviation increase in the index results in an economically insignificant 0.8 percentage point decrease in homeownership. However, looking at the specifications that compare the highest and lowest quartiles or deciles the results indicate a significant effect of racial climate with a 2.2 (13.3 percent) and 4.1 (25.4 percent) percentage point decrease in homeownership respectively for African-Americans. Consequently, estimation of the restricted sample leads to similar conclusions as the full sample but with slightly larger magnitudes.

C. Changing Racial Climate

As we are using search interest in very contemporaneous events the racial climate might be different for the earliest years of our sample. To test for this possibility, we restrict the sample to years directly preceding the Black Lives Matter movements using years 2009

through 2011. Table 5 presents the results and once again there is a consistent negative relationship between the likelihood of homeownership and a poor racial climate. The results, however, are larger than those in the main specification with a poor racial climate causing a decease in African-American homeownership by 15.8 percent using high and low quartiles and 50.9 percent using high and low deciles. The increase response for the years immediately preceding the Black Lives Matter movement provides justification for looking at a sample of recent movers as it appears that the racial climate changed even from 2005 to 2009.

D. Recent Transitions, Young Adults

An alternative approach to using movers is to look at young adults who presumably, if they are homeowners have recently transitioned to being homeowners either with this move or a recent previous move. This approach helps minimize the bias induced by persistence in homeownership in the movers specifications. Nonetheless, the previous generation's homeownership behavior might have caused both attitudes and younger adults transition into homeownership. Furthermore, the previous generation's homeownership rate drives the supply of owner-occupied housing. In an attempt to account for the homeownership status of the previous generation specifically parents, we control for the homeownership rate of adults of the same race/ethnicity, that reside in the same metro area, and are of a reasonable age to be the household head's parents.[21]

Table 6 presents results using a sample of household heads aged between 18 and 35. The table is structured similarly to Table 2 with the regressions that exclude the constructed measure of the probability that the household's parents owned a home presented first and then followed by the regressions that include the measure. The coefficients are very similar for specifications both with and without the control variable indicating that the results are unlikely to be driven by omitted variable bias. The results in the first half of the table are consistently negative and of a similar magnitude as the main specification for movers, however, only the specification that uses the top and bottom deciles is statistically significant. The latter half of the table analyzes a sample of households that reside in the household head's home state. Consistent with the findings of the mover analysis, these estimates are larger (more negative) and statistically significant. Once again, these results are consis-

[21] We assume that children are born to parents who were aged 18 to 35 at the time of their child's birth.

tent with the idea that greater information regarding housing climate leads to a greater deterrence for homeownership in areas with poor racial climate for African-Americans.

E. Merely Social Activism?

Another potential concern with the metric used to measure racial climate is that it might be correlated with social activism or liberalism. In Table 7, we add an interaction between the Z-score for Google searches of "Climate Change" and $Black_i$ to control for possible correlations between social activism and search interest in incidents related to racial climate. The results remain largely unchanged in comparison to the main specification that excludes the interaction for climate change. These results indicate that our metric of racial climate is unlikely to be driven by social activism rather than increased racial tensions.

V. Conclusion

The most convincing work in housing discrimination—and continually relied on by HUD—is paired audit studies. These studies show overt racial discrimination, although it has diminished over time. Nonetheless, the studies use disclosure and showings of homes—rather than whether bids on homes and subsequent rejections are related to race.

Innovations in creating data and measuring sentiment—via Google Trends—has opened up new possibilities for examining important issues, such as the role for chilling effects on behavior. The costly decision to own—and subsequently invest more in a community—is likely related to the community's amenities and disamenities. We show that for African-Americans, the chilling effects from a charged racial climate related to policing is a deterrent to homeownership. African-Americans in the most charged racial climate purchase homes 12 percent less than those who reside in localities with the least charged racial climate. Not only does this imply that these households are not receiving the benefits of homeownership, but it also implies that African-American households are less likely to invest in their communities.

Our results, insofar as they capture problems with the criminal justice system, suggest that some recent proposals with bipartisan support to reform policing and sentencing may have larger social benefits beyond those directly aggrieved. Reforms in police tactics—such as additional training, body cameras, and the use of outside agencies to investigate misconduct—have broad based support (Ekins, 2016). On the surface, improving policies has the potential to improve race relations and consequently increase African-American

investment in communities through homeownership. Furthermore, inasmuch as homeownership increases wealth accumulation, these policy reforms could help mitigate the overall racial wealth gap.

