The Judicial Prohibition of Black Vote Dilution: Consequences for Political Representation and Public Good Provision in U.S. Municipalities*

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Abstract

This paper studies how electoral institutions shape the extent to which expanded voting rights translate into political representation and policy outcomes. We focus on the judicial prohibition of Black vote dilution under Section 2 of the Voting Rights Act, which led to court-mandated transitions from at-large to single-member district elections in U.S. cities. Exploiting the staggered timing of these reforms during 1970–1990, we use difference-in-differences methods to document large and persistent increases in Black representation in municipal councils. These gains translate into higher investment in fire protection and water utilities—public goods historically underprovided in Black neighborhoods. We find no evidence that these spending increases are driven by common-pool forces associated with district-based representation. Using U.S. Census data, we further document patterns consistent with improvements in basic infrastructure in Black neighborhoods, including an increase in the share of Black-occupied housing units with complete plumbing, as well as an increase in the Black population share and higher housing rents for Black households. Overall, the results suggest that court-mandated electoral reforms enabled a reallocation of public resources toward historically underserved communities, consistent with a mechanism in which increased minority representation shapes local policy.

Keywords: minority representation; public goods; racial inequality.
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"White put fire hydrants mainly in their neighborhood and few in the Black areas... and small water lines to Black hydrants made them useless." -Black town councilman, Gretna, Florida. (Button, 1989).

1 Introduction

Extending the franchise to previously excluded groups is often viewed as a key step toward political inclusion. Yet granting individuals the formal right to vote and removing barriers that discourage their electoral participation does not necessarily imply the ability to elect representatives of one's choice or shape policy outcomes. Representation and influence also depends on how electoral systems translate the votes cast into legislative seats. Electoral laws may dilute minority voting strength, notably when they interact with bloc voting by majorities and minorities to systematically prevent minority groups from electing most or all preferred candidates (Davidson and Grofman, 1994). In the United States today, (re)districting practices continue to influence how minority votes are converted into political representation.[1] Similar concerns arise in other countries.[2] Understanding how electoral institutions convert votes into political influence is thus central to assessing the real consequences of enfranchisement and the distribution of political power between majority and minority groups in democracies.

We study this question in the institutional context of the U.S. Voting Rights Act of 1965 (VRA), a landmark civil rights statute designed to eliminate racial discrimination in voting. The Act addressed multiple barriers to minority political inclusion. Sections 4 and 5 banned literacy tests and poll taxes and required jurisdictions with histories of discrimination to obtain federal preclearance before altering electoral rules. A growing literature shows that these provisions substantially increased Black political participation, office holding, and policy influence (Cascio and Washington (2014), Ang (2019) and Bernini et al. (2023, 2025)). Much less is known, however, about how Section 2 of the Act—which broadly prohibits voting practices that deny or abridge the right to vote on the basis of race—reshaped electoral institutions and, through those institutional changes, political representation and policy outcomes. This question is especially salient in the current institutional setting following the Supreme Court's decision in Shelby County v. Holder (2013),

[1] See Brennan Center for Justice (2022). This is not to suggest that disenfranchisement has been eliminated. Barriers such as voter identification requirements and polling-place closures continue to depress minority electoral participation (Hajnal et al., 2017; Leadership Conference Education Fund, 2019), although Cantoni and Pons (2021) find no effect of strict identification laws on voter registration or turnout.

[2] By way of illustration, electoral thresholds have been associated with constraints on Kurdish political representation in Turkey (Schenkkan, 2015). Constituency boundary design and electoral geography have shaped minority legislative representation in India (Jaffrelot, 2003). Districting practices have influenced the parliamentary representation of Indigenous populations in Canada (Courtney, 2001), parts of Latin America (Van Cott, 2005) and elsewhere (Handley, 2022).

which effectively suspended the federal preclearance regime and shifted greater responsibility for policing discriminatory electoral practices toward Section 2.

A central development in Section 2 jurisprudence was the growing use of federal litigation to challenge at-large electoral systems that diluted minority voting power. Under at-large systems, all voters select from a common pool of candidates and typically cast as many votes as there are seats to be filled (so-called "block voting"). When voting is racially polarized and White voters form a majority, this structure allows them to concentrate their votes on a slate of preferred candidates, systematically outvoting Black voters across all seats. As a result, Black citizens—though formally enfranchised—often remained unable to elect preferred candidates. Section 2 litigation thus targeted electoral arrangements that diluted minority votes by mandating district-based systems designed to ensure more effective representation.

Crucially, the Voting Rights Act did not explicitly prohibit at-large elections or any other specific electoral rule. Section 2 of the Act was drafted in general terms, banning voting practices that deny or abridge the right to vote on account of race, without specifying how such abridgment should be identified or remedied (Issacharoff, 1992; Gerken, 2001). As a result, the applicability of the VRA to vote dilution claims was initially uncertain. It was only through a sequence of court decisions, together with the 1982 amendment of Section 2 of the VRA, that a coherent jurisprudence emerged making it progressively easier to challenge and dismantle at-large elections (Issacharoff, 1992). Beginning in the early 1970s, courts shifted away from a narrow focus on individual access to the ballot toward a group-based understanding of vote dilution, recognizing that electoral rules could violate Section 2 by systematically preventing racial minorities from electing candidates of their choice, even in the absence of formal disenfranchisement (Davidson and Grofman, 1994). This evolution culminated in a results-based legal standard under which plaintiffs could rely on evidence of racially polarized voting and diminished minority electoral opportunity to establish a violation of the Act (U.S. Senate Judiciary Committee, 1982; Supreme Court of the United States, 1986). In practice, this jurisprudence led courts to mandate the replacement of at-large elections with single-member district systems designed to allow minority voters to elect their preferred representatives (Issacharoff, 1992; Davidson and Grofman, 1994).

