Hutchins Center Working Paper #81

November 2022

Black Tax: Evidence of Racial Discrimination in Municipal Borrowing Costs

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Abstract

Municipalities with higher proportions of Black residents pay higher borrowing costs to issue rated bonds compared to other cities and counties that issue within the same state and year. These higher costs are unexplained by credit risk, more pronounced in states with higher levels of racial resentment, and robust to state-tax incentives to hold municipal bonds. In time-series tests using political election periods during which racial resentment has been shown to intensify, we find that the differences in borrowing costs also increase. Collectively, the findings illustrate that racial bias can increase borrowing costs, especially where racial resentment is severe.

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Hutchins Center on Fiscal & Monetary Policy at BROOKINGS

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https://www.brookings.edu/research/black-tax-evidence-of-racial-discrimination-in-municipal-borrowing-costs/

1. Introduction

In a well-functioning municipal bond market, one might expect risk premiums to compensate investors for bearing exposure to relevant risks, namely credit quality and liquidity, rather than racial demographics, such as the percentage of Black residents within a community. In practice, however, even though individual market participants may not harbor racial bias per se, there is considerable evidence that racial bias influences the manner in which racially diverse municipalities raise capital and exacerbates misperceptions of the credit risk associated with racial and ethnic minorities.[1] In other words, by influencing how cities and counties engage with and are perceived by capital markets, racial bias can cause municipalities to pay higher risk premiums and therefore incur higher borrowing costs than justified by underlying economic fundamentals.

In this paper, we use variation in a municipality's proportion of Black residents to determine whether racial bias raises the borrowing costs that municipalities with higher proportions of Black residents realize.[2] Compared to cities and counties that issue within the same state and year, we find that municipalities with higher proportions of Black residents pay higher borrowing costs, which we call a Black Tax. Not only are these higher costs unexplained by credit risk, but they are also more pronounced in states with higher levels of racial resentment. The findings illustrate that racial bias can increase borrowing costs, particularly in states where racial resentment is severe. Additionally, in time-series tests using presidential and gubernatorial elections during which racial resentment has been shown to have intensified, we expect and find that the borrowing costs also increase. To our knowledge, these results are the first to indicate that time-series variation in the intensity of racial resentment is an important channel through which racial bias reduces access to capital. Collectively, the results establish that racial bias can cause municipalities to pay higher borrowing costs.

We focus on rated bonds offered directly by U.S. cities and counties from 1990 to 2019. Economic theory suggests that a community's racial makeup should hold little importance as a signal of creditworthiness with rated direct-offers, as investors have access to the offers' credit ratings. Still, controlling for credit risk, our main finding is that a one-percentage point increase in the total proportion of Black residents in a municipality is associated with a 0.44 basis point increase in total annualized costs, which indicates that municipalities with relatively higher proportions of Black residents pay significantly higher borrowing costs. For example, in 2019 the municipalities in our sample raised a total of $77 billion from rated municipal offers. When we take the product of our cost estimate (0.44 basis points), each municipality's percentage of Black residents, and each offer's issue amount and maturity, we find that the Black Tax costs these communities a total of $110 million. This finding is notable since the sample is national and therefore includes cities and counties with relatively little racial diversity as well as those with higher concentrations of Black residents. Regional analysis suggests that there are also areas, such as the Western states, in which municipalities pay a penalty as high as two basis points.

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1. Racial bias has been shown to hinder voter support for municipal spending (see, for example, Alesina et al. 1999; Rugh and Trounstine, 2011); many studies show that racial bias reduces the financial inclusion of racial and ethnic minorities in credit markets (see, for example, Chatterji and Seamans, 2012; Ravina 2008; Pope and Sydnor 2011; Dougal et al. 2019; Begley and Purnanandam 2020; Butler et al. 2020, and many others).

2. For convenience, we use Blacker municipalities to refer to municipalities with higher proportions of Black residents.

We confirm that the increased borrowing costs associated with a community's Black residents are in fact real. To ensure that our findings are not due to our sample construction, we compare our sample of bonds to those used in recent studies. We find that the bond characteristics of our sample are comparable to those of the samples used in other studies (e.g., Butler et al., 2009; Painter, 2020). Moreover, the effects we observe for the standard risk controls are consistent and similar in magnitude to those used in the literature. Hence, we consider it unlikely that the higher borrowing costs are due to the sample construction.

We first evaluate credit risk. If credit risk drives the Black Tax, then the costs associated with Black residents should decrease when we control for credit risk. In contrast, the Black Tax barely changes in magnitude when we include credit controls in a model that contains the proportion of Black residents and state-year fixed effects, indicating that credit risk seems to play a limited role in the effect we document. The results are surprising, as the Blacker municipalities in our sample pay higher borrowing costs despite their demographics that, on paper, should signal higher, rather than lower, credit risk—such as larger populations and higher income per capita and employment rates (see, for example, Butler et al., 2009).

The evidence indicates that even a relatively small proportion of Black residents within a municipality is associated with higher borrowing costs, as the median municipality in our sample has a Black population of 7.4%. One concern is that the proportion of Black residents within an area may also be linked to a city's or county's current economic and political conditions; in other words, the presence of Black residents may be endogenous. We address this concern by using the proportion of Black residents reported in the U.S. census of 1980, 10 years prior to the start of our sample period, as an instrument variable. We find that the Black Tax remains relatively unchanged in magnitude, which further corroborates our findings.

After establishing that the increased borrowing costs associated with Black residents are economically material, are not explained by credit risk, and survive our instrument, we assess what role, if any, racial bias plays in increasing borrowing costs. We hypothesize that if racial bias increases municipal borrowing costs, then municipalities that have higher proportions of Black residents may pay more to borrow. We follow the discrimination literature to categorize the economic channels through which racial bias manifests as taste-based and statistical discrimination (Phelps, 1972; Arrow, 1973).

Taste-based discrimination predicts that racial bias, rather than other factors (e.g., credit risk or liquidity), leads market participants to demand larger price discounts for offerings that are associated with Black people. Perry et al. (2018) present a compelling example of this mechanism by showing that in Black neighborhoods, owner-occupied homes were devalued by an average of $48,000 compared to similar homes in neighborhoods with few Black residents. Another example can be found in Dougal et al. (2019), who attribute the increased borrowing costs of historically Black colleges and universities (HBCUs) to taste- based discrimination since the increased costs are not explained by credit risk. Similarly, Butler et al. (2020) show that racial discrimination led minority borrowers to pay significantly higher interest rates and face lower approval rates for car loans, even though they had lower default rates than White borrowers. Taste- based studies predict that if racial bias increases municipal borrowing costs, then, holding credit risk constant, the increased costs should be concentrated in states and periods in which racial bias is higher.

In contrast, statistical discrimination predicts that higher borrowing costs occur as an unintended market outcome. As discussed above, even if investors are not personally biased, racial bias can cause racially diverse municipalities to face higher borrowing costs by influencing the manner in which they raise capital. Alesina et al. (1999) theoretically and empirically show that racial bias reduces voter support

for municipal spending. Rugh and Trounstine (2011) find that combating racial conflict often leads more diverse municipalities to form coalitions that issue larger bonds, which investors may consider to be illiquid (Longstaff, 2011). In such cases, investors would demand liquidity premiums to hold these larger offers regardless of the issuer's racial demographics; therefore, the bonds offered by racially diverse municipalities would be priced lower. The same logic would apply to the many other portfolio choices that investors consider, such as credit risk, maturity, and the issuer's long-term rating. Thus, if Blacker municipalities incur increased borrowing costs, the statistical discrimination channel predicts that these costs are driven by offer conditions that would be ex ante discounted to accommodate investors' portfolio preferences rather than racial bias.

To test the hypothesis that racial bias increases municipal borrowing costs, we examine the cross-section and time-series variation in the Black Tax. Our main tests of the taste-based discrimination channel consider state-level measures of racial resentment from the racial resentment section of the Common Content portion of the Cooperative Congressional Election Study (CCES) and racist tweets following the reelection of President Obama in 2012 (Zook, 2012), as reported in Dougal et al. (2019). In the spirit of Dougal et al. (2019), we separate our sample into terciles of the state-level racial resentment measure and re-estimate our models with the aforementioned credit controls. We find that in states with higher levels of racial resentment, the economic and statistical magnitude of the estimated coefficient on Black residents is 46% larger than in states with lower racial resentment (0.489 basis points, t = 2.66 vs. 0.326 basis points, t = 0.92). Taken together, the evidence illustrates that taste-based discrimination is an important channel for the pricing penalty associated with Black residents, as increased municipal borrowing costs are particularly observed in states where racial resentment is most severe.

To categorize investors' portfolio choices in order to test the statistical discrimination channel, we parse the sample by offering size (as a proxy for deal liquidity), maturity, and whether the issuer has a long- term rating. We find that the pricing penalty associated with Black residents is concentrated in offers that are less liquid and have no long-term rating, which supports the predictions of the statistical channel, as investors should demand discounts for these bond conditions. The Black Tax is nearly identical for bonds below and above the median sample maturity of 15 years (0.466 basis points, t = 3.40 vs. 45.1, t = 1.89), suggesting that maturity plays a limited role in this effect. We note that although all the bonds in our sample are from rated deals, the results concerning liquidity and long-term ratings suggest that the deal ratings alone do not mitigate the indirect costs of racial bias. Moreover, when we double sort on deal characteristics and racial resentment, we observe that the pricing penalties for offers that are illiquid or without long-term ratings are entirely concentrated in states with high levels of racial resentment, suggesting that racial bias, in conjunction with illiquidity and not having long-term ratings, can lead Blacker municipalities to pay higher borrowing costs. Thus, we find support for both the taste-based and statistical discrimination channels.

The body of evidence indicating that racial bias and market structures contribute to the Black Tax raises the question of why this mispricing within the municipal bond market has been so persistent. Economic theory suggests that competition between investors helps to reduce mispricing. Since municipal bond investors are not known to short bonds (Dybvig and Ross, 1986), we focus on market segmentation. Specifically, Babina et al. (2021) show that the state tax privilege that investors receive from holding municipal bonds issued within their state of residence leads them to exhibit considerable home bias. Following this logic, Dougal et al. (2019) use state tax privilege to identify states where municipal bonds are more likely to be held locally versus nationally. Adopting the approach from these studies, we find that the Black Tax is concentrated in states with higher tax privilege, which is consistent with market

segmentation at least partially contributing to the effects we observe. Higher borrowing costs are also consistent with local investors requiring higher rates of return to forgo diversification; therefore, as in Dougal et al. (2019), we double sort states on racial resentment and state tax privilege. We find that Blacker municipalities located in states with higher racial resentment incur higher borrowing costs regardless of state tax privilege. These results indicate that racial resentment and market segmentation help to explain why the pricing effects of racial bias in the municipal bond market are enduring; that is, market segmentation within the municipal bond market seemingly allows market inefficiencies, which in our case are attributed to racial bias, to significantly influence municipal bond prices.

In an effort to identify the causal impact of racial bias on municipal borrowing costs, we perform two time-series tests motivated by the political science and political uncertainty literatures. The first test uses the presidential elections of Obama and Trump to identify years that are characterized by changing levels of racial resentment. Surveys of racial resentment conducted by Gallup and the Pew Research Center indicate that these elections were associated with large shifts in levels of racial resentment (Bird and Newport, 2017; Pew Research Center, 2017). The aforementioned studies motivate our experimental approach of using the 2008, 2012, and 2016 presidential elections, as these are considered periods characterized by shifting levels of racial resentment. Consistent with taste-based discrimination, we find that the Black Tax fell during the elections of Obama and rose during the election of Trump.

Our second time-series test uses gubernatorial elections to identify local political uncertainty. This setting allows us to directly observe whether the penalty for Black residents varies with political uncertainty, which has been shown to induce concerns of scarcity and escalate racial resentment (Luttmer, 2001; Sears and Citrin, 1982). Consistent with racial bias intensifying in response to political uncertainty, we find evidence that the Black Tax increases in states with low racial resentment during local gubernatorial elections. Importantly, we also observe that the increased borrowing costs associated with Black residents are present in states regardless of whether they elected Democrat or Republican governors. This finding helps to further show that the Black Tax is pervasive across the political structures of the United States.