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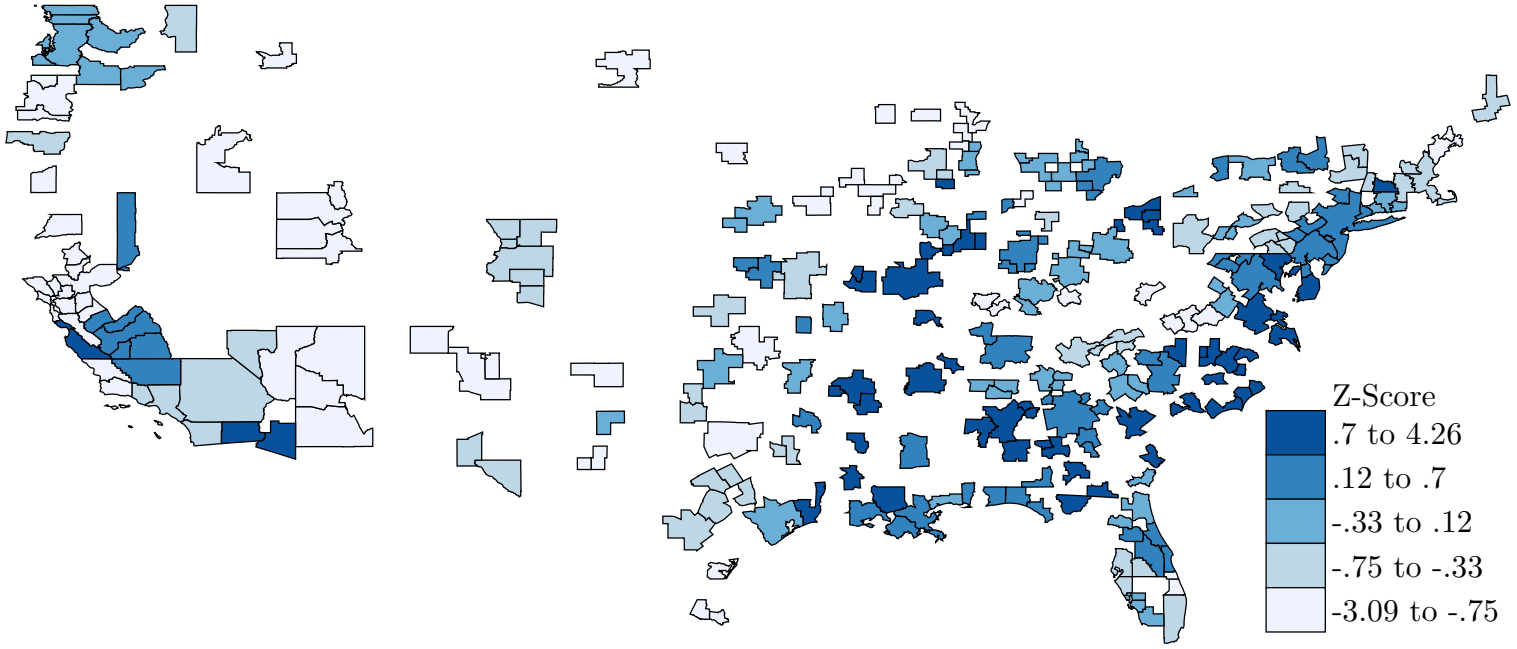
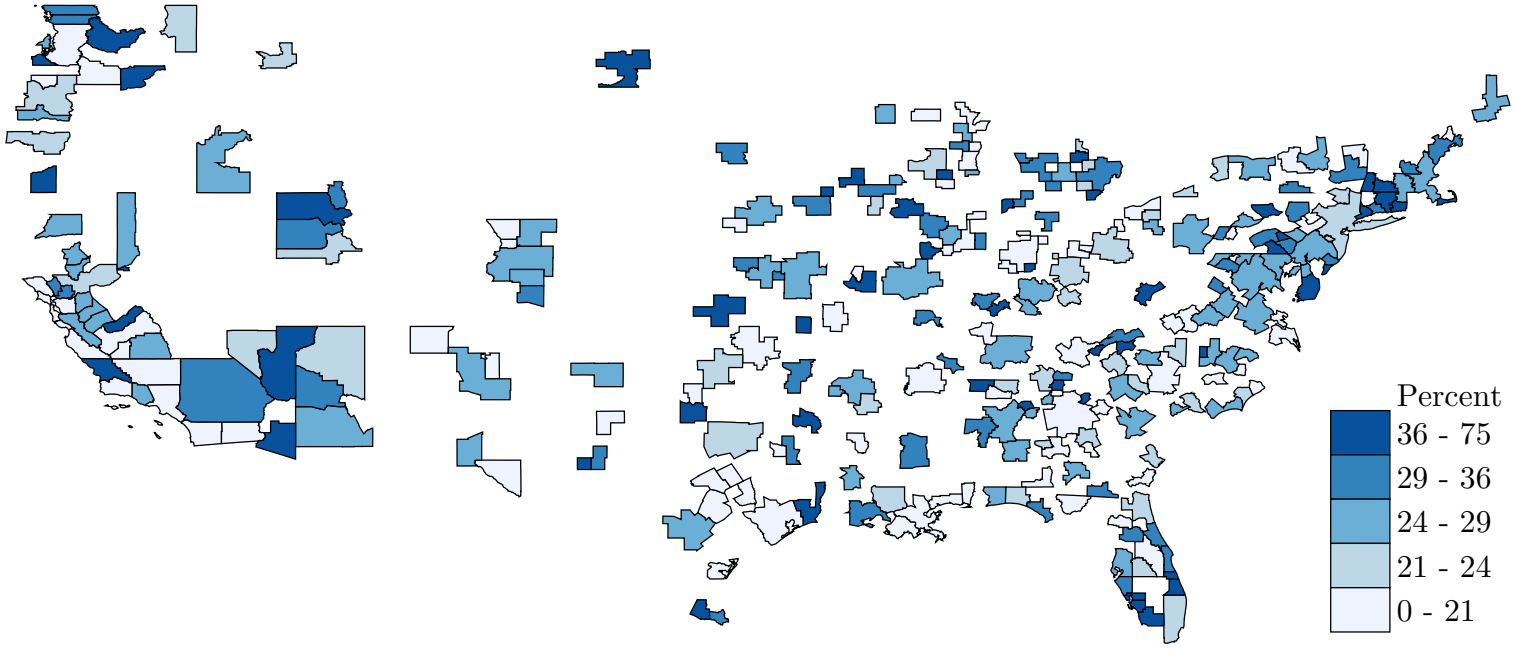
Figure 1. Google Trends: Racial Climate Z-score by CBSA



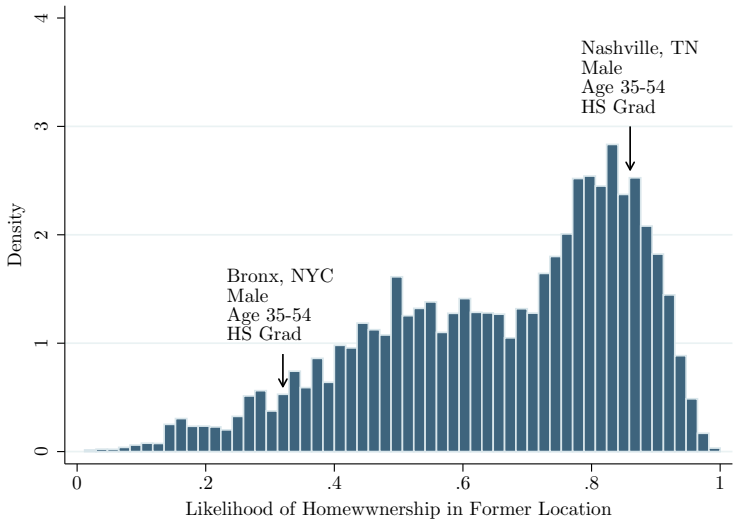
Note: Only CBSAs used in the analysis are shown, which represent 84.0 percent of the population in 2010. Z-scores are translated from DMA information provided from Google Trends.

Figure 2. Homeownership Rates of Movers in New Location by CBSA, 2011



Note: Only CBSAs used in the analysis are shown, which represent 84.0 percent of the population in 2010. Data come from the ACS for household that moved in the last year.

Figure 3. Homeowner Averages in Origin Location by Demographic Groups



Note: Homeownership is former location (Migration PUMA) is derived by taking the average homeownership of households with similar demographics in an observations former location during the same time period (biennial). Demographics include the household head's gender, and age bin (18-34, 35-54, 55+) and whether the head is a high school graduate or not. The sample is restricted to observations where there are at least 100 household heads in their former location the fall into the same demographic. Overall, the histogram includes averages for 21,709 unique cells based on demographics, year, and 972 former location.

Table 1— Summary Statistics: Movers

	2005	2006	2007	2008	2009	2010	2011
Demographics							
Black$_i$	0.19	0.20	0.21	0.21	0.21	0.21	0.21
White$_i$	0.81	0.80	0.79	0.79	0.79	0.79	0.79
Male$_i$	0.53	0.52	0.51	0.50	0.49	0.48	0.48
Age 18-29$_i$	0.27	0.25	0.26	0.28	0.30	0.28	0.27
Age 30-39$_i$	0.24	0.24	0.24	0.23	0.24	0.23	0.23
Age 40-49$_i$	0.22	0.22	0.22	0.21	0.20	0.20	0.20
Age 50-59$_i$	0.14	0.15	0.14	0.14	0.14	0.15	0.15
Age 60-69$_i$	0.07	0.07	0.08	0.08	0.07	0.08	0.08
Age 70+$_i$	0.06	0.06	0.06	0.06	0.05	0.06	0.07
Family Structure							
Married$_i$	0.36	0.36	0.34	0.34	0.32	0.32	0.32
Widowed$_i$	0.05	0.06	0.05	0.05	0.05	0.05	0.06
Divorced$_i$	0.19	0.20	0.20	0.20	0.19	0.20	0.21
Separated$_i$	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Never Married$_i$	0.34	0.33	0.35	0.35	0.38	0.37	0.37
Own Children: 0$_i$	0.71	0.71	0.71	0.72	0.72	0.72	0.72
Own Children: 1$_i$	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Own Children: 2$_i$	0.10	0.10	0.10	0.10	0.09	0.10	0.09
Own Children: $\geq$3$_i$	0.06	0.06	0.06	0.05	0.06	0.05	0.05
Education and Income							
Less than HS Grad$_i$	0.09	0.09	0.08	0.07	0.07	0.07	0.07
High School Grad$_i$	0.21	0.22	0.22	0.18	0.18	0.18	0.17
Some College$_i$	0.36	0.36	0.35	0.40	0.40	0.39	0.39
Bachelor's Degree$_i$	0.23	0.23	0.23	0.23	0.24	0.24	0.24
Graduate Degree$_i$	0.12	0.11	0.12	0.12	0.12	0.12	0.13
Household Income$_i$ ($1k)	69.79	69.22	70.36	68.48	65.56	63.72	62.41
Housing and Area							
Owns Home, New Location$_i$	0.35	0.34	0.31	0.28	0.24	0.24	0.21
Owns Home, Former location$_{p,d}$	0.66	0.67	0.66	0.65	0.64	0.62	0.63
Interstate Move$_i$	0.17	0.17	0.17	0.17	0.16	0.15	0.16
Reside in State of Birth$_i$	0.45	0.46	0.47	0.47	0.48	0.47	0.47
Monthly FMR$_j$ ($1)	982.37	936.98	956.54	974.96	1,013.60	1,043.09	1,020.12
FHFA HPI$_j$	100.00	108.39	109.60	103.24	96.04	91.76	88.44
Crime Rates$_j$ (Z-score)	0.31	0.30	0.14	0.01	−0.25	−0.42	−0.49