These judicially mandated reforms create a quasi-experimental setting in which federal courts —through orders and consent decrees— impose institutional changes whose timing and location generate plausibly exogenous variation in electoral rules, unlikely to reflect contemporaneous political or demographic trends.[3] To exploit this variation, we assemble a new panel dataset covering up to 130 cities that combines information on electoral rules, political representation, and municipal finances. The data track changes in local electoral systems between 1970 and 1990—the period

[3] Trebbi et al. (2008) show that electoral rules can be endogenously chosen, as majority groups adjust institutional arrangements to preserve political control.

during which anti–vote dilution litigation under the Voting Rights Act was most active—allowing us to trace political and policy responses to electoral reform over time. We apply staggered difference-in-differences and event-study approaches to compare municipalities before and after court-mandated reforms relative to municipalities that did not alter their electoral systems, identifying the causal effects of electoral reform on Black representation in city councils and municipal public spending.

We document large and persistent gains in Black political representation: court-mandated transitions to single-member district elections increase the share of Black city council members by 20.1 percentage points, a sixfold rise relative to baseline. The increase in representation at the time of reform is consistent with a causal interpretation and difficult to reconcile with gradual demographic or political trends. These results complement existing evidence on the effects of the Voting Rights Act (VRA). Bernini et al. (2023) compare Section 5 covered and non-covered counties and show that the relationship between Black population share and Black officeholding strengthens after 1965, with gains concentrated in county governments, while estimated effects for municipalities and school districts—the levels of government most comparable to our setting—are small and statistically insignificant. They also provide suggestive evidence that county-level gains were larger where electoral rules were more favorable to minority representation, although their information on county electoral rules is observed only in 1957 and 1980. We complement their analysis by directly observing the year in which cities transitioned from at-large to single-member district elections between 1970 and 1989, which allows us to identify the causal effects of these reforms on municipal representation.

The reform also substantially reduces the Black representation gap: relative to the control group, the difference between the Black share of council seats and the Black share of the municipal population falls by 9 percentage points (a 34.6 percent decline from its pre-reform level), bringing council composition closer to proportional representation. Importantly, these representational gains do not appear to be undone by White countermobilization. Whereas prior work documents substantial White registration responses that offset Black participation gains (Bernini et al., 2025), the institutional shift to single-member districts mechanically concentrates minority voting strength, making the resulting increase in descriptive representation substantially robust to differential mobilization.

Taken together, these results establish that changes in electoral rules—driven by the judicial prohibition of Black vote dilution based on Section 2—were central to translating the Voting Rights Act into meaningful descriptive representation at the municipal level, by altering how votes are translated into seats. Importantly, the judicial prohibition of at-large electoral systems was not confined to cities. Section 2 litigation also reshaped electoral institutions in counties, school

districts, state legislatures, and congressional districts (Issacharoff, 1992).[4] The mechanisms we document—mechanical concentration of minority voting strength under single-member districts and the resulting expansion of representation—are therefore likely to operate beyond the municipal context.[5]

We then examine whether these representational gains translated into changes in municipal fiscal policy. A central concern in the literature is that increased minority representation may fail to generate substantive policy change due to political resistance or White backlash (Ang, 2019; Bernini et al., 2023). Contrary to this view, we find evidence of increases in public spending following the adoption of single-member districts. On average, fire protection expenditures rise by 5.3% and water utility spending by 10.3%. The dynamic pattern shows an increase in the years immediately following reform, followed by partial attenuation over time, consistent with concentrated capital investments rather than permanent expansions in operating budgets. These effects are particularly salient because fire protection and water infrastructure were among the services most visibly underprovided in Black neighborhoods in the decades prior to reform (Button, 1989). The results are therefore difficult to reconcile with theories of backlash that predict policy retrenchment or fiscal stasis in response to Black political empowerment. Instead, they indicate that newly elected Black representatives were able to reshape budgetary priorities in areas of longstanding infrastructural neglect.

While the presence of spending increases allows us to reject backlash-based explanations, it does not uniquely identify the underlying mechanism. One possibility is a mechanical common-pool effect of district-based representation: moving from at-large to district elections may increase aggregate spending through logrolling, as legislators internalize benefits to their own districts while externalizing tax costs (Weingast et al., 1981). An alternative explanation emphasizes political learning and coalition formation, whereby the election of Black representatives reduces opposition among White voters as governing performance becomes observable and allows Black council members to become pivotal actors in minimum winning coalitions (Baron and Ferejohn, 1989; Hajnal, 2006). We discriminate between these mechanisms by testing whether fiscal effects grow with the number of districts created. The evidence does not support the common-pool channel: spending increases do not rise monotonically with district count, nor do they scale with council size,

[4]Prominent examples include *Rogers v. Lodge*, 458 U.S. 613 (1982), involving a county commission; *Dillard v. Crenshaw County*, 748 F.2d 1037 (11th Cir. 1984), which triggered widespread reforms of county and local governing bodies; and contemporaneous litigation affecting school boards documented in United States Commission on Civil Rights (1981). For state legislatures, see *Thornburg v. Gingles*, 478 U.S. 30 (1986).

[5]We focus on city councils because municipal elections provide the most comprehensive and precisely dated record of court-mandated transitions from at-large to single-member district systems, thanks to the historical data compiled by Davidson and Grofman (1994). To our knowledge, no comparable dataset systematically documents the timing of such institutional changes across other levels of government, limiting the feasibility of a similarly structured panel analysis outside the municipal setting.

pointing instead toward a political mechanism rooted in representation and coalition formation.