We perform several robustness tests. First, motivated by recent research on states' bankruptcy policies (Gao et al., 2019), we confirm that the Black Tax is higher in states that provide weaker bankruptcy protection for investors. The results provide further evidence that racial bias can create additional borrowing costs. Second, we examine whether the penalty associated with Black residents also exists for non-Black racial minorities. We observe some evidence that municipalities with higher proportions of Hispanics also incur a pricing penalty, suggesting that racial bias increases the borrowing costs associated with the presence of non-Black minorities. The results provide additional evidence that racial bias can increase municipal borrowing costs. Lastly, in the online appendix, we confirm that all of our results hold with our instrument variable, namely the proportion of Black residents reported in the 1980 U.S. census.

One limitation of our experiment is that our identification strategy compares offerings from cities and counties within the same state that access the capital market concurrently. For example, rather than compare the borrowing costs of Portland, Oregon, and Los Angeles, California—cities in different states with varying proportions of Black residents (5.8% and 8.9% in the 2010 U.S. census, respectively)—our identification would compare offers from Cleveland and Columbus, Ohio. We do this to control for unobservable local trends that might affect bonds issued in any specific state and year. However, we also verify that the Black Tax is both persistent in the time series and present across regions, which helps to address concerns that the effect might be entirely driven by a region of the United States in which the

concentration of Black residents and levels of racial resentment are both high, namely the South. The findings show that racial bias can lead to differences in the costs that communities incur to raise capital across the United States.

Our findings contribute new knowledge to a diverse range of scholarship on racial bias and municipal finance. We add to a nascent literature that examines the connection between race and municipal bond prices (Bergstresser et al., 2013; Dougal et al., 2019). Our work is most closely related to that of Dougal et al. (2019), who evaluate the effects of familiarity on borrowing costs for HBCUs but do not examine why Blacker cities and counties incur higher borrowing costs or use periods of changing racial resentment to identify the relation between Black residents and municipal borrowing costs. Thus, we advance the municipal scholarship by showing that racial bias affects the borrowing costs of municipalities across the United States and that periods of heightened racial resentment can amplify the pricing penalties associated with Black residents.

In the following sections, we provide an overview of the theoretical framework that guides our study, present our empirical methodology, and discuss our regression results.

2. Theoretical Framework

2.1. Why would racial demographics matter for municipal borrowing costs?

Considerable evidence in the political science literature shows that voters tend to oppose funding public goods and services when racial and ethnic minorities are believed to be the beneficiaries (see, for example, Sears and Citrin, 1982; Easterly and Levine, 1997; Luttmer, 2001; Gilens, 2009). The literature indicates that racial bias plays an important role in municipal financing decisions. In particular, studies have established that racial bias can cause the racial demographics of municipalities to affect whether and how communities engage with capital markets.

One implication of these studies is that the presence of racial minorities within a city or county would also affect municipal borrowing costs due to the influence of racial bias on how municipalities raise capital. Consistent with this mechanism, Bergstresser et al. (2013) observe that, despite having bonds that tend to be rated higher, racially diverse municipalities incur higher borrowing costs (i.e., bond yields). However, as discussed in the introduction, their study does not assess whether the increased borrowing costs are due to racial bias, nor do they examine the discriminatory channels through which racial bias can operate. Thus, their study and those discussed above motivate our main hypothesis:

Hypothesis 1: Blacker municipalities pay higher borrowing costs due to racial bias.

Next, we discuss the channels through which racial bias can operate: taste-based and statistical discrimination. We present evidence of the discriminatory channels and outline what the hypothesis predicts for each.

2.2. The channels for racial bias: taste-based discrimination

Although the literature predicts that racial bias affects municipal borrowing costs, it is less clear through which economic channels this influence occurs. Following the economic discrimination literature, one possibility is that, due to racial bias, market participants exhibit taste-based discrimination and are therefore less willing to hold assets that are associated with Black people. In other words, Blacker

municipalities may incur higher borrowing costs not for market reasons, such as credit risk or liquidity, but because racial bias reduces market participants' willingness to hold assets associated with Black residents. In this regard, taste-based discrimination would be observationally equivalent to market participants having misperceptions of risk that are associated with racial and ethnic minorities; that is, market participants may behave as if the proportion of Black residents within a city or county is a risk factor. Consistent with this mechanism, studies show that racial resentment, measured in terms of the racially biased views of the residents of a state, reduces the financial inclusion of racial and ethnic minorities in credit markets (Ravina, 2008; Pope and Sydnor, 2011; Dougal et al., 2019; Begley and Purnanandam, 2020; Butler et al., 2020). This evidence indicates that taste-based discrimination can influence how market participants perceive debtors who belong to racial or ethnic minorities.

Based on the studies mentioned above, we predict that, after controlling for credit risk, we will observe higher borrowing costs for Blacker municipalities, as market participants demand lower prices for bonds associated with Black people. In light of the previously discussed evidence that racial bias reduces voter support for public spending that is believed to benefit racial minorities (Alesina et al., 1999), an additional implication of the taste-based channel is that the observed borrowing costs associated with Black residents will increase (decrease) with large increases (decreases) in racial bias. Together, the studies motivate our second hypothesis:

> *Hypothesis 2*: *The increased borrowing costs are unexplained by credit risk and concentrated in states and periods in which racial bias, as identified by racial resentment, is severe.*

2.3. The channels for racial bias: statistical discrimination

In addition to taste-based discrimination, the literature identifies statistical discrimination as another possible channel through which racial bias can increase municipal borrowing costs. The central idea behind the statistical channel is that since racial bias can indirectly affect market structures, market outcomes can be discriminatory regardless of whether market participants harbor racial bias. In other words, even if increased borrowing costs are not driven by credit risk, the costs can be influenced by market structures that are indirectly affected by racial bias. As discussed in the introduction, the literature shows that to overcome racial bias, municipalities may issue bonds in ways that lead investors to screen offerings. For example, to combat racial bias, diverse municipalities often issue larger bonds, as they engage in coalition-building to gain community support for their offers (Rugh and Trounstine, 2011). The larger offer amounts raise liquidity risk (Longstaff, 2011), which would lower the issues' offer price regardless of the municipality's racial demographics. More generally, the statistical channel predicts that higher borrowing costs occur as an unintended consequence of market structure. Therefore, given the many portfolio choices that municipal bond investors make regarding credit and liquidity risk, maturity, the issuer's long-term rating, and so forth, we postulate our third hypothesis:

> *Hypothesis 3*: *The increased borrowing costs are concentrated in bonds that would, ex ante, have lower offer prices to accommodate investors' portfolio preferences, rather than to absorb the compound effects of racial bias.*

The discriminatory channels are not mutually exclusive, as market participants can harbor racial bias and market structures can increase municipal borrowing costs in ways that correlate with racial

demographics. One possibility is that Blacker municipalities could have higher credit risk while also facing reduced investor demand for assets associated with Black people. In this example, both the taste-based and statistical discrimination channels would contribute to increased borrowing costs. With this potential for confounding effects in mind, we design our experiment with the intention of identifying the impact of one channel, such as taste-based discrimination as identified by measures of local racial resentment, while holding constant another that can indirectly be associated with racial demographics, such as credit risk or liquidity.

Although we highlight the potentially confounding effects of the discrimination channels, we emphasize that evidence concerning the impact of bond ratings presented by Bergstresser et al. (2013), among others, does not suggest that the proportion of Black residents in a community is a noisy signal of credit risk. The authors observe that racially diverse municipalities tend to issue bonds that are higher rated, which suggests that the increased borrowing costs are not driven by credit risk. Similarly, Dougal et al. (2019) find that even AAA-rated HBCUs pay higher borrowing costs, which also demonstrates that the higher costs are somewhat unrelated to credit risk. To our knowledge, the only paper to explicitly examine bond ratings and the proportion of Black residents within counties focuses on Virginia and finds that the bonds issued by Blacker counties do not have lower ratings (Badu et al., 1996). This finding further illustrates that credit risk, at least as identified by bond ratings, is relatively orthogonal to a county's racial makeup.

In the next section, we conclude our theoretical framework with a discussion of how market segmentation may contribute to the persistence of the pricing penalty associated with Black residents.

2.4. Why the Black Tax is not arbitraged away: market segmentation

The existence of a pricing penalty associated with Black residents would suggest that mispricing within the municipal bond market is persistent. Economic theory predicts that competition between investors can help to reduce mispricing. In theory, short sales could help to correct mispricing, as has been shown in other capital markets, such as equities and corporate bonds. In practice, however, tax incentives make short selling essentially nonexistent within the municipal bond market, as the tax advantage is only realized for holding rather than lending bonds. Moreover, short sellers would be unwilling to borrow tax-free municipal bonds at the higher prices demanded by brokers.

In the absence of short selling, we would expect buy-side actions to correct mispricing; that is, investors would need to bid up the prices of underpriced municipal bond, which investors in more competitive investor pools may be incentivized to do. Babina et al. (2021) establish that state tax privilege, which provides investors with tax incentives to hold municipal bonds issued within their state of residence, leads municipal bond investors to be more home-biased than in equity or corporate debt markets. In other words, state tax privilege effectively segments municipal bond markets into many local markets (Schultz, 2012). In particular, these markets can be categorized as those in states with tax privilege, in which the marginal investors are likely to be local, and those in states without such privilege, in which the investor pool is likely to be national. The authors show that in the states with tax privilege, marginal investors' preferences exert significant influence on prices. Within our setting, we would expect to observe smaller pricing penalties in states without tax privilege, as the investor pool should be more competitive. Consistent with this mechanism, Dougal et al. (2019) observe that the bonds issued by HBCUs located in states without tax privilege do not have a pricing penalty. Thus, the tax privilege studies motivate our final hypothesis:

Hypothesis 4: *The increased borrowing costs are concentrated in states with tax privilege and less pronounced in states without tax privilege.*

Having established our theoretical predictions, we next turn to our empirical framework. In what follows, we discuss the data and methodology we use to test our hypotheses.

3. Data and Empirical Methodology

3.1. Data

To study racial bias in the municipal bond market, we rely on several data sources for county characteristics, measures of racial resentment, state tax privilege, political uncertainty, and municipal bond market dynamics. To capture the demographics of municipal bond issuers, our sample begins with U.S. census data. The U.S. Census Bureau began reporting granular race and ethnicity demographics for White, Black, Hispanic, Asian, and Native American residents of all U.S. counties, territories, and states in 1990. We match census county-level population demographics to county-level personal income and employment data from the Bureau of Economic Analysis for all U.S. counties, excluding the District of Columbia and the U.S. Territories. To align with census demographics data, we screen for bonds issued from 1/1/1990 to 12/31/2019, which we detail below.

Following the approach adopted by Butler et al. (2009) and Dougal et al. (2019), our municipal bond sample consists of new issuance deals from the SDC Global Public Finance database. SDC reports the sale date, principal amount, maturity, coupon, beginning price (yield), gross spread, and provisions (e.g., callable) of new bond issues, as well as the issuer's CUSIP, name, ratings history, entity type, and location. SDC also provides a number of indicators that summarize offer features and issuer characteristics. We filter the SDC database for bonds issued directly by a county/parish (issuer type 11) or a city, town, or village (issuer type 12) with non-missing beginning price and non-missing gross spread data. We exclude bonds from state and agency/authority issuers that represent (service) multiple counties. We collect data on 133,732 offers. To focus on the least opaque bonds, which would most appeal to institutional investors, we restrict our analysis to rated deals and obtain a final sample of 66,503 municipal bonds. We link each bond to the primary issuer's county population demographics for the year prior to the bond's sale date.