Note: The sample includes 433,751 white or black headed households from 354 CBSAs in years 2005-2011 who moved in the last year using data from the ACS. Information is reported for household head i, local (metro area) j, Migration PUMA p, or demographic d using housing unit weights. Monetary values are reported in 2015 dollars. FHFA HPI is set equal to 100 in 2005.

Table 2— Influence of Racial Climate on Homeownership, Movers

		Top/Bottom			Top/Bottom	
Sample:	Full	Quartile	Decile	Full	Quartile	Decile
$\text{Black}_i \times$						
Aggregate Index	−0.004			−0.002		
GT_j (Z-score)	(0.004)			(0.004)		
Aggregate Index GT		−0.027***			−0.020**	
Top $25\%_j$		(0.009)			(0.009)	
Aggregate Index GT			−0.029**			−0.026**
Top $10\%_j$			(0.014)			(0.013)
Owns Home, Former				0.143***	0.178***	0.110***
$\text{location}_{p,d,t}$				(0.036)	(0.046)	(0.025)
Black_i	−0.294***	−0.235***	−0.209***	−0.299***	−0.246***	−0.206***
	(0.025)	(0.031)	(0.070)	(0.024)	(0.030)	(0.070)
Age 30-39_i	0.099***	0.100***	0.092***	0.078***	0.074***	0.075***
	(0.012)	(0.013)	(0.011)	(0.012)	(0.014)	(0.013)
Age 40-49_i	0.123***	0.126***	0.122***	0.082***	0.075***	0.091***
	(0.013)	(0.015)	(0.016)	(0.016)	(0.018)	(0.018)
Age 50-59_i	0.161***	0.168***	0.165***	0.114***	0.109***	0.129***
	(0.011)	(0.012)	(0.012)	(0.014)	(0.017)	(0.014)
Age 60-69_i	0.243***	0.246***	0.237***	0.189***	0.179***	0.196***
	(0.013)	(0.014)	(0.020)	(0.018)	(0.021)	(0.025)
Age $70+_i$	0.171***	0.171***	0.161***	0.116***	0.103***	0.119***
	(0.012)	(0.012)	(0.012)	(0.018)	(0.017)	(0.017)
Not Married, Male	−0.185***	−0.193***	−0.180***	−0.187***	−0.196***	−0.182***
Household Head_i	(0.014)	(0.016)	(0.013)	(0.014)	(0.015)	(0.012)
Not Married, Female	−0.191***	−0.195***	−0.184***	−0.183***	−0.185***	−0.177***
Household Head_i	(0.009)	(0.010)	(0.008)	(0.008)	(0.008)	(0.009)
Own Children: 1_i	0.016***	0.013*	0.022**	0.015***	0.012*	0.022**
	(0.004)	(0.008)	(0.010)	(0.004)	(0.007)	(0.009)
Own Children: 2_i	0.047***	0.051***	0.056***	0.044***	0.046***	0.053***
	(0.008)	(0.012)	(0.011)	(0.007)	(0.011)	(0.011)
Own Children: $\geq 3_i$	0.017***	0.023**	0.035**	0.014**	0.019**	0.033**
	(0.006)	(0.010)	(0.016)	(0.006)	(0.009)	(0.016)
$\text{High School Grad}_i$	0.067***	0.068***	0.055***	0.067***	0.068***	0.055***
	(0.005)	(0.007)	(0.009)	(0.005)	(0.007)	(0.009)
Some College_i	0.104***	0.108***	0.093***	0.083***	0.082***	0.078***
	(0.007)	(0.010)	(0.010)	(0.008)	(0.011)	(0.011)
$\text{Bachelor's Degree}_i$	0.176***	0.178***	0.167***	0.157***	0.155***	0.154***
	(0.007)	(0.009)	(0.012)	(0.009)	(0.011)	(0.013)

Table 2— Influence of Racial Climate on Homeownership, Movers (continued)

		Top/Bottom			Top/Bottom	
Sample:	Full	Quartile	Decile	Full	Quartile	Decile
Graduate Degree$_i$	0.185***	0.189***	0.178***	0.167***	0.167***	0.165***
	(0.007)	(0.009)	(0.014)	(0.008)	(0.010)	(0.014)
Household Income$_i$	0.125***	0.118***	0.138***	0.126***	0.119***	0.138***
($100k)	(0.013)	(0.019)	(0.015)	(0.012)	(0.018)	(0.014)
Monthly FMR$_{j,t}$ ($1k)	−0.041*	−0.073**	−0.058	−0.044**	−0.077**	−0.061
	(0.022)	(0.034)	(0.046)	(0.021)	(0.034)	(0.047)
FHFA HPI$_{j,t}$ (100)	0.010	−0.010	0.011	0.006	−0.018	0.004
	(0.037)	(0.033)	(0.036)	(0.036)	(0.033)	(0.039)
Crime Rates$_{j,t}$	0.007	0.019**	0.001	0.006	0.019**	0.000
(Z-score)	(0.006)	(0.009)	(0.006)	(0.007)	(0.009)	(0.006)
Interstate Move$_i$	−0.058***	−0.058***	−0.062***	−0.057***	−0.057***	−0.061***
	(0.008)	(0.008)	(0.011)	(0.008)	(0.009)	(0.012)
Reside in State of	0.032***	0.036***	0.035***	0.031***	0.034***	0.035***
Birth$_i$	(0.006)	(0.009)	(0.009)	(0.005)	(0.007)	(0.009)
Black$_i$ ×						
Monthly FMR$_{j,t}$	0.138***	0.117***	0.126***	0.145***	0.129***	0.127***
($1k)	(0.015)	(0.018)	(0.036)	(0.013)	(0.016)	(0.034)
FHFA HPI$_{j,t}$	0.035***	0.013	−0.012	0.038***	0.017	−0.013
(100)	(0.013)	(0.020)	(0.046)	(0.013)	(0.019)	(0.046)
Crime Rates$_{j,t}$	0.003	0.001	0.002	0.002	0.000	0.002
(Z-score)	(0.005)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
Obs.	406,487	205,796	96,586	406,487	205,796	96,586
Metro Areas	326	187	104	326	187	104
Black Homeownership (%)	16.2	16.6	16.3	16.2	16.6	16.3

Note: Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2005-2011 who moved in the last year. Columns (3)-(4) and (5)-(6) are restricted to households that live in areas that fall into the upper and lower quantiles and deciles respectively for the Aggregate Index for race relation. Year and metro area fixed effects were included but not reported. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 3— Does Information Matter? Movers to or within State of Birth

		Top/Bottom	
Sample:	Full	Quartile	Decile
$\text{Black}_i \times$			
Aggregate Index	-0.010^{**}		
GT_j (Z-score)	(0.005)		
Aggregate Index GT		-0.037^{***}	
Top $25\%_j$		(0.011)	
Aggregate Index GT			-0.056^{***}
Top $10\%_j$			(0.020)
Obs.	179,008	92,161	46,785
Metro Areas	326	187	104
Black Homeownership (%)	13.8	14.7	15.4