Finally, we examine whether the increases in public spending induced by court-mandated electoral reforms are associated with improvements in neighborhood conditions and housing market outcomes. Using U.S. Census data and estimating long-run first differences between 1970 and 2000, we find substantial improvements in access to basic infrastructure for Black households: the share of Black-occupied housing units with complete plumbing facilities increases sharply following the adoption of single-member districts, while access among White households changes little. Consistent with improved neighborhood conditions, the Black population share rises in treated cities.[6] Housing market responses also reflect these changes. Rents increase for both Black and White households, with larger increases among Black renters, indicating that improvements in local public goods raised the quality of housing services and increased housing demand. Overall, the evidence suggests that the spending increases associated with electoral reform were concentrated in historically underserved Black neighborhoods. These patterns are consistent with a political mechanism in which Black representatives can extract policy concessions or become pivotal members of governing coalitions. At the same time, exposure to minority leadership may update beliefs among White voters and reduce opposition to Black political leadership, limiting the scope for backlash (Hajnal, 2006).

This paper makes three main contributions. First, we provide causal evidence that Section 2 of the Voting Rights Act increased Black political representation. Previous work has emphasized other channels through which the VRA expanded Black political influence, especially enfranchisement under Section 4 and federal oversight under Section 5 (e.g., Cascio and Washington, 2014; Bernini et al., 2023; Shah et al., 2013). We complement this evidence by focusing on a distinct institutional mechanism that has not previously been causally identified: the development of Section 2 anti–vote dilution jurisprudence, which led courts to replace at-large elections with single-member district systems. This channel is important because expanded access to the ballot did not, by itself, guarantee representation where at-large electoral rules allowed White majorities to dilute minority voting strength (Davidson and Grofman, 1994; Trebbi et al., 2008). Our results show that court-mandated transitions to single-member districts produced large gains in Black representation in city councils, highlighting the role of Section 2 litigation in translating political participation into effective municipal representation.

Second, we show that these representational gains translated into meaningful changes in municipal policy, particularly through increased spending on fire protection and water utilities—two services historically underprovided in Black neighborhoods—with suggestive evidence that these increases targeted Black communities, with no detectable costs for White residents. While existing

[6]Regressions using population levels indicate that the observed changes in population shares were driven by increases in the Black population that were larger than the corresponding increases in the White population.

work provides evidence of fiscal responses to the VRA at the county level (Bernini et al., 2023) or through intergovernmental transfers (Cascio and Washington, 2014), we are not aware of causal evidence linking Black political representation to changes in city budgets. Much of the prior literature emphasizes qualitative and historical accounts (Button, 1989) or highlights the potential for White backlash and policy retrenchment (Guinier, 1991; Swain, 1993; Ang, 2019; Bernini et al., 2025; see also Wittman, 2024). Our findings instead align with an informational and minimum-winning-coalition mechanism, whereby Black representatives influence policy through governing performance and coalition bargaining (Hajnal, 2006; Baron and Ferejohn, 1989). Together, these results show that institutional reforms eliminating vote dilution can produce not only symbolic inclusion but also durable improvements in local public goods, and suggest that the negative relationship between ethnic fragmentation and public spending documented in prior work (e.g., Alesina et al. (1999)) may partly reflect settings in which diverse groups are weakly represented.

Third, our findings speak directly to the continuing relevance of Section 2 of the Voting Rights Act in the contemporary institutional environment. In Shelby County v. Holder (2013), the Supreme Court invalidated the coverage formula underlying Section 5 preclearance, effectively suspending the federal oversight regime that had constrained changes to electoral rules in historically discriminatory jurisdictions. With jurisdictions once again able to alter electoral rules and district boundaries without prior federal approval, responsibility for policing vote dilution shifted decisively toward Section 2. Our analysis shows that Section 2 litigation has historically produced durable institutional change by dismantling at-large systems that diluted minority voting strength and by reshaping how votes are translated into seats. This historical evidence is especially relevant in light of more recent litigation applying Section 2 to modern forms of vote dilution and suppression. For example, in North Carolina NAACP v. McCrory (2016), a sweeping set of voting restrictions—including photo ID requirements and reductions in early voting—was struck down after the court found that the law targeted African American voters.[7] Similarly, in Allen v. Milligan (2023), the Supreme Court reaffirmed the continued vitality of the Section 2 results test in the context of congressional redistricting. Together, these cases illustrate that Section 2 remains central not merely for protecting formal access to the ballot, but for ensuring that electoral institutions—whether through district design or voting procedures—continue to translate minority political participation into effective representation and material policy influence.

The remainder of the paper is organized as follows. Section 2 reviews the historical and legal evolution of vote dilution jurisprudence. Section 3 describes the data and sample construction. Section 4 presents the theoretical framework and empirical predictions. Section 5 reports the main results, and Section 6 assesses robustness. Section 7 concludes.

[7] See Cantoni and Pons (2021) for an analysis of the effects of ID laws on voter registration and turnout.

2 Historical Context

Although the VRA initially targeted formal barriers to voter registration and ballot casting, it soon became clear that electoral institutions—most notably at-large elections—could systematically dilute minority voting strength even after enfranchisement. In many municipalities, especially in the South, racially polarized voting combined with at-large electoral rules to prevent Black voters from electing candidates of their choice. In this section, we trace how federal courts, interpreting Section 2 of the VRA, addressed this problem through a group-based conception of political equality. This historical account clarifies how changes in local electoral rules were largely imposed through judicial remedies rather than voluntarily adopted, providing the institutional foundation for the empirical strategy used in the remainder of the paper.