Table 1 presents county-level demographics for the full sample, broken down by above- and below-median proportion of Black residents. Our main variable of interest is the Black population proportion (*BlackPop*), which is reported in percentages. One concern for our study is that counties with a higher percentage of Black residents may have characteristics that make them riskier and therefore more likely to have higher borrowing costs. This concern can be dismissed, however, as we find that Blacker counties are larger and have higher per capita income and employment than counties with a below-median proportion of Black residents. According to Butler et al. (2009), given these characteristics, the Blacker counties in our sample should have lower credit risk. We also observe that Blacker municipalities are in states with higher levels of racial resentment and racist tweets. This is consistent with Blalock's (1967) racial threat theory, which predicts higher levels of racial bias in areas with higher concentrations of racial minorities. Considering the link between the concentration of minorities and levels of racial bias, we use an instrument variable and time-series variation in racial resentment to disentangle the effects of racial bias. We adopt this approach because identifying the causal relation of racial bias on borrowing costs solely

based on the cross-section of racially biased views and proportions of Black residents would be challenging. We provide further details concerning the instrument and our time-series tests below.

To inform our discussion, it is instructive to examine the geographic distribution of our main variable of interest, $BlackPop_{i,t}$, namely the proportion of Black residents in county i in year t. Figure 1 presents the proportion of Black residents in mainland U.S. counties in 1980 and 2010, which are the official U.S. census counts prior to and at the end of our sample, respectively. The figure illustrates that the percentage of Black residents has grown considerably. Over the sample period, the mean proportion of Black residents in U.S. counties increased from 8.9% in 1990 to 10.5% in 2019; this 18.0% increase indicates that most counties have seen growth in their proportion of Black residents. As one may expect, the density of the Black population is high in the Southern former Confederate states. However, due to the Great Migration (1916–1970), in which Black residents left the South in search of greater opportunities, there are also higher concentrations of Black people in areas outside of the South, such as New England, California, Minnesota, and Washington. It follows that the sizeable growth in the Black population may also be closely related to contemporaneous changes in counties' economic and political conditions. Therefore, we use $BlackPop_{i,1980}$ (the number of county residents identified as Black by the 1980 U.S. census scaled by each county's total population in 1980) to disentangle the potentially confounding effects of racial bias and economic and political conditions.

Table 2 summarizes the terms and features of the municipal bonds in our sample. The size, maturity, yield, and spreads of the bonds in our sample are consistent with samples investigated in other studies that examine municipal bond issues (e.g., Butler et al., 2009; Painter, 2020). Consistent with the literature and our main hypothesis, counties with a higher proportion of Black residents have higher total annualized costs (2.74% vs. 2.56%), mostly due to higher yields (2.71% vs. 2.53%). However, we do identify some differences in other bond characteristics that may point to differences in risk, which would explain the higher costs. A notable difference between the two subsamples lies in the offer amount. Bonds issued by Blacker counties have a mean issue amount of $26 million versus nearly $15 million compared to less Black counties. Bonds issued by counties with a higher proportion of Black residents are also more likely to have multiple CUSIP deals (75.8% vs. 72.4%), which may reflect more coalition-building in an effort to achieve successful bond issues (Rugh and Trounstine, 2011). Although the vast majority of bonds in our sample are tax-exempt, bonds issued by Blacker counties are less likely to have a tax-exempt status. Nevertheless, the median bond is tax-exempt in both municipalities that fall above and those that fall below the median proportion of Black residents. Therefore, we control for offer amount, multiple CUSIPs, tax exemption, and other bond characteristics in our multivariate analysis.

Within our multivariate analysis, we quantify racial bias using two measures that vary by state: racial resentment and racial tweets. The racial resentment measure is adopted from the CCES (Ansolabehere, 2012) as reported in the appendix in Dougal et al. (2019). One criticism of survey measures of racial bias is that they may capture conservative ideology rather than racism (Schuman, 2000; Feldman and Huddy, 2005; Huddy and Feldman, 2009). Since conservatism values independence, survey questions concerning support for programs that assist Black people (such as another often-used CCES question concerning support for affirmative action) may measure conservative ideology rather than racial prejudice. To address this concern, we also use racist tweets concerning President Obama's election to a second term as

a means of measuring racial resentment (Zook, 2012). The tweet index directly captures racist behavior, does not rely on self-reported survey responses, and is independent of measures of conservative ideology.[3]

Following Colak et al. (2016) and Jens (2017), we retrieve our voting data from the C.Q. Press Voting and Elections Collection (2020). We collect the total votes for each political party by county for the 2008, 2012, and 2016 presidential elections. Since Alaska administers elections through voting districts instead of counties, we exclude Alaska from this section of the study. Several Virginia cities are not part of counties; therefore, these cities are not matched to our sample and are omitted. We also collect the dates of gubernatorial elections from 2010 to 2019 and the number of votes for the candidates from each political party. Following Gao et al. (2019), we consider the pre-election period to be July to October prior to a November election.

Variation in the tax advantages that states offer for holding municipal bonds may influence whether bonds are held by local or national investors. Accordingly, we use the state tax privilege measure from Dougal et al. (2019) and Babina et al. (2021) to proxy for differences in the geographic locations of investors. A greater degree of tax privilege means that more investors are likely to be local, suggesting a concentrated investor pool. Dougal et al. (2019) perform a similar test but exclude three high-animus states due to the lack of geographic variation in the sample of HCBUs, which are largely located in Southern states. Our nation-wide sample makes this step unnecessary, and we include all states in the tax privilege analysis.

3.2. Empirical Methodology

To test our main hypothesis, namely that Blacker municipalities pay higher borrowing costs due to racial bias, we estimate the following ordinary least squares (OLS) panel regression model with controls that are standard in the literature (see, for example, Butler et al., 2009; Dougal et al., 2019; Gao et al., 2019):

$$Total\ annualized\ issuance\ cost_{i,t} = \beta_1 \cdot BlackPop_{i,t-1} + \gamma_1 \cdot County\ Controls_{i,t-1} + \gamma_2 \cdot Bond\ Controls + \gamma_3 \cdot State \times Year \text{ Fixed Effects} + \varepsilon_{i,t}. \quad (1)$$

where, following Painter (2020), the dependent variable, namely the total annualized issuance cost (ATC) of municipality i in year t, is the sum of the beginning yield and annualized gross spread for bond issue i. $BlackPop_{i,t-1}$ is not normally distributed across municipalities in the sample; thus, to alleviate concerns that our estimates are driven by outliers, we use the natural log of $BlackPop_{i,t-1}$. While we confirm that the economic and statistical significance of our results is consistent with and without the log transformation, we report the log transformation throughout the study. We double-cluster standard errors by county and year to address the concern that residuals are serially correlated within a county or year and also correlate across counties within the same year (Bertrand, Duflo, and Mullainathan, 2004). We include state-year fixed effects to address time-invariant omitted characteristics across states and unobservable local trends that may be common to municipalities that engaged with the bond market in year t.

To account for time-varying issuer characteristics that can also influence municipal borrowing costs, we include the following county control variables (County Controls$_{i,t-1}$): the log of the county's total population and two proxies for county-level economic conditions, namely the log of the county's per

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3. We also find similar (unreported) results with other measures of racial animus used in the literature, such as Stephens-Davidowitz's (2014) racist Google searches, Dougal et al.'s (2019) composite animus index, and the results of CCES surveys concerning support for affirmative action.

capita income and the county's per capita employment. We also control for bond characteristics that can affect borrowing costs. The bond controls (Bond Controls) include the log of the issue amount as a proxy for liquidity; the log of the maturity; the issuer's long-term credit rating; indicators of whether the offer is callable, sinkable, pre-refunded, competitively issued, funded by general obligation, federally tax-exempt, or insured; and an indicator of whether four or more CUSIPs are packaged in the same issue.

The main coefficient of interest in Equation (1) is β_1, the estimated coefficient on $BlackPop_{i,t-1}$. Since the baseline regressions include state-year fixed effects, β_1 can be interpreted as identifying whether Blacker municipalities pay different borrowing costs relative to the other cities and counties in state i that access the capital market in year t. A positive estimated coefficient on β_1 for ATC would indicate that a one-percentage point increase in the proportion of Black residents of a municipality would raise that municipality's borrowing costs by β_1 basis points, all else being equal; a negative β_1 would indicate that municipalities with higher percentages of Black residents have lower borrowing costs, all else being equal.

Before we evaluate the relation between municipal borrowing costs and $BlackPop_{i,t-1}$, we pay close attention to our sample of rated bonds. As investors have access to a bond's rating, we would not expect $BlackPop_{i,t-1}$ to convey creditworthiness. We ensure that our sample and controls are in line with the literature. We confirm that the terms that would be expected to influence borrowing costs behave as expected within our sample. For example, we find that ATCs are higher for bonds with longer maturities and difficult-to-evaluate provisions (e.g., sinking funds, callability). Thus, the relations that we examine between borrowing costs and $BlackPop_{i,t-1}$ are unlikely to be attributed to our sample construction.

Overall, the empirical framework tests whether racial bias increases the borrowing costs associated with a city or county's proportion of Black residents. In the next section, we show that Blacker municipalities pay higher borrowing costs, particularly in states and periods in which racial resentment is severe, as predicted by our theoretical framework.

4. Results

4.1. Do Blacker municipalities pay higher borrowing costs?

In this section, we estimate Equation 1 to assess whether municipalities with higher proportions of Black residents pay higher borrowing costs due to racial bias. Table 3 presents the estimated coefficients for the full sample of municipal offers. As discussed above, Hypothesis 1 predicts a positive sign on β_1, the estimated coefficient on $BlackPop_{i,t-1}$.

We find that the estimated coefficient on $BlackPop_{i,t-1}$ is positive and significant, indicating that cities and counties with higher percentages of Black residents pay significantly higher borrowing costs for bonds issued within the same state and year. The findings presented in Table 3 are consistent with Hypothesis 1, which states that racial bias raises municipal borrowing costs. As a baseline, Column 1 shows that when we include only $BlackPop_{i,t-1}$ and state-year fixed effects, a one-percentage point increase in the proportion of Black residents is associated with a 0.485 basis point (t = 3.46) increase in annualized borrowing costs. In Column 2, when we take the natural log, the results are larger in magnitude and indicate that a one-percentage point increase in the proportion of Black residents is associated with a

0.539 basis points[4] (t = 3.15) increase in annualized borrowing costs. Column 3 presents the model results with only independent variables used in the literature to control for credit risk. These results allow us to evaluate whether the sample is well behaved and establish a baseline with which to compare the addition of the $BlackPop_{i,t-1}$ variables.

Indeed, consistent with the literature, we find that the coefficients on credit risk variables reflect higher borrowing costs for bonds with features that make them difficult to value (callable, sinking fund, pre-refunded) and lower costs for characteristics that tend to reduce risk (general obligation, county size, county income). Column 4 of Table 3 shows that adding $BlackPop_{i,t-1}$ and control variables to the estimation has essentially no impact on the effects (0.444 basis points, t = 3.55, the economic estimate that we provided in the introduction). The typical bond in the sample has a median maturity of approximately 15 years and a median offer amount of $7 million. Thus, relative to the median offer, the Black Tax translates to an additional $4,620 over the bond's maturity for a one-percentage point increase in a municipality's proportion of Black residents, as compared to those that issue in the same state and year. While the economic magnitude might seem small, when we aggregate these costs they are large. Specifically, we do the following: we multiply the pricing penalty by each issues' offer amount, maturity, and the percentage of the municipalities' Black residents at the time of issuance. For the $77 billion raised in the year 2019, we find that the Black Tax sums to $110 million.

To redress concerns that the increased borrowing costs may be due to nonlinearities in the $BlackPop_{i,t-1}$, we repeat our tests with the natural log of $BlackPop_{i,t-1}$ in Column 5. We find that Ln($BlackPop_{i,t-1}$) produces an even larger pricing penalty (0.514 basis points, t = 3.38). The findings with control variables are surprising, given the heterogeneity of municipal and bond characteristics shown in Tables 1 and 2. Columns 6 and 7 show the results from two-stage least-squares regressions. In these tests, the proportion of Black residents in 1980 is used as an instrumental variable to address endogeneity concerns about $BlackPop_{i,t-1}$, as the 1980 proportion of Black residents in a county is unlikely to be correlated with time-varying county characteristics. These results are remarkably similar to those presented in Columns 4 and 5, which eases endogeneity concerns about the $BlackPop_{i,t-1}$ variables.[5] The penalty associated with $BlackPop_{i,t-1}$ is consistent with racial bias raising municipal borrowing costs, which supports our main hypothesis. To the extent that the penalty is not diminished by the municipal and bond characteristics that we include in our estimations, these results are consistent with the existence of taste-based bias and support Hypothesis 2.