Note: Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2005-2011 who moved in the last year. The sample is restricted to observations where the household head moved either within or back to her state of birth. Columns (2) and (3) are restricted to households that live in areas that fall into the upper and lower quantiles and deciles respectively for the Aggregate Index of racial climate. Controls included but not reported: indicator for African-American, age, not married male household head, not married female household head, indicators for children, education level, household income, monthy FMR, HPI, likelihood of owning a home in former location, crime rate (Z-score), interactions of black with FMR, HPI and crime rate, year fixed effects, and metro area fixed effects. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. The number of CBSAs are contingent on availability of Google Trends data for the CBSA, which varies by search term. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 4— Low Likelihood of Ownership in Former Location, Less Persistence in Housing Decision

		Top/Bottom	
Sample:	Full	Quartile	Decile
$\text{Black}_i \times$			
Aggregate Index	-0.008^{**}		
GT_j (Z-score)	(0.004)		
Aggregate Index GT		-0.022^{**}	
Top $25\%_j$		(0.011)	
Aggregate Index GT			-0.041^{**}
Top $10\%_j$			(0.016)
Obs.	97,857	48,209	22,033
Metro Areas	322	184	102
Black Homeownership (%)	16.2	16.6	16.3

Note: Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2005-2011 who moved in the last year. The sample is restricted to observations where the likelihood of homeownership in the former location is in the lowest quartile based on metro area and household demographics. Columns (2) and (3) are restricted to households that live in areas that fall into the upper and lower quantiles and deciles respectively for the Aggregate Index of racial climate. Controls included but not reported: indicator for African-American, age, not married male household head, not married female household head, indicators for children, education level, household income, monthy FMR, HPI, indicator for residing in state of birth, likelihood of owning a home in former location, crime rate (Z-score), interactions of black with FMR, HPI and crime rate, year fixed effects, and metro area fixed effects. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. The number of CBSAs are contingent on availability of Google Trends data for the CBSA, which varies by search term. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 5— Changes in Racial Climate; Examining Years Directly Preceding Black Lives Matter Movement Movement

				Low Likelihood of Ownership$_{t-1}$		
		Top/Bottom			Top/Bottom	
Sample:	Full	Quartile	Decile	Full	Quartile	Decile
Black$_i$ ×						
Aggregate Index	−0.006			−0.008**		
GT$_j$ (Z-score)	(0.004)			(0.004)		
Aggregate Index GT		−0.018*			−0.026	
Top 25%$_j$		(0.010)			(0.017)	
Aggregate Index GT			−0.056***			−0.052**
Top 10%$_j$			(0.009)			(0.022)
Obs.	147,533	72,809	33,815	41,310	19,936	8,607
Metro Areas	317	179	95	310	175	92
Black Homeownership (%)	11.4	11.4	11.0	11.4	11.4	11.0

Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2009-2011 who moved in the last year. Columns (3)-(6) are restricted to observations where the propensity to own a home in the former location is in the lowest quantile based on metro area and household demographics. Columns (2),(5) and (3),(6) are further restricted to households that live in areas that fall into the upper and lower quantiles and deciles respectively for the Aggregate Index for race relation. Controls included but not reported: indicator for African-American, age, not married male household head, not married female household head, indicators for children, education level, household income, monthy FMR, HPI, indicator for residing in state of birth, likelihood of owning a home in former location, crime rate (Z-score), interactions of black with FMR, HPI and crime rate, year fixed effects, and metro area fixed effects. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 6— Sample of Households that Recently made the Own/Rent Decision, Ages 18-35

							Reside in State of Birth					
		Top/Bottom			Top/Bottom			Top/Bottom			Top/Bottom	
Sample:	Full	Quartile	Decile	Full	Quartile	Decile	Full	Quartile	Decile	Full	Quartile	Decile
$\text{Black}_i \times$												
Aggregate Index	−0.007			−0.007			−0.015***			−0.015***		
GT_j (Z-score)	(0.005)			(0.005)			(0.005)			(0.005)		
Aggregate Index GT		−0.020			−0.019			−0.047***			−0.046***	
Top $25\%_j$		(0.013)			(0.014)			(0.017)			(0.018)	
Aggregate Index GT			−0.042**			−0.042**			−0.071***			−0.071***
Top $10\%_j$			(0.020)			(0.021)			(0.026)			(0.026)
Probability of Parental				−0.095**	−0.116**	−0.084				−0.095**	−0.092*	−0.037
Homeownership_i				(0.042)	(0.046)	(0.080)				(0.039)	(0.050)	(0.084)
Obs.	944,394	456,433	215,655	944,394	456,433	215,655	537,107	264,632	129,234	537,107	264,632	129,234
Metro Areas	326	191	85	326	191	85	326	191	85	326	191	85
Black Homeownership (%)	25.1	25.8	25.1	25.1	25.8	25.1	23.4	25.1	24.6	23.4	25.1	24.6

Note: Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2005-2011 aged 18 to 35. The latter collumns are restricted to households that reside in the birth state of the household head. Controls included but not reported: indicator for African-American, age, not married male household head, not married female household head, indicators for children, education level, household income, monthy FMR, HPI, indicator for residing in state of birth, crime rate (Z-score), interactions of black with FMR, HPI and crime rate, year fixed effects, and metro area fixed effects. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

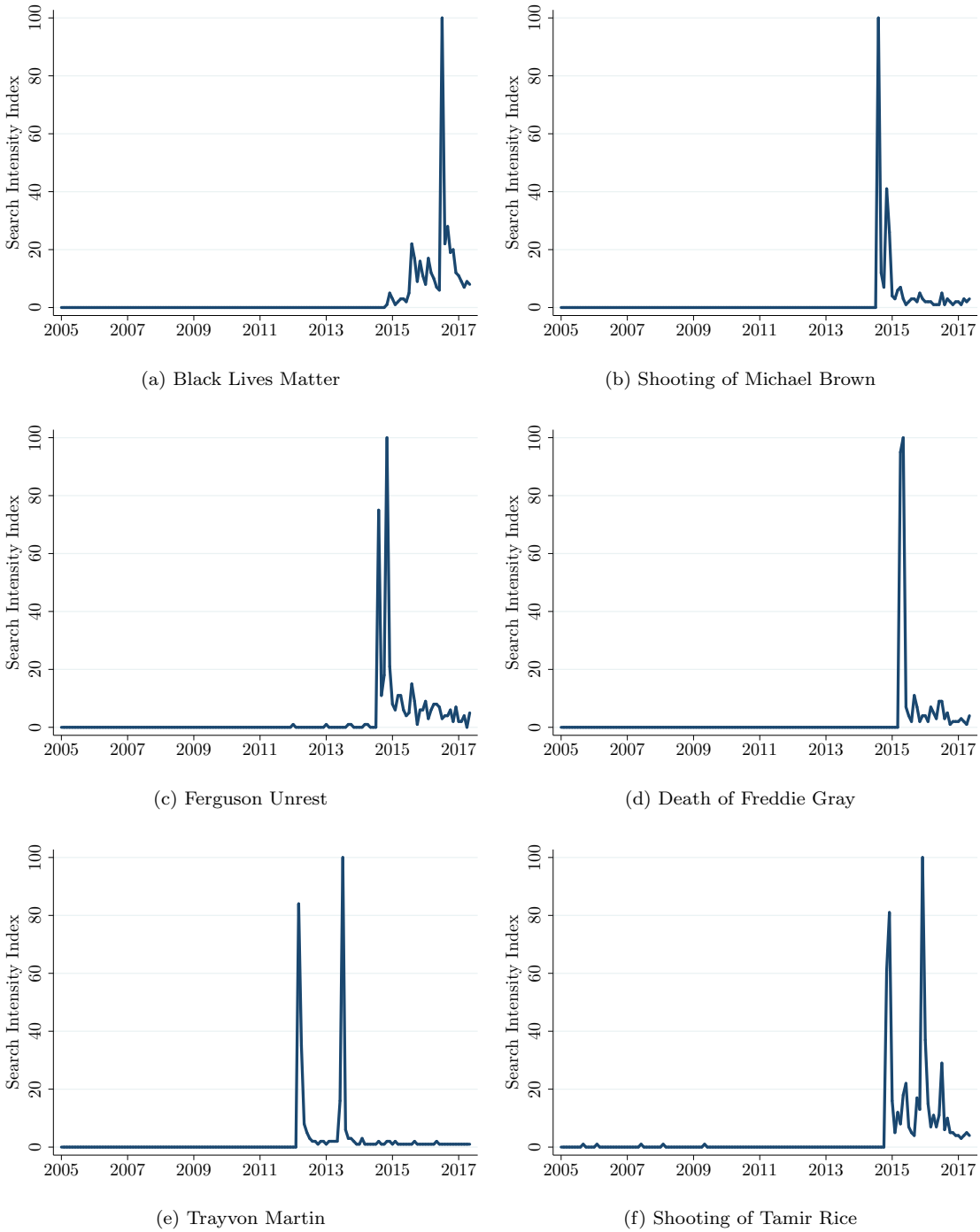
Table 7— Merely Social Activism? Adding Climate Change Search Interest