2.1 The VRA and the Problem of Vote Dilution: At-Large Elections

The VRA, passed in 1965, is a landmark piece of federal legislation that forbids racial discrimination in voting. The principal target of the Act was to dismantle restrictions on voter registration and on the actual casting of ballots, what is known in the literature as the "first generation" of voting rights challenges (Issacharoff, 1992). While Section 4 of the Voting Rights Act directly dismantled formal barriers to Black enfranchisement—most notably literacy tests and poll taxes—Section 2 provided a broader, nationwide prohibition on voting practices that denied the right of racial minorities to vote thus broadly reinforcing the voting rights guaranteed in the Fourteenth and Fifteenth Amendments.[8] As a result of this new legislation, Blacks began to register and vote in increasing numbers (Bernini et al., 2025).

However, the path to Black political equality was more complicated. There were more mechanisms, other than literacy tests and poll taxes, that made it impossible for racial minorities to be represented despite them being able to actually register and vote. In fact, it was the success of the first generation of voting rights challenges (Issacharoff, 1992) that revealed this second set of obstacles for Black representation.

The most important of these structural obstacles for minority political advancement was the use of at-large or multi-member electoral districts (Issacharoff, 1992) which, combined with polarized voting behavior across communities, precludes minorities from obtaining representation (Kousser, 1984; Davidson and Grofman, 1994).[9] The combination of both at-large elections and racial bloc

[8] The exact wording of VRA section 2 in 1965 was: *"No voting qualifications or prerequisite to voting, or standard, practice, or procedure shall be imposed or applied by any State or political subdivision to deny or abridge the right of any citizen of the United States to vote on account of race or color."*

[9] Voting behavior in the South of the US was polarized during the decades after the approval of the VRA, and in many cases is still polarized. Black people vote for Black candidates and White people vote for White candidates. For a historical account see Davidson and Grofman (1994).

voting is what was defined in a series of court cases as "vote dilution". For example, the landmark Supreme Court case *Thornburg v. Gingles (1986)* established that:

> *"the essence of racial vote dilution... is this: that primarily because of the interaction of... racial polarization... with a challenged [at-large] election mechanism, a racial minority with distinctive group interests that are capable of aid or amelioration by government is effectively denied the political power to further those interests that numbers alone would presumptively give it in a voting constituency not racially polarized..."*

To further comprehend how minority vote dilution operates, it is necessary to examine the defining features of at-large electoral rules whose origins go back to the first Reconstruction and post-Reconstruction era (Kousser, 1984). Under this system, all city council members are elected citywide, and voters may cast *as many votes as there are seats*. In contexts of racially polarized voting, this structure allows the White majority to cast all its votes across White candidates, enabling it to capture every seat on the council and effectively exclude minority candidates from representation. At-large electoral rules were designed to minimize the electoral threat posed by growing Black political participation while avoiding overt violations that would trigger federal intervention. Because at-large systems did not formally deny the franchise, they initially fell outside the reach of the Voting Rights Act's most visible enforcement mechanisms. Rather than restricting access to the ballot, at-large elections diluted minority voting strength by shaping how votes were translated into seats.[10]

2.2 Single-Member Districts and the Evolution of Vote Dilution Jurisprudence

The solution and alternative to at-large elections engineered by the courts was the enactment of single-member districts. In this electoral structure, the city is divided in different districts, each of them electing one representative by majority rule. Most importantly, the courts mandated that some districts had to be majority Black to ensure the election of minority candidates. Citizens can only cast one vote, and the candidate who receives the most votes in her district will win a seat on the council.

To clarify how single-member districts operate in practice, consider the example of Florence, Alabama, shown in Figure 1. Under at-large elections (Panel (a)), the entire city constitutes a single electoral constituency. In a context of racially polarized voting, this structure allows the

[10] See Amy (1993) for a more detailed explanation of both at-large elections and single-district elections.

White majority to cast votes citywide and potentially win all council seats, even if Black residents constitute a substantial minority of the population.

After at-large elections were banned, Florence was divided into six single-member districts (Panel (b)). The district boundaries were drawn such that one district concentrates most of the city's Black population—approximately 19.4 percent of residents. By geographically concentrating Black voters into a district where they form a majority or near-majority, the single-member district system enables them to elect a representative of their choice. While proportional representation is not mechanically guaranteed, the reform substantially increases the likelihood that the racial composition of the council more closely reflects the racial composition of the population.

However, the transition from at-large to single- member district elections was not linear. At the time the VRA was passed and in the early 1970s, it was not clear under which circumstances at-large elections were unconstitutional. In other words, there was uncertainty about what was exactly meant by vote dilution and how to look for it (Issacharoff, 1992; Gerken, 2001; Amar and Brownstein, 1998). It was through a series of landmark court cases and statutory law -the renewal of the VRA in 1982- that the courts came to an agreement about what was meant by vote dilution, easing the work of minority plaintiffs that wanted to outlaw at-large elections.

There were two key concepts that needed to be understood for the vote dilution jurisprudence to be established on solid grounds. The first one is the recognition that at-large elections abridge a newly recognized group-based right, that of ethnic and racial minorities to participate meaningfully in the political process (Issacharoff, 1992). The second one is racial bloc voting, or the operational mechanism that combined with at-large elections makes this type of electoral structure unconstitutional. In the discussion in the next paragraphs we will explain the most important court cases and changes in statutory law that over time defined these concepts.

The first time the Supreme Court confronted a vote dilution claim was in *Whitcomb v. Chavis (1971)*. In this case, the multimember state legislative districts of Indianapolis Black inner-city neighborhoods were challenged and the plaintiffs asked for single-member districts as the alternative that would enhance Black representation.