One concern is that because the municipal bond market is locally concentrated (Schultz, 2012), differences in municipal borrowing costs associated with $BlackPop_{i,t-1}$ may reflect regional differences. For example, since Black people are more heavily concentrated in certain geographic regions where wealth

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4. We calculate 0.539 basis points from the coefficient of Ln($BlackPop_{i,t-1}$)/100% based on the following: For a model $\gamma_i = \beta_0 + \beta_1 \cdot x_{1i} + \beta_2 \cdot \ln(x_{2i}) + \varepsilon_t$, where γ_i and x_{1i} are continuous variables and $\ln(x_{2i})$ is the natural log of continuous variable x_{2i}, regression coefficients are interpreted as: $\frac{\partial \gamma_i}{\partial x_{1i}}$ = a one unit change in x_1 generates a β_1 unit change in γ_i and $\frac{\partial \gamma_i}{\partial \ln(x_{2i})}$ = a 100% change in x_2 generates a β_1 change in γ_i.

5. Note that the adjusted R-squared cannot be accurately compared between the OLS and 2SLS models.

tends to be relatively low and racial resentment high (such as the southern U.S.[6,7]), the penalty could just as easily be driven by regional differences in wealth or racial resentment. Similarly, another concern is that the effect might be concentrated in only a few years of the sample.

We address both concerns directly by re-estimating Column 4 of Table 3 on subsamples from each U.S. census region and year. Figures 2 and 3 plot the estimated coefficients on *BlackPopi,t-1* for each region and year, respectively. We find that across geographic regions and periods, municipalities with higher proportions of Black residents pay significantly higher borrowing costs. Figure 2 shows that the only region in which the penalty is not significant is the Northeast, while Figure 3 shows that the effect is also stable through time.

Our findings provide further evidence that racial bias increases the municipal borrowing costs associated with Black residents. Next, we examine the connection between the penalty associated with $BlackPop_{i,t-1}$ and racial bias.

4.2. Racial bias

In this section, we test Hypothesis 2, namely that the Black Tax is concentrated in states where racial bias is severe. The hypothesis predicts that the pricing differences associated with $BlackPop_{i,t-1}$ is greater in states where racial resentment is higher and smaller in states where racial resentment is lower. Accordingly, in Table 4, we separate our sample into terciles of two state-level measures of racial bias: racial resentment from the CCES in Panel A and racist tweets following Obama's 2012 election in Panel B (Zook, 2012; Dougal et al., 2019). The results of these tests are notable: The findings from both the OLS and two-stage least squares (2SLS) estimations are consistent with taste-based discrimination. The results presented in Columns 1 and 2 of Panel A show that, in states with high levels of racial resentment, the penalty associated with $Ln(BlackPop_{i,t-1})$ is 50% larger in economic and statistical magnitude than in states with low levels of racial resentment (0.489 basis points, t = 2.66 vs. 0.326 basis points, t = 0.92), indicating that the effect is concentrated in states with higher racial resentment. This finding is supported by the 2SLS regressions in Columns 3 and 4 of Panel A, which show that the penalty associated with $BlackPop_{i,t-1}$ is nearly unchanged for states with high racial resentment (0.438 basis points, t = 3.24). Moreover, in Panel B, we find that the splits on racist tweets produce parallel results among the high and low racial resentment states (0.617 basis points, t = 3.39 vs. 0.304 basis points, t = 0.96). Overall, the findings presented in Table 4 support Hypothesis 2 and are consistent with taste-based discrimination: Racial bias increases municipal borrowing costs, particularly among municipalities located in states with higher racial resentment. The findings suggest that the Black Tax is at least in part due to taste-based bias.

Taken together, the results presented thus far show that cities and counties with higher proportions of Black residents incur higher borrowing costs than other municipalities located in their respective states that issue in the same year. Moreover, this effect is pervasive across geographic regions and predictably found in states with higher racial resentment. The findings are all consistent with racial bias raising the municipal borrowing costs and support Hypotheses 1 and 2. We next examine whether the higher borrowing costs are concentrated in offers that would be priced lower ex ante.

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6. According to the 2010 U.S. census, 55% of all people who identified as Black lived in the South. https://www.census.gov/newsroom/releases/archives/2010_census/cb11-cn185.html

7. According to the U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements (CPS ASEC). https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar20.pdf.

4.3. Across bond characteristics

The taste-based and statistical discrimination channels are not mutually exclusive. Even if market participants harbor racial bias that increases municipal borrowing costs, market structures may also separately increase borrowing costs in ways that are correlated with racial demographics. With this in mind, our next experiments aim to identify the impact of other market factors, such as liquidity, while holding constant the taste-based channel as measured by racial resentment. Specifically, we test Hypothesis 3 by utilizing cross-sectional variation in offer size and maturity and whether the issuer has a long-term rating to identify bonds that investors may screen in different ways.

Table 5 presents the regression results for these tests. As before, all regressions follow the specification presented in Column 4 of Table 3. Sorting by offer size for each state-year in Panel A reveals that the pricing penalty associated with $BlackPop_{i,t-1}$ is more severe for offers that are larger rather than smaller (0.633 basis points, t = 3.81 vs. 0.249 basis points, t = 1.58). This finding is consistent with investors facing a liquidity trade-off. Panel B shows that sorting bonds by below and above the median maturity in the sample (15 years) produces estimates that have roughly the same economic magnitude (0.466 basis points, t = 3.40 vs. 45.1, t = 1.89), suggesting that the effect we document is not associated with maturity. We find no penalty associated with $BlackPop_{i,t-1}$ for offers from municipalities with a long-term rating (0.055 basis points, t = 0.22 vs. 0.615 basis points, t = 3.84) in Panel C, which suggests that individual bond ratings do not provide sufficient information to mitigate the effects of racial bias. Finally, the last four columns show double sorts on the deal characteristics and racial resentment. These results suggest that the increased borrowing costs associated with being illiquid and not having a long-term rating are concentrated in states with high racial resentment, which supports Hypothesis 3. Furthermore, the liquidity results provide support for the statistical racial discrimination channel, while the splits by resentment suggest that investors place lower value on offers from Blacker municipalities regardless of offer size and maturity but do not penalize offers from Blacker municipalities with long-term ratings. To determine why such a phenomenon would endure within the municipal bond market, we employ several cross-sectional and time- series identification strategies, which we detail below.

4.4. Why mispricing persists: State tax privilege

We obtain state tax privilege data from Dougal et al. (2019) and follow an approach similar to theirs in identifying municipal bond markets where the investor pool is more likely to be local. Hypothesis 4 states that should competition among investors help to reduce mispricing, municipalities located in states with high tax privilege should have higher penalties associated with Black residents relative to those in states with low privilege.

Table 6 presents the regression results. We estimate our full model with the controls from Column 4 of Table 3 and split our sample into terciles by state tax privilege. We find that the penalty associated with $BlackPop_{i,t-1}$ is stronger in states with higher tax privilege (0.582 basis point, t = 3.16 vs. 0.453, t = 1.90), which supports Hypothesis 4 and suggests that market segmentation propagates mispricing associated with $BlackPop_{i,t-1}$. Note that this result is in contrast to Dougal et al. (2019), who find a pricing penalty only in states with high state tax privilege. We suspect that the difference in our findings stem from our sample having more variation in tax privilege, as we consider cities and counties that span the entire U.S., as opposed to HBCUs, which are predominately located in the South.

One concern is that higher municipal borrowing costs would also be consistent with local investors demanding higher returns as compensation for reduced diversification. We address this concern directly

with a double sort on racial resentment and state tax privilege. This approach allows us to evaluate how both factors influence the differences in municipal borrowing costs that are associated with $BlackPop_{i,t-1}$. The double sorts reveal that Blacker municipalities located in states with higher racial resentment pay higher borrowing costs regardless of tax privilege, indicating that the penalty associated with $BlackPop_{i,t-1}$ is not entirely compensation for reduced diversification. Among the states with high racial resentment, the estimated coefficient on $BlackPop_{i,t-1}$ is considerably larger in states with high tax privilege (0.692 basis points, t = 2.56 vs. 0.365 basis points, t = 1.72), which suggests that market segmentation somewhat contributes to the effect. In other words, in states where the investor pool is expected to be less competitive, we find that the Black Tax is more severe.

Collectively, our results are consistent with racial bias increasing municipal borrowing costs. The persistence of the pricing penalty associated with $BlackPop_{i,t-1}$ in markets that are segmented suggests that marginal investors' preferences and, perhaps, racial biases can significantly influence asset prices in the municipal bond market. We next use time-series tests to examine whether periods of heightened racial resentment amplify the penalty associated with $BlackPop_{i,t-1}$.

4.4.1. Effects of heightened racial resentment

We have thus far shown that Blacker municipalities pay higher borrowing costs relative to other municipalities that issue within the same state and year and that this effect is persistent across time and pervasive across regions. We have also established that the Black Tax is more pronounced in states with higher levels of racial resentment and state tax privilege.

Our next time-series test relates the higher borrowing costs incurred by Blacker municipalities to aggregate changes in racial resentment. We draw on recent survey evidence that shows that the presidential elections of Obama and Trump coincided with substantial changes in racial resentment. A Gallup survey found that "racial resentment for the U.S. population as a whole diminished during the Obama years compared with the time before he took office" (Bird and Newport, 2017). In addition, Pew Research Center voter surveys found that in November 2008, 9% of respondents stated that the election of Obama would lead to worse race relations and that in November, 2016, 46% said that the election of Trump would lead to worse race relations (Pew Research Center, 2017). These survey results suggest that racial resentment fell during the election cycles of Obama in 2008 and 2012 and rose during the election cycle of Trump in 2016.

Table 7 presents the results of our time-series regressions. We create an indicator variable to identify the months preceding the elections of Obama in 2008 and 2012 and Trump in 2016. Hypothesis 2 predicts that the interaction terms of $BlackPop_{i,t-1}$ and the presidential indicators will be negative in periods in which racial resentment declines and positive in racial resentment intensifies. Consistent with the hypothesis, we find that the estimated coefficients on the Obama interaction terms in 2008 and 2012 are both negative (−0.606 basis points, t-stat = −3.74 and −0.392 basis points, t-stat = −2.04, respectively). We also find that the estimated coefficient on the Trump interaction term is positive (0.291 basis points, t = 2.26). The findings demonstrate that the pricing penalty associated with $BlackPop_{i,t-1}$ changes with periods that have been categorized as having differing levels of racial resentment.

In Panel B of Table 7, we use the periods to further evaluate whether the changes in the Black Tax stem from issuances in states with higher or low racial resentment. We find strong evidence that the reduced penalties during the Obama elections were concentrated in states with high racial resentment and that the increased penalties during the Trump elections were largely concentrated in states with low racial

resentment. The findings further validate the conjecture that changing levels of racial resentment can affect racial bias in the municipal bond market. Consistent with taste-based discrimination hindering capital market efficiency, particularly for communities with higher proportions of Black residents, our findings demonstrate that time-series changes in racial resentment significantly increase borrowing costs. One limitation of these time-series tests is that we have a limited number of polarizing presidential elections, which can make it difficult to separate the effects of racial bias and political party affiliations. We address this concern directly by considering gubernatorial elections, an approach that, as we explain below, allows us to observe effects across the elections of both Republican and Democrat governors.

4.4.2. Effects of political uncertainty

We next examine whether political uncertainty preceding gubernatorial elections has an amplifying or mitigating effect on the Black Tax. The frequency and distribution of the elections allow us to observe changes in local political uncertainty and affiliation. This analysis allows us to determine whether our finding that the Black Tax worsens during heightened racial resentment is actually due to racial resentment or political affiliation. For instance, if the results are tied to the political views of Republicans rather than racial bias, we would not expect to see higher costs for elections when a Democrat is the winner. Based on Kelly et al.'s (2016) theory of political uncertainty, Gao et al. (2019) find that municipal bonds have significantly higher yields prior to gubernatorial elections. The authors attribute this increase in yields to increased political risk surrounding elections.[8] Hypothesis 2 predicts that the Black Tax will increase during gubernatorial elections if political uncertainty heightens racial resentment, as shown in Luttmer (2001) and Sears and Citrin (1982). Alternatively, since the literature indicates that yields increase prior to elections, the increase due to Black residents may be reduced.