				Low Likelihood of Ownership$_{t-1}$		
		Top/Bottom			Top/Bottom	
Sample:	Full	Quartile	Decile	Full	Quartile	Decile
Black$_i$ ×						
Aggregate Index	−0.002			−0.008**		
GT$_j$ (Z-score)	(0.004)			(0.004)		
Aggregate Index GT		−0.020**			−0.023**	
Top 25%$_j$		(0.008)			(0.011)	
Aggregate Index GT			−0.028*			−0.060***
Top 10%$_j$			(0.015)			(0.020)
Climate Change	−0.004	−0.003	0.003	−0.001	0.005	0.020
Index$_j$	(0.004)	(0.005)	(0.008)	(0.005)	(0.006)	(0.013)
Obs.	406,487	205,796	96,586	97,857	48,209	22,033
CBSAs	326	187	104	322	184	102
Black Homeownership (%)	16.2	16.6	16.3	16.2	16.6	16.3

Note: Dependent variable is homeownership. The sample includes white or black headed households from the ACS in years 2005-2011 who moved in the last year. Columns (3)-(6) are restricted to observations where the propensity to own a home in the former location is in the lowest quantile based on metro area and household demographics. Columns (2),(5) and (3),(6) are further restricted to households that live in areas that fall into the upper and lower quantiles and deciles respectively for the Aggregate Index of racial climate. Controls included but not reported: indicator for African-American, age, not married male household head, not married female household head, indicators for children, education level, household income, monthy FMR, HPI, indicator for residing in state of birth, likelihood of owning a home in former location, crime rate (Z-score), interactions of black with FMR, HPI and crime rate, year fixed effects, and metro area fixed effects. Aggregate Index for Racial Climate uses the following Google Search Terms/Topics: Police Brutality, Black Lives Matter, Shooting of Michael Brown, Ferguson Unrest, Trayvon Martin, Death of Freddie Gray and Shooting of Tamir Rice. Standard errors are clustered at the DMA and year level using cgmreg (Cameron, Gelbach and Miller, 2011) and are shown in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Figure A1. Google Trends Racial Climate Variables Intensity over Time, National