Yet, in this case, the Court did not outlaw at-large elections. The Court characterized the central inquiry of the court case as a group-based right (Issacharoff, 1992), whether: *"guetto residents had less opportunity [. . .] to participate in the political processes and to elect legislators of their choice"*. However, the answer took an individualistic approach to representation: *"We have discovered nothing in the record or in the court's findings indicating that poor Negroes were not allowed to register or vote"* and concluded: *"The mere fact that one interest group [...] concerned with the outcome of [...] elections has found itself outvoted and without legislative seats of its own provides no basis for invoking constitutional remedies where, as here, there is no indication that this segment of the population is being denied access to the political system."*

The decision taken by the Supreme Court in *Whitcomb v. Chavis (1971)* is paradigmatic of the difficulties plaintiffs had in establishing the meaning of vote dilution. While in the first generation of voting rights challenges there were clear objectives -to outlaw obstacles to registration and voting such as poll taxes, literacy tests, etc.-, there were no such easy targets in the second generation of voting rights.

Nevertheless, the situation was going to change quite quickly. The year 1973 was a turning point for the vote dilution jurisprudence. *White v. Regester (1973)* was the first case in which the Supreme Court shifted away from its focus on individual access to the franchise that characterized the VRA initial concern. The Court mandated that while *"[at-large elections] are not per se unconstitutional [. . .] we have entertained claims that [they] are being used invidiously to cancel out or minimize the voting strength of racial groups."* In its decision, the Court invalidated the use of at-large elections in the Dallas and Bexar counties in Texas, and considered that *"[t]he plaintiffs' burden is to produce evidence to support findings that the political processes leading to nomination and election were not equally open to participation by the group in question -that its members had less opportunity than did other residents in the district to participate in the political processes and to elect legislators of their choice."*

The same year, in *Zimmer v. McKeithen (1973)*, the US Court of Appeals reviewed another vote dilution case and clarified the list of factors that could be shown by plaintiffs to outlaw at-large elections, what came to be known as the White-Zimmer factors:

> *"Where a minority can demonstrate a lack of access to the process of slating candidates, the unresponsiveness of legislators to their particularized interests, a tenuous state policy underlying the preference for multi-member or at-large districting, or that the existence of past discrimination in general precludes the effective participation in the election system, a strong case is made. Such proof is enhanced by a showing of the existence of large districts, majority vote requirements, antisingle short voting provisions and the lack of provision for at-large candidates running from particular geographical subdistricts. The fact of dilution is established upon proof of the existence of an aggregate of these factors. The Supreme Court's recent pronouncement in White v. Regester, supra, demonstrates, however, that all these factors need not be proved in order to obtain relief."*

Therefore, the White-Zimmer factors opened the doors for at-large elections to be outlawed in a systematic manner, given some of the discriminatory factors could be proven. As can be seen in Figure 2, before 1973 there are barely changes in electoral rules, whereas the number of changes peaks for first time after these court-orders.

Nevertheless, note that the White-Zimmer framework did not establish very clearly what is

meant by vote dilution. It did not say anything about what were the operational mechanisms of vote dilution. Or, in other words, what are the components of at-large elections that are unconstitutional. The White-Zimmer framework failed to provide answers to this question.

These shortcomings became problematic for the second generation of voting-rights challenges to continue in 1980, when in *Mobile v. Bolden (1980)*, another Supreme Court case about vote dilution, the Court said that *"the XVth Amendment does not entail the right to have Negro candidates elected"*.[11] Most importantly, the Court mandated that plaintiffs need to prove there is discriminatory intent in the maintenance and adoption of at-large elections, not only discriminatory results as was the case with the White-Zimmer factors. Showing discriminatory intent turned out to be much more difficult, as can be seen in Figure 2: the number of changes from at-large to single-member district elections decreases to zero in 1982.

However, Bolden turned out to be a short hiatus in the development of the vote dilution jurisprudence. In 1982, the VRA had to be renewed by the US Congress and Senate, and knowing the difficulties that Mobile v. Bolden imposed for plaintiffs seeking to dismantle vote-dilutive devices, section 2 was amended, repudiating Bolden and outlawing electoral practices that have discriminatory results for minority groups, shifting the legal standard from intent to results or effects—known as the Section 2 results test standard.

In addition, the Senate Judiciary Committee wrote a report listing several factors that courts could use to decide whether a particular device had a discriminatory effect prohibited by section 2.[12] Crucially, the list of factors included racially polarized voting as an essential element of a vote dilution claim. Issacharoff (1992) considers that the addition of racial bloc voting as one of the factors, *"for the first time pointed to an emerging doctrinal coherence for claims of minority vote dilution."* The effects on transitions from at-large to single-member district elections of the Senate factors can be seen in Figure 2. After 1982 the number of changes starts to increase again.

These developments culminated in *Thornburg v. Gingles (1986)*, where the Supreme Court simplified the anti-vote dilution jurisprudence even further by establishing how to prove the existence of racially polarized voting. Three features of voting behavior needed to be shown: first, the affected minority group is "sufficiently large and geographically compact to constitute a majority in a single-member district"; second, the minority group is politically cohesive; and third, White majority voters vote sufficiently as a bloc to usually defeat the minority group's preferred candidates. After 1986, the number of changes from at-large to single-member district elections starts to peak again.

[11] See Mobile v. Bolden, 446 U. S. 55 (1980).

[12] The factors are: a history of official discrimination, the presence of vote polarization across racial lines, the usage of potential discriminatory voting practices, the denial to minorities to participate in the candidate slating process, the presence of discrimination in education, employment and health; a history of racial appeals in political campaigns, and the extent to which members of a minority have been elected to public office in the jurisdiction.