The results presented in Table 8 further illustrate the persistence of the Black Tax. During times of increased political uncertainty surrounding gubernatorial elections, the coefficient on $BlackPop_{i,t-1}$ remains positive and significant when both Democrat (Column 2, 0.853 basis points, t = 2.15) and Republican (Column 3, 0.739 basis points, t = 2.45) governors are elected. It is interesting to note that when a Republican governor is elected, borrowing costs for municipal bonds are reduced, as indicated by the negative and significant coefficients on the Republican governor elected indicator variable. However, the persistent significance of the coefficient on $BlackPop_{i,t-1}$ suggests that this reduction in borrowing costs is not conferred on cities and counties with high proportions of Black residents. As before, we split the sample into states with higher or low racial resentment to further investigate whether the Black Tax changes in response to local political uncertainty. The positive coefficient on the interaction term, *Dem. Gov. Elected* x $BlackPop_{i,t-1}$, in Column 5 is consistent with evidence of taste-based discrimination. The result further demonstrates that the Black Tax is not entirely associated with one political party.

The findings establish that even during a period of high political uncertainty in which yields are higher, racial bias can still increase municipal borrowing costs regardless of a state's political party affiliation.

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8. Other studies find fewer IPOs (Colak et al. 2016) and less firm investment (Jens 2017) before gubernatorial elections.

4.5. Robustness and other considerations

4.5.1. Management of distressed municipalities

Finally, we determine whether our results are influenced by differences in the way states approach the management of distressed municipalities. Gao et al. (2019) show that state policies determining access to bankruptcy affect borrowing costs for municipal bonds. States that have policies restricting access to Chapter 9 bankruptcy and that instead choose to proactively manage and support distressed municipalities have lower borrowing costs than those that allow blanket access to Chapter 9. Gao et al. (2019) argue that these lower borrowing costs reflect the increased creditor protections resulting from proactive management. If municipalities with a higher percentage of Black residents are concentrated in states that have free access to Chapter 9, our results could reflect differences in creditor protections rather than indicate the existence of racial bias.

We address this concern by splitting the sample using Gao et al.'s (2019) classifications of states into three categories of bankruptcy policy: Chapter 9 states, proactive states, and no policy states (states that do not fall into either of the other two categories). In the full sample, which is reported in Columns 1– 3 of Table 9, the coefficient on $BlackPop_{i,t-1}$ is significant for states with either no policy (0.58 basis points, t = 2.42) or free access to Chapter 9 (0.65 basis points, t = 2.97). That the coefficient is insignificant for proactive states (0.247 basis points, t = 1.05) suggests that their increased creditor protections and proactive management may reduce the effect of racial biases in the municipal bond market. To test this possibility, we further split the sample into states with high and low levels of racial resentment (Columns 4–6). Consistent with our previous results, we find significant coefficients on $BlackPop_{i,t-1}$ when racial resentment is high, but again only for no policy and Chapter 9 states. Altogether, the robustness tests support the hypothesis that racial bias increases municipal borrowing costs and provides strong evidence of the existence of the Black Tax.

4.5.2. Do other minorities face a race-based tax?

Next, we conduct several tests designed to respond to lingering questions concerning the robustness of our results. The first test addresses an obvious question: Is the Black Tax specific to counties that have a higher proportion of Black residents, or is the tax also associated with other minorities? Markert (2010) notes that as Hispanics move closer to becoming the national "majority minority," Blalock's (1967) racial threat hypothesis predicts an increase in anti-Hispanic bias. Following this logic, we test whether the effect we document also exists for the presence of Asian and Hispanic residents. In Table 10, we repeat our methodology using U.S. census demographics. Consistent with the predictions in the literature, we find some evidence that cities and counties with higher proportions of Hispanics pay higher borrowing costs. The findings illustrate the ability of racial bias to increase borrowing costs associated with a variety of communities. The results also provide insight into how racial bias can affect non-Black minority communities.

5. Conclusion

Using a simple measure, we find evidence of persistent racial bias in the municipal bond market. We showed that racial bias leads municipalities with a higher percentage of Black residents to incur significantly increased borrowing costs of 0.44 basis points in annual total cost within the same state and

year, even though these municipalities are larger and have higher levels of employment and per capita income than cities and counties with lower proportions of Black residents. After controlling for offer amount, maturity, long-term rating, and other bond features and controlling for the characteristics of a municipality, we find that Blacker areas pay higher total annualized costs for municipal bond issues.

The results of our empirical tests investigating the reasons for the existence of race-based differentials in borrowing costs are consistent with taste-based and statistical discrimination. The Black Tax is higher in areas with higher racial resentment and more racist tweets, a result indicative of the taste-based discrimination channel. The increased costs are concentrated in offers that are larger and lack a long-term rating, which supports a statistical discrimination channel. That these results occurred in a sample consisting of only rated municipal bonds makes them all the more striking. The information reflected in bond ratings does not appear to mitigate the effects of racial bias. Borrowing costs are also higher for Blacker municipalities in states with greater tax privilege, where bond investors are more likely to be local and therefore less likely to compete nationally. Additional tests using racially charged presidential elections and political uncertainty prior to gubernatorial elections demonstrate that this Black Tax varies with changes in racial biases over time and increases when racial biases are heightened. Combined, the results of these analyses and robustness tests demonstrate that limited competition can enable racial bias to significantly influence market prices. The findings of Adelino et al. (2017) show that the reductions in municipal borrowing lead to reduced employment and growth, suggesting that the economic consequences of the disparities in access may also be significant.

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APPENDIX A. VARIABLE DESCRIPTIONS

Panel I: County Demographics, Measures of Racial Resentment

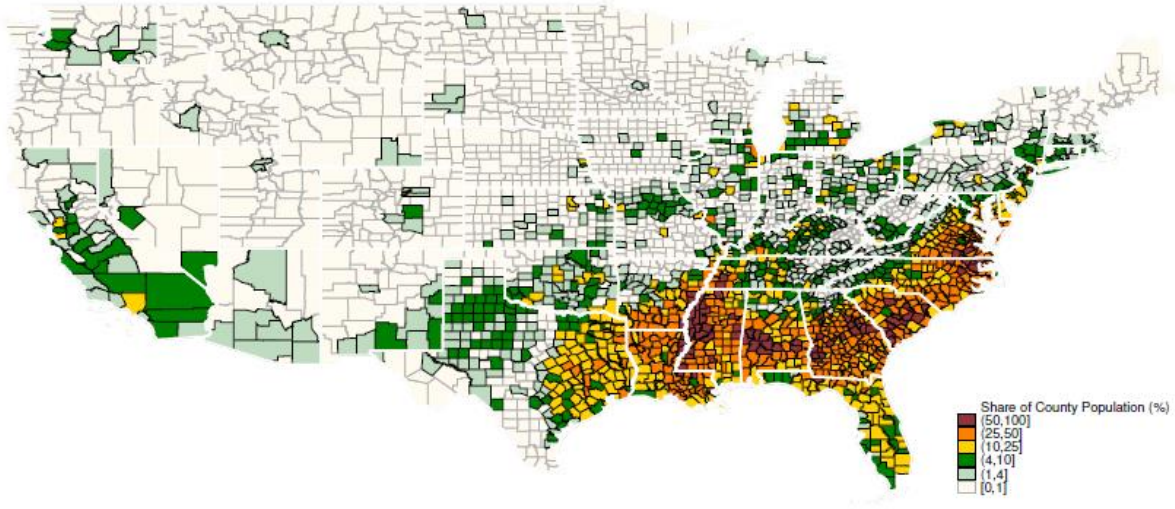
Black Pop.(%)	The lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population.
Ln(Black Pop.)	Natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population.
*Black Pop.*1980*(%)*	The number of male and female county residents identified as Black by the U.S. Census scaled by the county's total population, as of 1980.
Median Split	Median Black Pop (%) is the median proportion of Black residents in a county for each state-year. Black Pop (%) Below Median includes counties with a smaller proportion of Black residents than the state-year median county proportion. Black Pop (%) Above Median includes counties with a larger proportion of Black residents than the state-year median county proportion.
White Pop.(%)	Log of 1 minus the number of male and female county residents identified as Black, Hispanic, Asian, Native American, or Other by the U.S. Census scaled by the county's total population.
County Size	County level total population from the U.S. Census; log level is used in regressions.
Income/PC	County level total personal income from the Bureau of Economic Analysis scaled by the county's total population; log level is used in regressions.
Employment/PC	County level total employment (number of jobs) from the Bureau of Economic Analysis scaled by the county's total population.
Racial Resentment	State level index of racial resentment from the Cooperative Congressional Election Study (CCES; Ansolabehere 2012) as reported in the appendix of Dougal et al. (2019). We parse this continuous variable into terciles (i.e. Racial Resnt. Rank) to differentiate the states in our sample.
Racist Tweets	State level index of racist tweets about President Obama's 2012 election, from Zook (2012) as reported in the appendix of Dougal et al. (2019). We parse this continuous variable into terciles (i.e. Racist Tweets Rank) to differentiate the states in our sample.
State Tax Privilege	Indicator set to 1 for values greater than 5 in the index of local state tax incentives and breaks (privilege) from Babina et al. (2021), as reported in the appendix of Dougal et al. (2019). The indicator is set to 0 (i.e. No Tax Privilege) for index values less than 5.

Panel II: Municipal Bond Characteristics

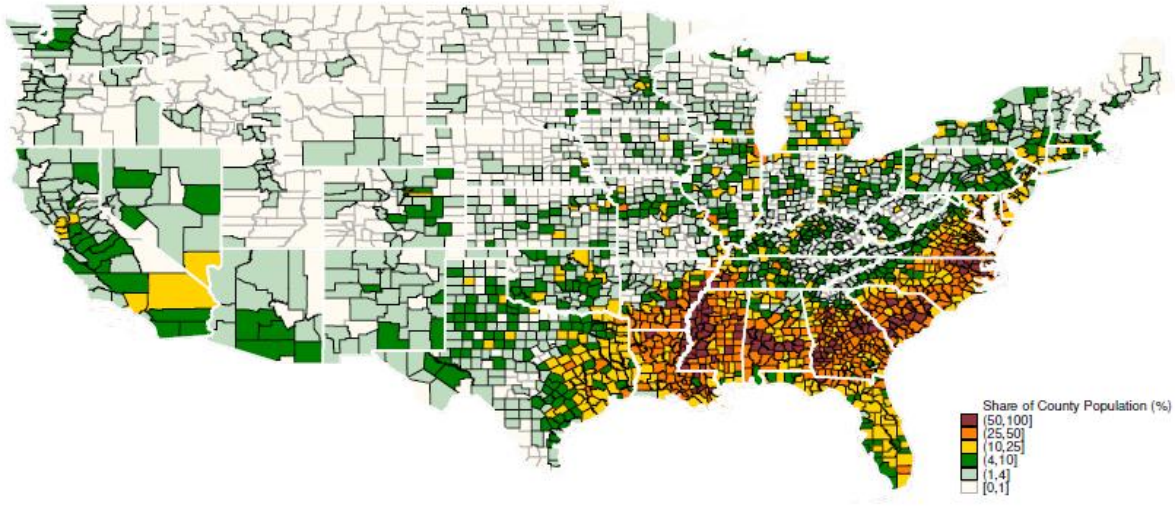
Ann. Total Cost (%)	Sum of a bond offer's yield and annualized gross spread.
Yield (%)	Yearly yield (cost) of the offer at issuance. The SDC Global Public Finance database reports beginning yields and prices, when prices are provided. We calculate yield by dividing the offer's coupon rate by the price.
Spread (%)	Annualized gross spread, the yearly cost of the total fees paid to an underwriter(s) for facilitating the initial sale of the bond offer. We calculate annualized gross spread by taking the geometric average of the one-time gross spread fees scaled by the offer maturity.
Maturity	Log of maximum years to maturity from issuance; log level is used in regressions.
Offer Amount	Total issue amount (M); log level is used in regressions.
Long-term Rating	Continuous variable generated by converting the rating scales from Standard & Poor's, Moody's, and Fitch. A value of 1 is assigned to issuers with the highest ratings (i.e., AAA, Aaa), a value of 2 is assigned to the next highest rating (i.e., AA+,Aa1), and so forth. A value of 17 is assigned to issuers with no long-term rating.
Long-term Rating (NM)	Continuous variable equal to Long-term Rating for all non-missing observations (i.e. Long-term Rating=17).
Long-term Rating (Y/N)	Indicator variable set to 1 if the issuer has a Long-term Rating, and 0 otherwise.
Callable	Indicator set to 1 if the bond has a call provision (i.e., the issuer has reserved the right to redeem the bond), and 0 otherwise.
Sinking Fund	Indicator set to 1 if the issuer has set aside funds specifically to manage the bond's debt service, and 0 otherwise.
Pre-refunded	Indicator set to 1 if the bond's proceeds will be used to repay ("refund") another outstanding issue, and 0 otherwise.
Competitive	Indicator set to 1 if an underwriter was chosen through a competitive bidding process, and 0 if the underwriting was negotiated or otherwise determined.
GO	Indicator set to 1 if the issuer will repay the bond using tax revenue, and 0 if the issuer will repay using other sources (e.g., revenue from non-tax ventures).
Tax Exempt	Indicator set to 1 if coupon payments to investors are exempt from federal income taxes, and 0 otherwise.
Insured	Indicator set to 1 if the issuer has insured the offer's coupon and principal payments with an investment grade bond insurer, guaranteeing payment, and 0 otherwise.
Multi-CUSIPs	Indicator set to 1 if four or more bonds with unique maturities (CUSIPs) are packaged within the same offer, and 0 otherwise.