(a) Black Lives Matter

(b) Shooting of Michael Brown

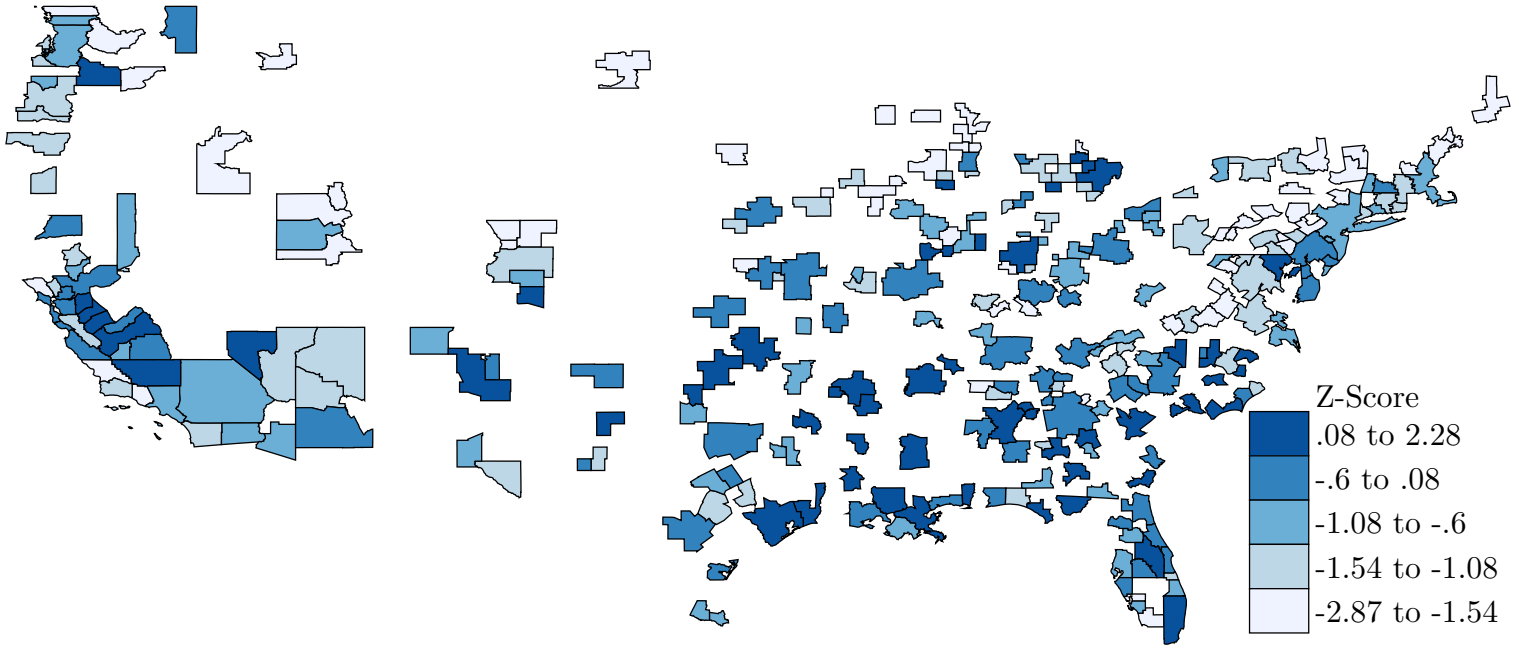
(c) Ferguson Unrest

(d) Death of Freddie Gray

(e) Trayvon Martin

(f) Shooting of Tamir Rice

Figure A2. Crime Intensity Z-score by CBSA 2012



Note: Crime statistics originate from the FBI Unified Crimes Report

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
St Louis, MO-IL	49	24	36	100	100	46	9	26
Salisbury, MD-DE	47	85	51	23	28	51	38	57
Baltimore-Columbia-Towson, MD	44	44	53	20	16	54	100	20
Tallahassee, FL	43	80	51	26	19	85	13	27
Valdosta, GA	43	80	51	26	19	85	13	27
Alexandria, LA	39	59	40	23	8	63	19	58
Hattiesburg, MS	38	51	47	50	5	100	4	9
Montgomery, AL	37	73	47	19	14	63	14	32
Virginia Beach-Norfolk-Newport N	36	49	56	24	14	56	22	35
Auburn-Opelika, AL	36	47	62	24	8	71	17	23
Columbus, GA-AL	36	47	62	24	8	71	17	23
Augusta-Richmond County, GA-SC	36	32	18	60	35	44	28	34
Jacksonville, NC	35	53	58	25	30	34	19	27
Greenville, NC	35	53	58	25	30	34	19	27
Memphis, TN-MS-AR	35	34	62	34	19	54	15	28
Jefferson City, MO	35	46	53	44	51	24	8	18
Columbia, MO	35	46	53	44	51	24	8	18
Baton Rouge, LA	34	27	53	30	13	85	11	19
Monroe, LA	34	41	44	18	16	71	20	25
Akron, OH	33	29	22	22	14	37	6	100
Canton-Massillon, OH	33	29	22	22	14	37	6	100
Cleveland-Elyria, OH	33	29	22	22	14	37	6	100
Mansfield, OH	33	29	22	22	14	37	6	100
Salinas, CA	32	100	44	11	4	39	9	19
Santa Cruz-Watsonville, CA	32	100	44	11	4	39	9	19
Cape Girardeau, MO-IL	32	27	67	30	41	34	13	13
Savannah, GA	32	59	36	18	14	63	13	21
Richmond, VA	32	47	64	22	10	46	13	20
Florence, SC	32	34	44	34	23	37	23	26
Myrtle Beach-Conway-North Myrtle	32	34	44	34	23	37	23	26
Beaumont-Port Arthur, TX	32	42	44	18	9	59	9	39
Springfield, MA	31	51	71	14	15	32	13	19
Albany, GA	31	36	67	19	1	78	6	6
Yuma, AZ	30	68	18	7	20	34	18	47
El Centro, CA	30	68	18	7	20	34	18	47
Columbia, SC	30	39	31	28	15	56	17	24
Sumter, SC	30	39	31	28	15	56	17	24
Youngstown-Warren-Boardman, OH-P	30	31	36	19	9	39	9	65
Burlington, NC	29	34	47	18	15	49	15	27
Winston-Salem, NC	29	34	47	18	15	49	15	27
Greensboro-High Point, NC	29	34	47	18	15	49	15	27
Rockford, IL	29	46	47	18	34	34	12	14
Tuscaloosa, AL	29	32	49	23	6	61	7	24
Anniston-Oxford-Jacksonville, AL	29	32	49	23	6	61	7	24

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Birmingham-Hoover, AL	29	32	49	23	6	61	7	24
Gadsden, AL	29	32	49	23	6	61	7	24
Lake Charles, LA	29	10	69	16	14	46	0	46
Wilmington, NC	29	46	42	19	9	46	20	19
Charleston-North Charleston, SC	29	29	60	27	11	54	13	6
Jackson, TN	28	25	40	27	19	22	12	54
Little Rock-North Little Rock-Co	28	44	51	22	11	37	7	25
Hot Springs, AR	28	44	51	22	11	37	7	25
Pine Bluff, AR	28	44	51	22	11	37	7	25
Minneapolis-St Paul-Bloomington	28	29	100	11	11	24	6	15
St Cloud, MN	28	29	100	11	11	24	6	15
New Orleans-Metairie, LA	28	24	42	26	16	59	12	18
Houma-Thibodaux, LA	28	24	42	26	16	59	12	18
Fayetteville, NC	28	39	40	19	13	51	8	23
Durham-Chapel Hill, NC	28	39	40	19	13	51	8	23
Raleigh, NC	28	39	40	19	13	51	8	23
Goldsboro, NC	28	39	40	19	13	51	8	23
Rocky Mount, NC	28	39	40	19	13	51	8	23
Lafayette, LA	28	32	40	18	10	51	8	33
Clarksville, TN-KY	27	25	36	22	16	59	13	22
Nashville-Davidson–Murfreesboro	27	25	36	22	16	59	13	22
Hickory-Lenoir-Morganton, NC	27	29	40	18	11	61	12	21
Charlotte-Concord-Gastonia, NC-S	27	29	40	18	11	61	12	21
Ocala, FL	27	22	40	19	11	71	12	17
Palm Bay-Melbourne-Titusville, F	27	22	40	19	11	71	12	17
Orlando-Kissimmee-Sanford, FL	27	22	40	19	11	71	12	17
Deltona-Daytona Beach-Ormond Bea	27	22	40	19	11	71	12	17
Springfield, IL	27	39	53	25	18	34	7	15
Danville, IL	27	39	53	25	18	34	7	15
Decatur, IL	27	39	53	25	18	34	7	15
Champaign-Urbana, IL	27	39	53	25	18	34	7	15
Athens-Clarke County, GA	27	22	44	22	11	59	9	23
Gainesville, GA	27	22	44	22	11	59	9	23
Rome, GA	27	22	44	22	11	59	9	23
Atlanta-Sandy Springs-Roswell, G	27	22	44	22	11	59	9	23
Panama City, FL	27	32	27	20	24	54	7	26
Shreveport-Bossier City, LA	27	36	73	8	10	46	3	13
Texarkana, TX-AR	27	36	73	8	10	46	3	13
Trenton, NJ	27	39	31	20	13	49	17	18
Ocean City, NJ	27	39	31	20	13	49	17	18
Vineland-Bridgeton, NJ	27	39	31	20	13	49	17	18
Dover, DE	27	39	31	20	13	49	17	18
Reading, PA	27	39	31	20	13	49	17	18
Atlantic City-Hammonton, NJ	27	39	31	20	13	49	17	18
Philadelphia-Camden-Wilmington,	27	39	31	20	13	49	17	18

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Allentown-Bethlehem-Easton, PA-N	27	39	31	20	13	49	17	18
Wheeling, WV-OH	27	66	13	8	20	41	16	21
Bridgeport-Stamford-Norwalk, CT	26	41	38	20	10	39	12	23
New York-Newark-Jersey City, NY-	26	41	38	20	10	39	12	23
Kingston, NY	26	41	38	20	10	39	12	23
Merced, CA	26	44	18	28	21	24	26	20
Visalia-Porterville, CA	26	44	18	28	21	24	26	20
Fresno, CA	26	44	18	28	21	24	26	20
Hanford-Corcoran, CA	26	44	18	28	21	24	26	20
Madera, CA	26	44	18	28	21	24	26	20
Manhattan, KS	26	19	47	33	25	29	6	22
Topeka, KS	26	19	47	33	25	29	6	22
Toledo, OH	26	42	42	15	14	27	11	29
Syracuse, NY	26	44	53	16	14	29	6	17
Ithaca, NY	26	44	53	16	14	29	6	17
Warner Robins, GA	25	36	33	17	1	54	15	22
Macon-Bibb County, GA	25	36	33	17	1	54	15	22
Utica-Rome, NY	25	46	33	16	14	32	13	24
Crestview-Fort Walton Beach-Dest	25	17	44	30	18	46	7	15
Pensacola-Ferry Pass-Brent, FL	25	17	44	30	18	46	7	15
Mobile, AL	25	17	44	30	18	46	7	15
Providence-Warwick, RI-MA	25	49	47	19	10	24	11	15
Bakersfield, CA	25	42	49	16	8	39	4	16
Jackson, MS	25	36	49	11	11	54	5	7
Washington-Arlington-Alexandria,	25	31	33	18	10	39	23	19
Winchester, VA-WV	25	31	33	18	10	39	23	19
Cumberland, MD-WV	25	31	33	18	10	39	23	19
Hagerstown-Martinsburg, MD-WV	25	31	33	18	10	39	23	19
Joplin, MO	25	12	49	18	29	22	0	43
Dothan, AL	25	32	33	19	11	44	14	19
Buffalo-Cheektowaga-Niagara Fall	25	51	31	17	13	27	13	21
Detroit-Warren-Dearborn, MI	24	34	38	16	11	41	7	22
Monroe, MI	24	34	38	16	11	41	7	22
Ann Arbor, MI	24	34	38	16	11	41	7	22
Kankakee, IL	24	34	40	20	11	41	7	15
Michigan City-La Porte, IN	24	34	40	20	11	41	7	15
Chicago-Naperville-Elgin, IL-IN-	24	34	40	20	11	41	7	15
Gainesville, FL	24	25	22	15	11	61	12	22
Punta Gorda, FL	24	22	27	20	16	54	8	18
Naples-Immokalee-Marco Island, F	24	22	27	20	16	54	8	18
Cape Coral-Fort Myers, FL	24	22	27	20	16	54	8	18
Indianapolis-Carmel-Anderson, IN	24	41	27	20	13	34	9	21
Kokomo, IN	24	41	27	20	13	34	9	21
Muncie, IN	24	41	27	20	13	34	9	21
Bloomington, IN	24	41	27	20	13	34	9	21