2.3 The 1990s Jurisprudential Shift and Section 5's Lock-In of Electoral Reform

In the 1990s, Supreme Court decisions clarified the limits of Section 2 remedies and narrowed the circumstances under which courts could mandate changes to local electoral systems. In *Shaw v. Reno (1993)*, the Court held that districting plans drawn predominantly on the basis of race were subject to strict scrutiny under the Equal Protection Clause of the Fourteenth Amendment—that is, the constitutional principle that the government must treat individuals equally and cannot rely on race in decision-making unless it meets a very high legal standard. This placed important constraints on race-conscious remedial districting. Shortly thereafter, *Johnson v. De Grandy (1994)* emphasized that Section 2 does not require jurisdictions to maximize minority representation or to guarantee proportional outcomes. Together, these rulings reaffirmed that while at-large elections could violate Section 2 in the presence of racially polarized voting, court-mandated transitions to single-member districts had to be narrowly tailored. As a result, the rapid wave of transitions away from at-large elections that followed Gingles began to taper off during the 1990s.

Importantly, however, this doctrinal retrenchment did not undo the electoral reforms that had already been implemented. A key reason for the persistence of these institutional changes was the operation of Section 5 of the Voting Rights Act that required covered jurisdictions—states and localities identified under the coverage formula set out in Section 4(b), based on historical patterns of racial discrimination in voting—to obtain federal preclearance before implementing any change to electoral rules or voting procedures. Covered jurisdictions were required to demonstrate that proposed changes neither had a discriminatory purpose nor would worsen minority voters' electoral position relative to the status quo.

Moreover, the scope of Section 5 review was interpreted broadly by the Supreme Court. In *Allen v. State Board of Elections (1969)*, the Court held that Section 5 applied not only to major changes in electoral systems, but also to seemingly minor modifications and to changes that affected voting indirectly. As a result, jurisdictions were required to seek preclearance for a wide range of institutional adjustments, limiting their ability to respond strategically to court-mandated reforms by introducing new vote-dilutive practices once single-member districts were in place.

Historical records underscore the strength of this constraint: between 1982 and 2004, the Department of Justice issued 626 formal objections to proposed voting changes under Section 5—exceeding the number of objections in the 1965–1982 period (490)—and initiated more than 100 enforcement actions to compel compliance with the preclearance requirement (Sample, 2022).[13]

[13]Formal objections refer to determinations issued by the Department of Justice denying preclearance to proposed voting changes submitted by covered jurisdictions. Enforcement actions, by contrast, involve litigation initiated by the Department of Justice against jurisdictions that failed to submit covered changes for preclearance or implemented changes without approval, and thus reflect efforts to enforce compliance with the preclearance regime itself.

Section 5 coverage was extensive across the jurisdictions most affected by vote dilution litigation. States fully covered by Section 5 included Alabama, Alaska, Arizona, Georgia, Louisiana, Mississippi, and South Carolina, while Texas and Virginia were covered with the exception of certain counties. In addition, a number of counties and townships outside these states were subject to preclearance requirements. All municipalities in our treatment sample fall within jurisdictions covered by Section 5 during the period we study, implying that post-reform changes to local electoral institutions were systematically constrained by federal oversight.

This institutional lock-in is particularly important given the well-documented persistence of political institutions in the U.S. South (Acemoglu and Robinson, 2006, 2008). Only with the Supreme Court's decision in *Shelby County v. Holder (2013)*, which effectively dismantled the Section 5 preclearance regime, was this system of federal oversight undone. From an empirical perspective, the pre-Shelby interaction between Sections 2 and 5 implies that the timing of court-mandated transitions to single-member districts generated long-lasting changes in electoral rules rather than transitory or easily reversible adjustments.

2.4 Black Neighborhoods and Underprovision of Public Goods

Throughout much of the twentieth century, Black communities in the American South experienced persistent deficits in access to municipal public goods (Button, 1989). Under Jim Crow–era disenfranchisement, predominantly Black neighborhoods were systematically underserved in basic infrastructure, including paved streets, drainage, sidewalks, and street lighting. Although the Voting Rights Act of 1965 initiated a period of political incorporation and some improvements in service provision, substantial disparities persisted well into the 1970s and early 1980s (see also United States Commission on Civil Rights (1974); Wright (2013); Berman (2015)).

In particular, water and sewer systems in Black neighborhoods were often inferior, characterized by smaller water lines, fewer fire hydrants, and delayed service connections, compromising both sanitation and fire protection (Button, 1989). Black neighborhoods also received lower levels of routine police and fire protection, and recreational amenities—such as parks and community facilities—remained scarce or poorly maintained relative to White neighborhoods.

These patterns reflect the institutional context in which at-large electoral systems limited Black political representation and, in turn, reduced influence over municipal resource allocation. As a result, public goods provision remained systematically lower in Black neighborhoods despite formal enfranchisement. Additional qualitative evidence from court cases documenting these disparities is provided in Appendix A.

3 Data

We assemble a new panel dataset combining information on municipal electoral institutions, political representation, public finances, and housing characteristics. The backbone of the analysis is a balanced panel of cities drawn from the Census of Governments' municipal finance files, restricted to municipalities that report annual fiscal data in every year from 1970 to 2000. This restriction allows us to estimate event-study models and to assess pre-treatment parallel trends. The resulting balanced panel includes 1,695 municipalities.

We augment these records with baseline municipal characteristics measured in 1970—total population, Black population share, average income, share of college-educated residents, share of employed residents, and the share of elderly residents—which we interact with year indicators in all specifications. Using pre-treatment values avoids post-treatment bias, since demographic composition may itself respond to electoral reforms. Merging these baseline controls yields 1,300 cities.