APPENDIX B. FIGURES AND TABLES

Figure 1: Demographics of Black Residents Across U.S. Counties



(a) 1980



(b) 2010

Source: U.S. Census Bureau, County Population by Characteristics.

Figure 2: Decomposed Annualized Total Cost by U.S. Region

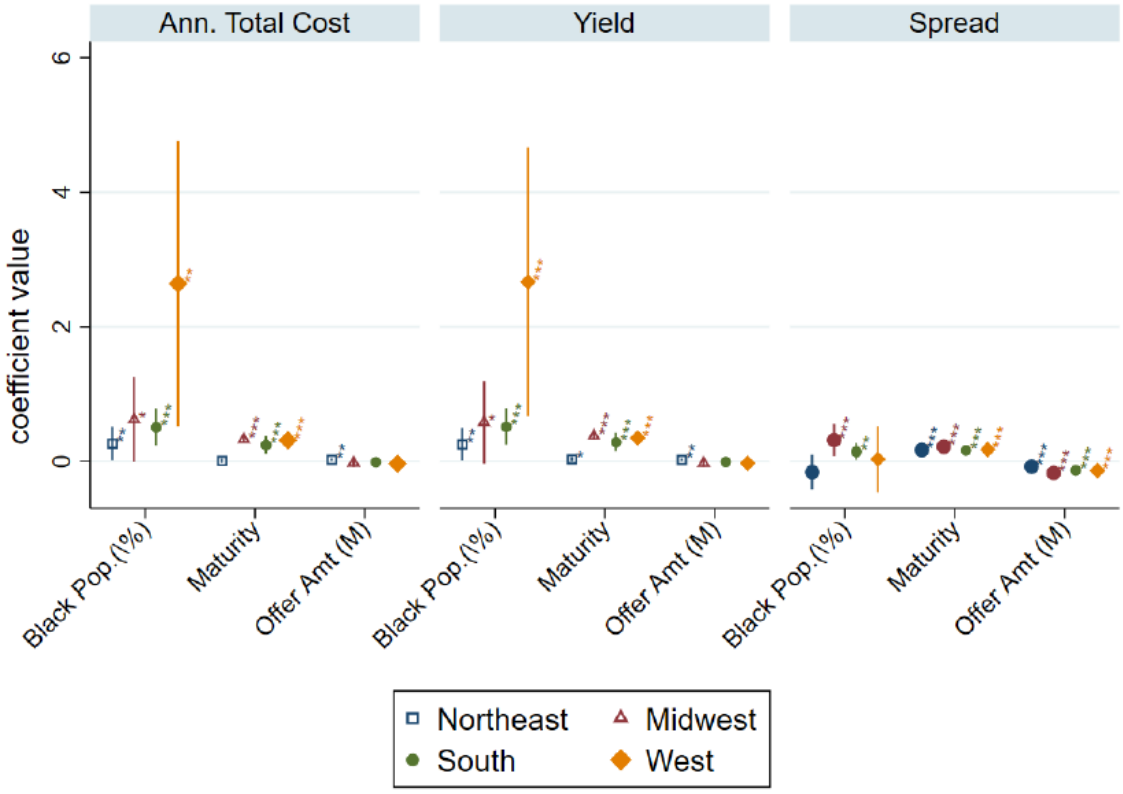


Figure 3: Time-Series Plot of Determinants of Yield and Spread

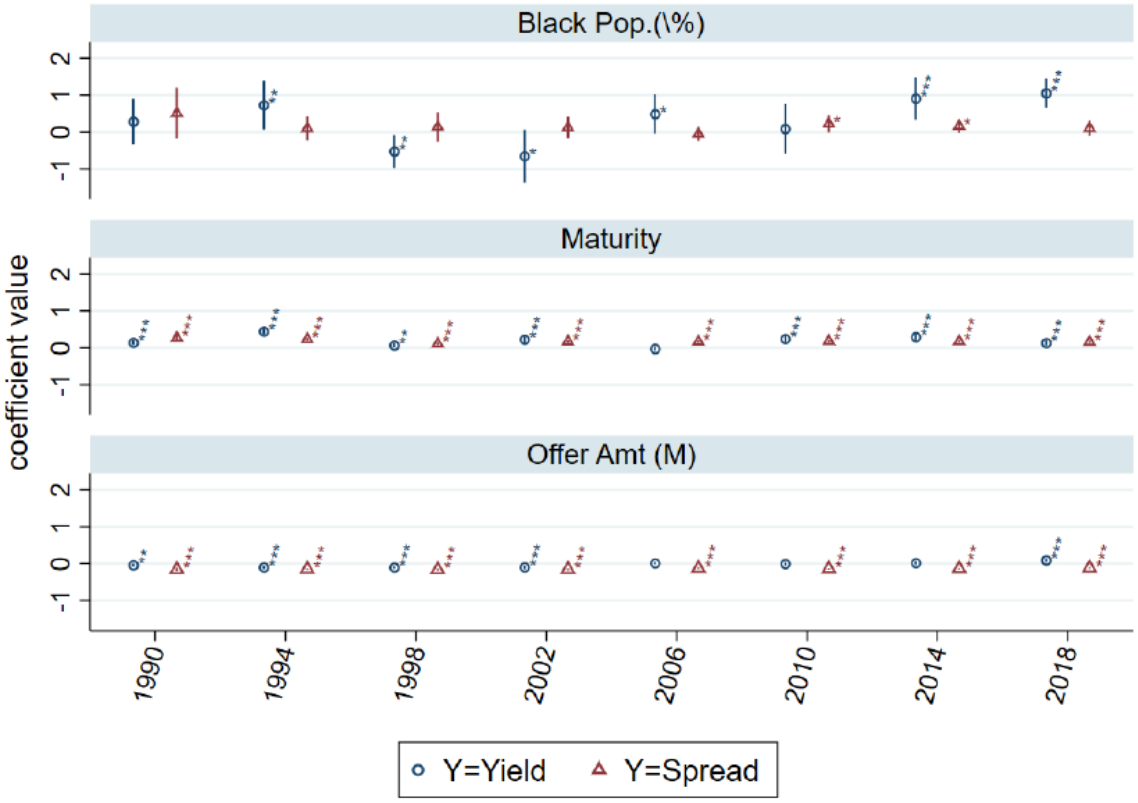


Table 1: Issuer's County-level Demographics

Table 1 reports summary statistics for the municipalities in our sample of rated direct offers, issued from 1990 to 2019. *Black Pop.(%)* is the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. *White Pop.(%)* is 1 minus the number of county residents identified as Black, Hispanic, Asian, Native American, or Other by the U.S. Census scaled by the county's total population. *County Size* is the county level total population from the U.S. Census; log level is used in regressions. *Income/PC (1K)* is county level total personal income from the Bureau of Economic Analysis (BEA) scaled by the county's total population; log level is used in regressions. *Employment/PC* is county level total employment (number of jobs) from the BEA scaled by the county's total population. *Racial Resentment* is a state level index of racial resentment from the Cooperative Congressional Election Study (CCES; Ansolabehere 2012), we parse this continuous variable into terciles in *Racial Resnt Rank*. *Racist Tweets* is a state level index of racist tweets about President Obama's 2012 election, from Zook (2012), we parse this continuous variable into terciles in *Racist Tweets Rank*. *State Tax Privilege* is an indicator set to 1 for values greater than 5 in the index of local state tax incentives and breaks (privilege) from Babina et al. (2021), the indicator is set to 0 (i.e. No Tax Privilege) for index values less than 5. Below Median Black Pop(%) includes counties with a smaller proportion of Black residents than the median proportion for all counties within the same state and year. Regressions include demographic levels and indicators from one year prior to the issuance date.

	Full Sample			Below Median			Above Median			Mean t-test
	mean	p50	sd	mean	p50	sd	mean	p50	sd	b
White Pop.(%)	72.813	77.071	19.125	79.994	84.940	18.978	70.957	74.234	18.720	9.037***
Black Pop.(%)	10.405	7.194	10.541	5.582	2.631	6.970	11.652	8.521	10.942	-6.069***
Black Pop.(%)1980	8.167	4.527	9.629	4.959	1.614	7.502	9.000	5.630	9.940	-4.040***
County Size (100k)	7.326	3.512	12.402	2.741	1.253	4.179	8.510	4.589	13.498	-5.769***
Income/PC(1K)	39.772	37.885	16.254	37.488	35.309	15.271	40.353	38.456	16.443	-2.865***
Employment/PC	0.611	0.599	0.158	0.544	0.532	0.130	0.627	0.613	0.160	-0.083***
Racial Resentment	28.278	30.000	14.081	25.834	28.000	15.633	28.910	31.000	13.580	-3.076***
Racial Resnt. Rank	2.114	2.000	0.836	1.979	2.000	0.858	2.149	2.000	0.827	-0.170***
Racist Tweets	25.793	23.500	11.965	24.314	23.500	12.367	26.176	23.500	11.828	-1.862***
Racist Tweets Rank	1.970	2.000	0.712	1.872	2.000	0.701	1.996	2.000	0.713	-0.124***
State Tax Privilege	0.598	1.000	0.490	0.681	1.000	0.466	0.577	1.000	0.494	0.104***
Obs.	66502			13659			52839			66498

Table 2: Municipal Bond Sample

Table 2 reports summary statistics for the bond offers in our sample, issued from 1990 to 2019. *Ann. Total Cost (%)* is the sum of a bond's yield and annualized gross spread. *Yield (%)* is the yearly yield (cost) of the offer at issuance. SDC's Global Public Finance database reports beginning yields and prices, when prices are provided. We calculate yield by dividing the offer's coupon rate by the price. *Spread (%)* is the annualized gross spread, the yearly cost of the total fees paid to an Underwriter(s) for facilitating the initial sale of the bond offer. We calculate annualized gross spread by taking the geometric average of the one-time gross spread fees scaled by the offers maturity. *Maturity* is the maximum years to maturity; log level is used in the regressions. *Offer Amount* is the issue amount (M); log level is used in the regressions. *Callable* is an indicator set to 1 if the bond has a call provision (i.e., the issuer has reserved the right to redeem the bond), and 0 otherwise. *Sinking Fund* is an indicator set to 1 if the issuer has set aside funds specifically to manage the bond's debt service, and 0 otherwise. *Pre-refunded* is an indicator set to 1 if the bonds proceeds will be used to repay ("refund") another outstanding issue, and 0 otherwise. *Competitive* is an indicator set to 1 if an underwriter was chosen through a competitive bidding process, and 0 if the underwriting was negotiated or otherwise determined. *GO* is an indicator set to 1 if the issuer will repay the bond using tax revenue and 0 if the issuer will repay using other sources (e.g., revenue from non-tax ventures), and 0 otherwise. *Tax Exempt* is an indicator set to 1 if coupon payments to investors are exempt from federal income taxes, and 0 otherwise. *Insured* is an indicator set to 1 if the issuer has insured the offer's coupon and principal payments with an investment grade bond insurer, guaranteeing payment, and 0 otherwise. *Long-term Rating* is a continuous variable generated by converting the rating scales from Standard & Poor's, Moody's, and Fitch. A value of 1 is assigned to issuers with the highest ratings (i.e., AAA, Aaa), a value of 2 is assigned to the next highest rating (i.e., AA+,Aa1), and so forth. A value of 17 is assigned to issuers with no long-term rating. *Long-term Rating (Y/N)* is an indicator variable set to 1 if the issuer has a Long-term Rating, and 0 otherwise. *Long-term Rating (NM)* is a continuous variable equal to Long-term Rating for all non-missing observations (i.e. Long-term Rating=17). *Multi-CUSIPs* is an indicator set to 1 if four or more bonds with unique maturities (CUSIPs) are packaged within the same offer, and 0 otherwise. Black Pop (%) Below Median includes counties with a smaller proportion of Black residents than the state-year median county proportion.