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Columbus, IN	24	41	27	20	13	34	9	21
Carson City, NV	23	46	42	15	18	20	16	8
Reno, NV	23	46	42	15	18	20	16	8
Decatur, AL	23	15	38	28	15	37	6	24
Huntsville, AL	23	15	38	28	15	37	6	24
Florence-Muscle Shoals, AL	23	15	38	28	15	37	6	24
Charlottesville, VA	23	19	40	20	16	29	16	22
Columbus, OH	23	27	33	19	9	32	9	33
Cincinnati, OH-KY-IN	23	25	44	20	11	27	11	23
Fayetteville-Springdale-Rogers,	23	27	64	13	9	29	4	16
Fort Smith, AR-OK	23	27	64	13	9	29	4	16
Oklahoma City, OK	23	24	27	23	20	32	23	13
Gulfport-Biloxi-Pascagoula, MS	23	27	47	18	5	46	1	15
Greenville-Anderson-Mauldin, SC	23	31	40	16	6	37	8	21
Asheville, NC	23	31	40	16	6	37	8	21
Spartanburg, SC	23	31	40	16	6	37	8	21
Jackson, MI	23	47	29	17	8	34	6	17
Lansing-East Lansing, MI	23	47	29	17	8	34	6	17
Brunswick, GA	22	17	20	16	10	68	9	17
Jacksonville, FL	22	17	20	16	10	68	9	17
Springfield, MO	22	32	31	19	31	15	13	16
Houston-The Woodlands-Sugar Land	22	27	29	22	8	39	11	21
Dayton, OH	22	36	36	13	11	37	5	19
Springfield, OH	22	36	36	13	11	37	5	19
Harrisonburg, VA	22	37	7	23	25	29	16	19
Lincoln, NE	22	41	49	11	18	12	9	15
Rochester, NY	22	47	40	11	13	22	6	15
Bloomington, IL	22	37	36	19	14	20	9	19
Peoria, IL	22	37	36	19	14	20	9	19
Dalton, GA	22	37	40	10	8	34	9	15
Chattanooga, TN-GA	22	37	40	10	8	34	9	15
Cleveland, TN	22	37	40	10	8	34	9	15
Burlington-South Burlington, VT	22	25	67	10	9	15	5	21
Tucson, AZ	22	34	33	14	13	22	11	25
Wenatchee, WA	22	29	42	14	16	24	7	18
Bremerton-Silverdale, WA	22	29	42	14	16	24	7	18
Bellingham, WA	22	29	42	14	16	24	7	18
Mount Vernon-Anacortes, WA	22	29	42	14	16	24	7	18
Olympia-Tumwater, WA	22	29	42	14	16	24	7	18
Seattle-Tacoma-Bellevue, WA	22	29	42	14	16	24	7	18
Flint, MI	21	44	18	15	3	51	7	13
Bay City, MI	21	44	18	15	3	51	7	13
Saginaw, MI	21	44	18	15	3	51	7	13
Louisville/Jefferson County, KY-	21	27	20	27	19	27	15	15
Elizabethtown-Fort Knox, KY	21	27	20	27	19	27	15	15

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Milwaukee-Waukesha-West Allis, W	21	39	33	13	14	32	6	13
Sheboygan, WI	21	39	33	13	14	32	6	13
Racine, WI	21	39	33	13	14	32	6	13
State College, PA	21	29	40	11	14	29	6	19
Altoona, PA	21	29	40	11	14	29	6	19
Johnstown, PA	21	29	40	11	14	29	6	19
Kalamazoo-Portage, MI	21	36	38	14	11	29	4	16
Grand Rapids-Wyoming, MI	21	36	38	14	11	29	4	16
Battle Creek, MI	21	36	38	14	11	29	4	16
Muskegon, MI	21	36	38	14	11	29	4	16
Lubbock, TX	21	39	36	16	13	24	6	14
Omaha-Council Bluffs, NE-IA	21	22	40	16	10	27	14	18
Erie, PA	21	34	47	18	5	20	9	13
Las Vegas-Henderson-Paradise, NV	21	25	40	15	9	34	8	14
Hartford-West Hartford-East Hart	21	37	36	11	8	29	5	19
New Haven-Milford, CT	21	37	36	11	8	29	5	19
Norwich-New London, CT	21	37	36	11	8	29	5	19
Miami-Fort Lauderdale-West Palm	21	22	13	11	3	73	5	17
Riverside-San Bernardino-Ontario	20	37	27	17	9	37	5	12
Oxnard-Thousand Oaks-Ventura, CA	20	37	27	17	9	37	5	12
Los Angeles-Long Beach-Anaheim,	20	37	27	17	9	37	5	12
Lawrence, KS	20	20	13	26	25	37	4	17
Kansas City, MO-KS	20	20	13	26	25	37	4	17
Tampa-St Petersburg-Clearwater,	20	17	33	11	9	49	12	12
North Port-Sarasota-Bradenton, F	20	17	33	11	9	49	12	12
Lakeland-Winter Haven, FL	20	17	33	11	9	49	12	12
Kennewick-Richland, WA	20	44	38	9	21	10	7	13
Yakima, WA	20	44	38	9	21	10	7	13
Waco, TX	20	29	36	18	11	29	8	9
College Station-Bryan, TX	20	29	36	18	11	29	8	9
Killeen-Temple, TX	20	29	36	18	11	29	8	9
Eugene, OR	20	32	44	9	19	20	3	14
Harrisburg-Carlisle, PA	20	27	24	13	18	27	18	13
York-Hanover, PA	20	27	24	13	18	27	18	13
Lebanon, PA	20	27	24	13	18	27	18	13
Lancaster, PA	20	27	24	13	18	27	18	13
San Antonio-New Braunfels, TX	20	20	24	11	8	63	6	5
Madison, WI	20	32	44	11	10	17	6	17
Janesville-Beloit, WI	20	32	44	11	10	17	6	17
San Diego-Carlsbad, CA	20	36	18	18	15	29	8	14
Manchester-Nashua, NH	20	27	40	15	9	22	8	16
Barnstable Town, MA	20	27	40	15	9	22	8	16
Boston-Cambridge-Newton, MA-NH	20	27	40	15	9	22	8	16
Worcester, MA-CT	20	27	40	15	9	22	8	16
Austin-Round Rock, TX	19	27	24	14	11	37	8	15