We then link this sample to city-level data on electoral rules—specifically whether city council members are elected at-large or from single-member districts, and the timing of transitions between systems—resulting in 280 cities with complete fiscal coverage and electoral histories.

From this merged universe, we define the estimation sample by focusing on municipalities where Black residents were plausibly exposed to vote dilution under at-large elections and where the introduction of single-member districts could meaningfully alter political representation. Concretely, we retain cities with a baseline (1970) Black population share below 40 percent and above 2.5 percent.[14] The upper bound excludes cities with large Black population shares, where minority representation was already more likely under at-large elections and where the scope for additional representational gains from districting is more limited. The lower bound restricts attention to cities with some Black population presence, excluding jurisdictions in which vote dilution concerns were unlikely to arise. Before applying the threshold restrictions, cities that transitioned away from at-large elections had baseline Black population shares ranging from approximately 8 to 59 percent, whereas cities that did not change the electoral rule had baseline shares no higher than 40 percent and included jurisdictions with no Black residents. Applying these restrictions yields a final estimation sample of 130 cities.

The remainder of this section describes each underlying data source in detail and explains how the variables used in the analysis are constructed.

Electoral Rules: Information on municipal electoral systems is drawn from two complementary sources. The first is Davidson and Grofman (1994), who document electoral changes for 241

[14] Previous work has employed varying population thresholds ranging from a Black population share of 5 to 50 percent (see, for example, Welch, 1990). In Section 6, we show that results are robust to alternative thresholds around these cutoffs.

cities in the Southern states of Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia.[15] Their work provides detailed historical coverage of transitions from at-large to single-member district elections during the period in which anti–vote dilution litigation under the Voting Rights Act was most active. In addition, the dataset reports the size of each city council in 1970 and 1989.

For a subset of 75 cities, Davidson and Grofman (1994) also record the precipitating reason for the electoral change. In 71 cases, the transition occurred pursuant to judicial proceedings, including court orders and consent decrees;[16] one followed a Section 5 objection; one occurred under the threat of litigation; and only two resulted from legislative action. The predominance of court-ordered and consent-decree reforms indicates that electoral restructuring was largely driven by judicial enforcement of federal law rather than by voluntary local political decisions. This institutional context reduces concerns that reforms coincided with endogenous shifts in local political preferences or fiscal conditions.

We expand the sample using data from the International City Managers Association (ICMA) surveys on municipal form of government conducted in 1981, 1986, 1991, 1996, and 2001. These surveys include information on the number of city council members and the number elected from single-member districts. Importantly, the 1981 survey reports changes in electoral arrangements since 1970, allowing us to reconstruct the timing of reforms over the full study period. Combining these sources yields a city-level panel identifying whether council members are elected at-large or by district in each year.

Black Elected Officials: Data on Black political representation at the municipal level come from the *National Roster of Black Elected Officials* (NRBEO), published annually by the Joint Center for Political Studies beginning in 1969. The *Roster* reports the number of Black elected officials serving in local offices, including city councils. Because the NRBEO is available only in paper format, we digitize information on the number of Black city council members for up to 108 municipalities in the following years: 1970, 1973, 1975, 1977, 1980, 1986, 1989, and 1992.

Bernini et al. (2023) provide a detailed discussion of the construction and reliability of the NRBEO, which they use to study Black representation at the county level. In our setting, the digitized data allow us to measure both the level and the share of Black representation in municipal councils over time.

Municipal Finances: Data on municipal revenues and expenditures are obtained from the Census of Governments. This dataset provides annual fiscal information for the largest U.S. cities

[15] These data are available through the Interuniversity Consortium for Political and Social Research (ICPSR; Davidson and Grofman (2006)).

[16] The difference between court orders and consent decrees is that court orders impose remedies following a judicial finding of vote-dilution, whereas consent decrees arise from lawsuits brought by minority plaintiffs and implement court-approved, legally binding settlements without an explicit determination of vote-dilution.

and quinquennial data for all local governments. To exploit the high-frequency variation necessary for event-study analysis, we restrict attention to cities that report fiscal data in every year of the panel.

We focus on total revenues and expenditures, as well as disaggregated spending categories over which municipalities have substantial discretion, including fire protection, police protection, sewage, parks, roads, and water utilities. All monetary values are expressed in real terms and deflated to constant 2005 dollars using price indices from the Bureau of Labor Statistics.

Measures of Infrastructure, Demographic, and Housing Outcomes: To study the mechanisms through which electoral reform affects public spending and local economic outcomes, we construct a set of outcome variables capturing changes in infrastructure access, demographic composition, and housing market conditions. All variables are obtained from the National Historical Geographic Information System (NHGIS; Schroeder et al. (2025)) and are measured in 1970 and 2000, allowing us to construct long-run first differences.[17]

Our primary infrastructure outcome measures access to basic municipal services. Specifically, we use the share of Black- and White-occupied housing units with complete plumbing facilities. This variable provides a direct indicator of housing quality and access to water infrastructure, which is closely linked to municipal investments in water utilities and related public services. Because plumbing access historically lagged in many Black neighborhoods, changes in this measure provide a useful indicator of whether infrastructure improvements disproportionately benefited historically underserved communities.

To capture demographic adjustment, we analyze changes in the population shares of Black residents, White residents, and residents of other racial groups. These measures allow us to assess whether improvements in local public goods translated into changes in the racial composition of cities.

We also examine housing market responses. For renter-occupied housing, we use median rents for Black and White households. For owner-occupied housing, we use median housing values separately for Black-owned and White-owned homes. These measures allow us to test whether improvements in local public goods were capitalized into housing markets and whether such capitalization differed across racial groups.