	Full Sample			Below Median Black Pop. (%)			Above Median Black Pop. (%)			Mean t-test Below-Above
	mean	p50	sd	mean	p50	sd	mean	p50	sd	b
Ann. Total Cost (%)	2.703	2.400	1.920	2.560	2.100	1.875	2.740	2.500	1.930	-0.180***
Yield (%)	2.675	2.400	1.913	2.533	2.061	1.869	2.712	2.481	1.922	-0.179***
Spread (%)	0.804	0.700	0.478	0.853	0.744	0.485	0.792	0.689	0.475	0.062***
Maturity	15.145	15.118	8.136	15.299	15.266	7.783	15.104	15.093	8.224	0.195*
Offer Amount (M)	23.742	6.956	66.575	14.709	6.025	26.635	26.074	7.180	73.266	-11.364***
Callable	0.733	1.000	0.442	0.723	1.000	0.448	0.736	1.000	0.441	-0.013**
Sinking Fund	0.261	0.000	0.439	0.266	0.000	0.442	0.260	0.000	0.439	0.006

Pre-refunded	0.649	1.000	0.477	0.639	1.000	0.480	0.652	1.000	0.476	-0.013**
Competitive	0.565	1.000	0.496	0.548	1.000	0.498	0.569	1.000	0.495	-0.021***
GO	0.751	1.000	0.433	0.760	1.000	0.427	0.748	1.000	0.434	0.012**
Tax Exempt	0.888	1.000	0.315	0.915	1.000	0.279	0.881	1.000	0.323	0.034***
Insured	0.169	0.000	0.375	0.196	0.000	0.397	0.162	0.000	0.369	0.034***
Long-term Rating	14.526	17.000	5.671	14.141	17.000	5.981	14.625	17.000	5.583	-0.484***
Long-term Rating (Y/N)	0.161	0.000	0.367	0.187	0.000	0.390	0.154	0.000	0.361	0.033***
Long-term Rating (NM)	1.606	1.000	1.096	1.712	1.000	1.137	1.573	1.000	1.080	0.139***
Multi-CUSIPs	0.724	1.000	0.447	0.591	1.000	0.492	0.758	1.000	0.428	-0.167***
Obs.	66502			13659			52839			66498

Table 3: Determinants of Municipal Borrowing Costs

Table 3 presents results for ordinary least squares regressions of Eq.(1) in columns 1 to 5. The variables of interest are *Black Pop.(%)*, defined as the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population, and its natural log *Ln(Black Pop.)*. The dependant variable is *Ann. Total Cost(%)*, the sum of a bond's yield and annualized gross spread. Columns 6 and 7 present two-stage least squares regressions for Eq.(1) using Black Pop.1980 (%) as a first-stage instrument for Black Pop.(%). Appendix A defines all other variables. All models include the full sample of rated direct municipal bond offers issued from 1990-2019 by U.S. cities and counties. All models include state-year fixed effects and double clustered standard errors by state and year. $*p < 0.1, ** p < 0.05, *** p < 0.01$

	OLS					2SLS IV: Black Pop.$_{1980}$(%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Black Pop.(%)	0.485***			0.444***		0.692***	0.588***
	(0.140)			(0.125)		(0.184)	(0.133)
Ln(Black Pop.)		0.539***			0.514***		
		(0.171)			(0.152)		
Maturity			0.179***	0.180***	0.180***		0.180***
			(0.036)	(0.036)	(0.036)		(0.036)
Offer Amt (M)			0.001	-0.001	-0.001		-0.000
			(0.017)	(0.017)	(0.017)		(0.018)
Long-term Rating			0.012***	0.012***	0.012***		0.012***
			(0.004)	(0.004)	(0.004)		(0.004)
Callable			0.058**	0.059**	0.059**		0.061**
			(0.025)	(0.024)	(0.024)		(0.025)
Sinking Fund			0.328***	0.328***	0.328***		0.329***
			(0.033)	(0.033)	(0.033)		(0.033)
Pre-refunded			0.107**	0.106**	0.106**		0.105**
			(0.050)	(0.050)	(0.050)		(0.050)
Competitive			-0.532***	-0.530***	-0.531***		-0.531***
			(0.046)	(0.046)	(0.046)		(0.046)
GO			-0.234***	-0.234***	-0.234***		-0.233***
			(0.033)	(0.033)	(0.033)		(0.032)
Tax Exempt			-1.482***	-1.480***	-1.480***		-1.480***
			(0.235)	(0.236)	(0.236)		(0.235)
Insured			0.032	0.030	0.030		0.032
			(0.054)	(0.053)	(0.053)		(0.052)
Multi CUSIPs			-0.008	-0.006	-0.006		-0.005
			(0.016)	(0.015)	(0.015)		(0.016)
Ln(County Size)			-0.022**	-0.037***	-0.037***		-0.042***
			(0.011)	(0.010)	(0.010)		(0.010)
Ln(Income/PC)			-0.154***	-0.112**	-0.113**		-0.101**
			(0.046)	(0.046)	(0.046)		(0.046)
Employment/PC			0.106	0.052	0.052		0.035
			(0.119)	(0.123)	(0.123)		(0.122)
Adjusted R^2	0.632	0.632	0.730	0.730	0.730	0.001	0.270
State × Year FE	✓	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓	✓
Observations	64201	64201	63257	63254	63254	64022	63075

Table 4: Borrowing Costs Across Levels of Racial Bias

Table 4 presents the regression results of Eq. (1) when the sample is split across two different state-level index measures of racial bias, Racial Resentment and Racist Tweets, shown in Panels A and B respectively. The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost(%)*, Appendix A defines all variables. Columns 1 and 2 present the ordinary least squares regressions of the log of *Black Pop.(%)*. Columns 3 and 4 present two-stage least squares regressions for Eq.(1) using Black Pop.1980(%) as a first-stage instrument for Black Pop.(%). All models include state-year fixed effects and double clustered standard errors by state and year. $*p < 0.1$,$**$ $p < 0.05$,$***$ $p < 0.01$

PANEL A: Racial Resentment	OLS		2SLS, IV: Black Pop.$_{1980}$(%)	
	(1) High	(2) Low	(3) High	(4) Low
Black Pop.(%)			0.438***	1.091
			(0.135)	(0.643)
Ln(Black Pop.)	0.489**	0.326		
	(0.184)	(0.356)		
Maturity	0.416***	0.098***	0.412***	0.098***
	(0.075)	(0.028)	(0.074)	(0.028)
Offer Amt (M)	-0.025	-0.035**	-0.021	-0.037**
	(0.021)	(0.015)	(0.021)	(0.015)
Long-term Rating	0.014**	0.013***	0.015**	0.013***
	(0.006)	(0.004)	(0.006)	(0.004)
Callable	-0.053	0.080**	-0.045	0.081**
	(0.038)	(0.030)	(0.036)	(0.030)
Pre-refunded	0.063	0.140***	0.061	0.140***
	(0.051)	(0.047)	(0.052)	(0.047)
Sinking Fund	0.249***	0.345***	0.253***	0.344***
	(0.037)	(0.039)	(0.037)	(0.039)
Competitive	-0.406***	-0.482***	-0.407***	-0.482***
	(0.060)	(0.049)	(0.060)	(0.049)
GO	-0.169***	-0.319***	-0.167***	-0.321***
	(0.035)	(0.038)	(0.034)	(0.038)
Tax Exempt	-1.640***	-1.441***	-1.647***	-1.436***
	(0.305)	(0.201)	(0.302)	(0.201)
Insured	0.051	0.008	0.056	0.010
	(0.080)	(0.039)	(0.077)	(0.039)
Multi CUSIPs	-0.020	0.031	-0.020	0.032
	(0.028)	(0.021)	(0.028)	(0.020)
Ln(County Size)	-0.006	-0.058***	-0.006	-0.078***
	(0.015)	(0.017)	(0.014)	(0.022)
Ln(Income/PC)	-0.193**	-0.061	-0.196**	-0.030
	(0.078)	(0.057)	(0.079)	(0.061)
Employment/PC	-0.266*	0.219	-0.275*	0.169
	(0.137)	(0.171)	(0.142)	(0.173)
R^2	0.720	0.785	0.274	0.286
Adjusted R^2	0.712	0.781	0.273	0.286
State × Year FE	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓
Observations	18958	26566	18780	26565

Table 4: Continued-Borrowing Costs Across Levels of Racial Bias

PANEL B: Racist Tweets	OLS		2SLS IV: Black Pop.$_{1980}$(%)	
	(1) High	(2) Low	(3) High	(4) Low
Black Pop.(%)			0.560***	0.382
			(0.132)	(0.294)
Ln(Black Pop.)	0.617***	0.304		
	(0.182)	(0.318)		
Maturity	0.176***	0.223***	0.169***	0.223***
	(0.059)	(0.048)	(0.057)	(0.048)
Offer Amt (M)	0.015	-0.040*	0.020	-0.040*
	(0.019)	(0.021)	(0.019)	(0.020)
Long-term Rating	0.009	0.014*	0.010*	0.014*
	(0.006)	(0.007)	(0.006)	(0.007)
Callable	0.000	0.089**	0.009	0.090**
	(0.032)	(0.039)	(0.029)	(0.038)
Pre-refunded	0.152**	0.095	0.151**	0.095
	(0.056)	(0.067)	(0.056)	(0.067)
Sinking Fund	0.244***	0.280***	0.247***	0.280***
	(0.028)	(0.060)	(0.028)	(0.060)
Competitive	-0.378***	-0.516***	-0.379***	-0.515***
	(0.052)	(0.061)	(0.052)	(0.060)
GO	-0.194***	-0.164***	-0.192***	-0.165***
	(0.039)	(0.045)	(0.038)	(0.044)
Tax Exempt	-1.685***	-1.501***	-1.695***	-1.500***
	(0.293)	(0.221)	(0.288)	(0.221)
Insured	0.016	-0.030	0.019	-0.028
	(0.068)	(0.101)	(0.067)	(0.103)
Multi cusips	-0.037	-0.037	-0.038	-0.036
	(0.025)	(0.033)	(0.025)	(0.033)
Ln(County Size)	-0.005	-0.043**	-0.005	-0.048***
	(0.012)	(0.016)	(0.011)	(0.017)
Ln(Income/PC)	-0.138**	-0.098	-0.142**	-0.076
	(0.057)	(0.102)	(0.055)	(0.101)
Employment/PC	-0.275**	0.304*	-0.285***	0.294*
	(0.100)	(0.152)	(0.101)	(0.151)
R^2	0.742	0.751	0.253	0.303
Adjusted R^2	0.734	0.744	0.252	0.302
State × Year FE	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓
Observations	17286	14609	17108	14608