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Colorado Springs, CO	19	34	27	16	14	27	8	11
Pueblo, CO	19	34	27	16	14	27	8	11
Morgantown, WV	19	29	22	14	11	27	13	19
Pittsburgh, PA	19	29	22	14	11	27	13	19
Lewiston, ID-WA	19	37	33	14	11	22	6	9
Coeur dAlene, ID	19	37	33	14	11	22	6	9
Spokane-Spokane Valley, WA	19	37	33	14	11	22	6	9
Wichita, KS	19	25	22	27	16	24	6	11
Lawton, OK	19	24	40	13	14	22	13	7
Wichita Falls, TX	19	24	40	13	14	22	13	7
Morristown, TN	19	20	16	15	16	39	7	18
Knoxville, TN	19	20	16	15	16	39	7	18
Boulder, CO	19	37	24	16	15	22	5	11
Fort Collins, CO	19	37	24	16	15	22	5	11
Greeley, CO	19	37	24	16	15	22	5	11
Denver-Aurora-Lakewood, CO	19	37	24	16	15	22	5	11
Kingsport-Bristol-Bristol, TN-VA	19	29	56	8	10	20	8	0
Johnson City, TN	19	29	56	8	10	20	8	0
Davenport-Moline-Rock Island, IA	18	34	20	17	21	20	8	7
Longview, TX	18	17	27	16	14	24	13	17
Tyler, TX	18	17	27	16	14	24	13	17
Fort Wayne, IN	18	39	22	14	8	22	7	15
Williamsport, PA	18	37	31	13	9	20	9	7
Scranton–Wilkes-Barre–Hazleton	18	37	31	13	9	20	9	7
Albany-Schenectady-Troy, NY	18	44	20	10	8	20	7	17
Pittsfield, MA	18	44	20	10	8	20	7	17
Glens Falls, NY	18	44	20	10	8	20	7	17
Binghamton, NY	18	34	29	10	3	27	7	15
Bangor, ME	17	32	29	11	13	5	5	27
Prescott, AZ	17	32	22	13	9	24	6	16
Phoenix-Mesa-Scottsdale, AZ	17	32	22	13	9	24	6	16
Lake Havasu City-Kingman, AZ	17	32	22	13	9	24	6	16
Flagstaff, AZ	17	32	22	13	9	24	6	16
Vallejo-Fairfield, CA	17	32	18	13	13	27	5	15
Stockton-Lodi, CA	17	32	18	13	13	27	5	15
Yuba City, CA	17	32	18	13	13	27	5	15
Modesto, CA	17	32	18	13	13	27	5	15
Sacramento–Roseville–Arden-Arc	17	32	18	13	13	27	5	15
Medford, OR	17	34	44	2	20	15	3	3
Las Cruces, NM	17	61	18	6	6	17	6	7
El Paso, TX	17	61	18	6	6	17	6	7
Amarillo, TX	17	41	27	9	13	17	7	7
Waterloo-Cedar Falls, IA	17	29	27	15	10	24	8	7
Iowa City, IA	17	29	27	15	10	24	8	7
Dubuque, IA	17	29	27	15	10	24	8	7

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Cedar Rapids, IA	17	29	27	15	10	24	8	7
Redding, CA	17	24	27	7	6	29	8	19
Chico, CA	17	24	27	7	6	29	8	19
Dallas-Fort Worth-Arlington, TX	17	20	24	14	8	37	5	12
Urban Honolulu, HI	17	29	13	24	14	15	5	18
Corpus Christi, TX	17	47	7	13	18	22	3	7
Wausau, WI	17	27	29	9	13	12	8	18
South Bend-Mishawaka, IN-MI	17	36	16	10	8	34	1	12
Niles-Benton Harbor, MI	17	36	16	10	8	34	1	12
Elkhart-Goshen, IN	17	36	16	10	8	34	1	12
Lexington-Fayette, KY	16	24	27	11	10	24	8	11
Lewiston-Auburn, ME	16	36	33	11	5	10	8	12
Portland-South Portland, ME	16	36	33	11	5	10	8	12
Rochester, MN	16	34	53	3	5	10	1	8
Grand Forks, ND-MN	16	8	60	11	4	12	3	16
Fargo, ND-MN	16	8	60	11	4	12	3	16
La Crosse-Onalaska, WI-MN	16	29	33	9	18	15	5	5
Eau Claire, WI	16	29	33	9	18	15	5	5
San Luis Obispo-Paso Robles-Arro	16	27	27	15	10	20	8	6
Santa Maria-Santa Barbara, CA	16	27	27	15	10	20	8	6
Missoula, MT	16	17	36	15	15	20	5	4
San Jose-Sunnyvale-Santa Clara,	16	29	20	13	10	20	6	14
Santa Rosa, CA	16	29	20	13	10	20	6	14
San Francisco-Oakland-Hayward, C	16	29	20	13	10	20	6	14
Napa, CA	16	29	20	13	10	20	6	14
Huntington-Ashland, WV-KY-OH	16	31	24	11	11	20	7	6
Charleston, WV	16	31	24	11	11	20	7	6
Sebastian-Vero Beach, FL	16	19	2	11	6	61	3	7
Port St Lucie, FL	16	19	2	11	6	61	3	7
Albuquerque, NM	16	41	24	8	10	20	4	2
Santa Fe, NM	16	41	24	8	10	20	4	2
Farmington, NM	16	41	24	8	10	20	4	2
Bismarck, ND	15	24	20	3	24	15	5	14
Evansville, IN-KY	15	19	13	14	21	22	13	1
Owensboro, KY	15	19	13	14	21	22	13	1
Appleton, WI	14	31	20	10	10	17	5	7
Green Bay, WI	14	31	20	10	10	17	5	7
Fond du Lac, WI	14	31	20	10	10	17	5	7
Ames, IA	14	24	18	10	13	17	6	12
Des Moines-West Des Moines, IA	14	24	18	10	13	17	6	12
Midland, TX	14	17	29	10	4	12	9	16
Odessa, TX	14	17	29	10	4	12	9	16
Boise City, ID	13	24	31	8	5	10	5	9
Provo-Orem, UT	12	19	22	8	9	15	7	4
Ogden-Clearfield, UT	12	19	22	8	9	15	7	4

Table A1— Google Trends, Race Relations Indexes (sorted desending based on all indices) (continued)

Metro Area	Avg Index	Police Brutality	Black Lives Matter	Michael Brown	Ferguson Unrest	Trayvon Martin	Freddie Gray	Tamir Rice
Salt Lake City, UT	12	19	22	8	9	15	7	4
Logan, UT-ID	12	19	22	8	9	15	7	4
St George, UT	12	19	22	8	9	15	7	4
Duluth, MN-WI	12	7	42	3	8	17	2	2
Tulsa, OK	11	10	13	11	8	15	7	12
Anchorage, AK	11	2	18	3	8	24	4	16
Sioux Falls, SD	11	20	27	7	3	7	4	6
McAllen-Edinburg-Mission, TX	9	31	4	8	0	10	1	8
Brownsville-Harlingen, TX	9	31	4	8	0	10	1	8
Salem, OR	8	12	16	2	6	7	2	13
Longview, WA	8	12	16	2	6	7	2	13
Portland-Vancouver-Hillsboro, OR	8	12	16	2	6	7	2	13
Blacksburg-Christiansburg-Radfor	2	0	0	0	3	7	4	3
Roanoke, VA	2	0	0	0	3	7	4	3
Lynchburg, VA	2	0	0	0	3	7	4	3

Note: Variation in Google Trends metrics is available at the Designated Market Area level, which we translate to the metro area level. The table includes metro areas used in the main analysis that do not contain missing values for any of the metrics listed. For purposes of the table only, the indexes were normalized to range from 0 to 100. Data from Google Trends was extracted on 3/7/17.