Table 5: Issuance Costs Across Bond Terms

Table 5 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. Appendix A defines all other variables. Columns 1 and 2 include the full sample of rated direct municipal bond offers issued from 1990-2019, split across bond characteristics of size, maturity, and issuer's long-term rating. In Panel A, small (large) offers are less (greater) than the median offer amount of all issues from the same state and year. In Panel B, short (long) maturity is less (greater) than the median sample maturity of 15 years. In Panel C, bond offers are split by whether the issuer has a long-term rating from Standard & Poor's, Moody's, or Fitch. Columns 3 to 6 further split the sub-samples across the tercile ranks of the racial resentment measure, *Racial Resnt. Rank*. $*p < 0.1, ** p < 0.05, *** p < 0.01$

PANEL A: Offer Amount	Full Sample		Small Offers by Resentment		Large Offers by Resentment	
	(1) Small Offers	(2) Large Offers	(3) High	(4) Low	(5) High	(6) Low
Ln(Black Pop.)	0.249	0.633***	0.037	0.476	0.928***	0.182
	(0.156)	(0.166)	(0.201)	(0.379)	(0.245)	(0.390)
R^2	0.776	0.706	0.770	0.807	0.678	0.770
Adjusted R^2	0.766	0.694	0.759	0.801	0.662	0.762
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	31977	30657	9694	13297	9131	12941

PANEL B: Maturity	Full Sample		Short Maturity by Resentment		Long Maturity by Resentment	
	(1) Short	(2) Long	(3) High	(4) Low	(5) High	(6) Low
Ln(Black Pop.)	0.466***	0.451*	0.398***	0.206	0.441*	0.404
	(0.137)	(0.239)	(0.143)	(0.287)	(0.256)	(0.610)
R^2	0.798	0.709	0.775	0.839	0.712	0.751
Adjusted R^2	0.790	0.696	0.760	0.834	0.701	0.741
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	31452	31623	7107	14927	11770	11603

PANEL C: Long-term Rating	Full Sample		Has LT-Rating by Resentment		No LT-Rating by Resentment	
	(1) Has LT-Rating	(2) No LT-Rating	(3) High	(4) Low	(5) High	(6) Low
Ln(Black Pop.)	0.055	0.615***	-0.042	0.183	0.615***	0.342
	(0.252)	(0.160)	(0.267)	(0.526)	(0.190)	(0.351)
R^2	0.624	0.753	0.646	0.694	0.740	0.795
Adjusted R^2	0.601	0.747	0.628	0.672	0.731	0.791
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	10062	53035	4293	3014	14604	23506

Table 6: Issuance Costs Across State Tax Privilege

Table 6 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. Appendix A defines all other variables. Columns 1 and 2 include the full sample of rated direct municipal bond offers issued from 1990-2019, split across the indicator variable *State Tax Privilege*. *State Tax Privilege* is set to 1 for values greater than 5 in the index of local state tax incentives and breaks (privilege) from Babina et al. (2021), and set to 0 (i.e. No Tax Privilege) for index values less than 5. Columns 3 to 6 further split these sub-samples around our tercile ranks of the racial resentment measure. All models include state-year fixed effects and double clustered standard errors by state and year. $*p < 0.1, ** p < 0.05, *** p < 0.01$

	Full Sample		Privilege by Resentment		No Privilege by Resentment	
	(1) Privilege	(2) No Privilege	(3) High	(4) Low	(5) High	(6) Low
Ln(Black Pop.)	0.582***	0.453*	0.692**	0.541	0.365*	0.222
	(0.184)	(0.239)	(0.270)	(0.528)	(0.212)	(0.452)
R^2	0.750	0.717	0.699	0.797	0.730	0.760
Adjusted R^2	0.745	0.711	0.690	0.793	0.724	0.756
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	37401	25647	8515	19226	10279	7334

Table 7: Issuance Costs During Presidential Election Years

Table 7 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. We use the presidential election cycles of Obama in 2008 and 2012, and Trump in 2016 to categorize periods of diminished racial resentment and heightened racial resentment, respectively. We include indicator variables set to 1 during the months of July through October of the presidential election year, to denote bonds issued during the six months prior to the election, following Gao et al. (2019). Appendix A defines all other variables. Panel A includes the full sample of rated direct municipal bond offers issued from 1990 to 2019. Column 1 includes an indicator for all presidential election years that occur during the sample period. Column 2 includes an indicator that is restricted to the election years of 2008, 2012, and 2016. Columns 3 to 5 include individual indicators for the elections in 2008, 2012, and 2016, separately. Panel B splits the sample by our measure of racial resentment. Columns 1 and 2 include an indicator variable for the 2008 election, Columns 3 and 4 include an indicator for the 2012 election, and Columns 5 and 6 include an indicator for the 2016 election. $*p < 0.1$,** $p < 0.05$,*** $p < 0.01$

Panel A: 1992-2016	All Elections 1992 to 2016 (1)	Polarized Elects. 2008 to 2016 (2)	2008 (3)	2012 (4)	2016 (5)
Ln(Black Pop.)	0.522***	0.527***	0.522***	0.521***	0.510***
	(0.159)	(0.157)	(0.153)	(0.156)	(0.152)
Election Year=1 × Ln(Black Pop.)	-0.107				
	(0.197)				
Polarized Election=1 × Ln(Black Pop.)		-0.265			
		(0.268)			
2008 Election=1 × Ln(Black Pop.)			-0.606***		
			(0.162)		
2012 Election=1 × Ln(Black Pop.)				-0.392**	
				(0.143)	
2016 Election=1 × Ln(Black Pop.)					0.291**
					(0.129)
Election Year=1	-0.037				
	(0.067)				
Polarized Election=1		-0.010			
		(0.065)			
2008 Election=1			0.168***		
			(0.014)		
2012 Election=1				-0.079***	
				(0.016)	
2016 Election=1					-0.089***
					(0.010)
R^2	0.736	0.736	0.736	0.736	0.736
Adjusted R^2	0.730	0.730	0.730	0.730	0.730
Controls	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓
Observations	63222	63222	63222	63222	63222

Panel B: Polarized Elections	2008 by Resentment		2012 by Resentment		2016 by Resentment	
	(1) High	(2) Low	(3) High	(4) Low	(5) High	(6) Low
Ln(Black Pop.)	0.497**	0.320	0.511**	0.331	0.492**	0.314
	(0.184)	(0.355)	(0.191)	(0.360)	(0.185)	(0.351)
2008 Election=1 × Ln(Black Pop.)	-0.596***	0.749				
	(0.205)	(0.526)				
2012 Election=1 × Ln(Black Pop.)			-0.912***	-0.693		
			(0.223)	(0.579)		
2016 Election=1 × Ln(Black Pop.)					-0.026	0.508*
					(0.211)	(0.264)
2008 Election=1	0.192***	0.131***				
	(0.041)	(0.023)				
2012 Election=1			-0.009	-0.098***		
			(0.041)	(0.034)		
2016 Election=1					-0.038	-0.061***
					(0.024)	(0.021)
R^2	0.720	0.785	0.720	0.785	0.720	0.785
Adjusted R^2	0.712	0.781	0.712	0.781	0.712	0.781
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	18942	26560	18942	26560	18942	26560

Table 8: Gubernatorial Elections

Table 8 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the number of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. Following Gao et al. (2019), we define the gubernatorial election cycle from the start of July to the end of October, to coincide with most states ending the fiscal year in June and holding elections in November. In Columns 2-7 we limit the sample to gubernatorial elections in which either a Democrat or Republican was elected to office. Voting data are from the CQ Press Voting and Elections Collection (2020). Appendix A defines all other variables. Column 1 includes the full sample of rated direct municipal bond offers issued from 2010-2018. Columns 2 and 3 split the sample between elections with a Democrat and Republican governor winner. Columns 4 to 7 split the sample around our measure of racial resentment and the political party of the election winner. $*p < 0.1$,$** p < 0.05$,$*** p < 0.01$

	Gov. Elections 2010-2018			Dem. Gov. by Resentment		Rep. Gov. by Resentment	
	(1) All	(2) Dem. Gov.	(3) Rep. Gov.	(4) High	(5) Low	(6) High	(7) Low
Ln(Black Pop.)	0.832***	0.853*	0.739**	-0.304	1.013	1.038**	0.023
	(0.231)	(0.397)	(0.302)	(0.984)	(0.603)	(0.340)	(0.350)
Gub. Election Cycle=1 × Ln(Black Pop.)	-0.566	-0.402	-0.533	0.632	1.002*	-0.422	0.196
	(0.366)	(0.371)	(0.488)	(0.793)	(0.459)	(0.559)	(1.540)
Gub. Election Cycle=1	-0.081	-0.045	-0.150***	-0.385	-0.096	-0.149**	-0.155
	(0.052)	(0.080)	(0.040)	(0.221)	(0.084)	(0.058)	(0.151)
R^2	0.478	0.489	0.448	0.399	0.482	0.470	0.448
Adjusted R^2	0.469	0.481	0.439	0.382	0.474	0.459	0.438
Controls	✓	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓	✓
Observations	29910	14726	14180	1821	9708	7110	2375

Table 9: Issuance Costs Across Bankruptcy Protection

Table 9 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Black Pop. (%)*, defined as the log proportion of a county's population of Black residents. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. Appendix A defines all other variables. Columns 1 to 3 include the full sample of rated direct municipal bond offers issued from 1990-2019, split by Gao et al. (2019)'s categories of state bankruptcy policy: No Policy, Chapter 9 (unlimited access to Chapter 9 bankruptcy), and Proactive (limited access to Chapter 9). Columns 4-6 include the same splits by bankruptcy policy for high racial resentment states only. $*p < 0.1$,$** p < 0.05$,$*** p < 0.01$

	Full Sample			Bankruptcy Protactions by High Resentment		
	(1) No Policy	(2) Chapter 9	(3) Proactive	(4) No Policy	(5) Chapter 9	(6) Proactive
Ln(Black Pop.)	0.580**	0.650***	0.247	0.728***	0.410**	0.164
	(0.239)	(0.219)	(0.235)	(0.220)	(0.189)	(0.590)
R^2	0.752	0.730	0.717	0.686	0.769	0.643
Adjusted R^2	0.745	0.724	0.712	0.672	0.763	0.635
Controls	✓	✓	✓	✓	✓	✓
State × Year FE	✓	✓	✓	✓	✓	✓
Clustered County, Year	✓	✓	✓	✓	✓	✓
Observations	28316	20020	14886	4754	9078	5110

Table 10: Non-Black Minority Residents

Table 10 presents results for ordinary least squares regressions of Eq. (1). The variable of interest is *Ln(Black Pop.)*, defined as the natural log of the lagged proportion of county residents identified as Black by the U.S. Census scaled by the county's total population. The dependant variable is *Ann. Total Cost (%)*, the sum of a bond's yield and annualized gross spread. Appendix A defines all other variables. Columns 1 includes the full sample of rated direct municipal bond offers issued from 1990-2019. The sample is split across the terciles ranks of Racial Resentment in Columns 2 and 3. $*p < 0.1,** p < 0.05,*** p < 0.01$

	Full Sample	By Resentment	
	(1)	(2) High	(3) Low
Black Pop.(%)	0.474***	0.430**	0.154
	(0.130)	(0.163)	(0.317)
Hispanic Pop. (%)	0.188*	0.005	0.434*
	(0.097)	(0.096)	(0.249)
Asian & P. I. Pop. (%)	0.087	0.219	-0.118
	(0.317)	(0.686)	(0.447)
R^2	0.716	0.701	0.767
Adjusted R^2	0.710	0.693	0.763
Controls	✓	✓	✓
State × Year FE	✓	✓	✓
Clustered County, Year	✓	✓	✓
Mean stats:			
Asian & P.I. Pop. (%)	4.04	2.81	4.97
Hispanic Pop. (%)	11.37	15.31	10.4
Observations	62139	18651	26061

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