All regressions include a common set of city-level controls constructed from NHGIS (Schroeder et al., 2025). These controls include average income, the share of college-educated residents, the share of employed residents, the share of residents older than 65, and housing stock characteristics such as the share of housing units built before 1939 and the share of units with three or more bedrooms (both measured separately by race). These variables account for differences in economic

[17] As a robustness check, Section 6 extends the analysis to include data for 1980 and 1990 for variables with available information. The results are very similar.

conditions, demographic structure, and housing stock that may influence both public spending and housing market outcomes.

3.1 Summary Statistics

Table 1 summarizes the composition of municipal expenditures in the sample. Column (1) reports each spending category as a share of total municipal outlays. Expenditures are concentrated in a small number of core services. Water utilities and police protection account for roughly similar budget shares, followed by roads, fire protection, and sewage, each representing between 6 and 8 percent of municipal budgets. Parks constitute a smaller but still meaningful component, while housing and health account for comparatively minor shares of total expenditures.[18]

Column (2) presents the same expenditure categories in per-capita terms. The overall ordering across categories is similar to that in Column (1), but with some re-ranking. In particular, police protection slightly exceeds water utilities in per-capita spending, while fire protection ranks above sewage. Aside from these shifts, the similarity between budget-share and per-capita rankings indicates that population size does not substantially alter the relative allocation across most spending categories.

Column (3) reports the ratio of intergovernmental transfers to direct municipal expenditures by category. Transfers finance only a small fraction of spending for most local public goods, particularly police protection, roads, fire protection, and sewage. They play a somewhat larger—though still limited—role in utilities, parks, and housing. Health spending stands out as the main exception, with the majority of expenditures financed through intergovernmental transfers rather than local revenues.

Table 2 presents summary statistics for key variables, separately for treatment and control cities in 1970 and 2000. Columns (1) and (2) describe conditions at the beginning of the sample period, while Columns (3) and (4) report outcomes at the end. Consistent with the evolution of anti–vote dilution jurisprudence, none of the treatment cities used single-member districts in 1970, whereas by 2000 nearly 88 percent had adopted them. The share does not reach 100 percent because some municipalities implemented mixed electoral systems in which only a subset of council members were elected from districts.

Treatment cities have a substantially larger Black population share—about 26 percent—compared with roughly 8 percent in control cities. Over time, the Black population share increases in treatment cities, while the White population share declines in both treatment and control municipalities.

[18]The expenditure categories reported in Table 1 account for roughly one-half of total municipal spending in our sample. An additional 20 percent is captured by 21 smaller spending categories, including administration, education, corrections, hospitals, libraries, welfare, and debt service. Most of the remaining spending corresponds to gas and electric utilities. We do not analyze these utility categories separately because many cities report zero expenditure on them, likely reflecting the fact that these utilities were not municipally operated in those jurisdictions.

The share of residents belonging to other racial groups rises in both groups as well, with the increase being larger in control cities.

City councils are of similar size in treatment and control municipalities. In 1970, treatment cities had an average of five council members, compared with six in control cities. By 2000, average council size was approximately six members in both groups, implying an increase in council size in treatment municipalities over the period and convergence across the two samples. By contrast, city size increases steadily in both groups, rising from roughly 50,000 residents in 1970 to about 70,000 by 2000.

Consistent with the historical legacy of discrimination in the U.S. South, Black representation in municipal councils was extremely limited at baseline. In treated cities, Black elected officials held only 3 percent of council seats. The corresponding figure in control cities was 1.5 percent, though these municipalities also had substantially smaller Black population shares. Following transitions to single-member districts, the share of Black representatives increased to 26 percent in treated cities, while remaining around 4 percent in control cities. These descriptive patterns point to a strong positive association between the adoption of single-member district elections and Black political representation. In Section 5, we show that this relationship reflects a causal effect of electoral reform.

In terms of fiscal outcomes, treatment cities spent less per capita on fire protection, police protection, and parks than control cities in 1970, and they also collected less in local tax revenues. Over time, per-capita spending and tax collection increased in both groups, and the initial gaps narrowed substantially by 2000, with the notable exception of sewage expenditures. Water utilities constitute the main category in which treatment cities exhibited higher per-capita spending in 1970 relative to control cities. Unlike other core public services, however, spending on water utilities grew more rapidly in treatment municipalities over the subsequent decades, widening rather than narrowing the initial differential by 2000.

Housing market indicators also evolve substantially over the period. Median housing values increase sharply between 1970 and 2000 for both racial groups. Houses owned by White households have higher median values than those owned by Black households in both periods, though both increase markedly over time. Median rents also rise substantially for both groups over the period.

Several housing and demographic characteristics remain broadly similar across treatment and control cities. The share of residents aged 65 and older increases modestly over time in both groups. Housing characteristics are also comparable: the share of housing units with three or more bedrooms is similar across cities, and the share of housing built before 1939 declines over time as the housing stock expands and newer units are added.

Given that treatment cities have a significantly higher Black population share throughout the

period, these patterns are consistent with the historical account in Section 2.4. Municipalities with larger Black populations entered the post–VRA era with pronounced deficits in many core public services and experienced improvements following political incorporation. Section 5 examines these relationships using a causal research design.

4 Theoretical Framework

Comparative political economy emphasizes that electoral systems shape both legislative incentives and fiscal outcomes (e.g., Milesi-Ferretti et al., 2002; Persson and Tabellini, 2003). Electoral rules determine how votes are translated into seats and, consequently, how fiscal resources are allocated across constituencies.

In the context of racially polarized U.S. municipalities, court-ordered transitions from at-large elections to single-member district systems represent a sharp institutional intervention that reshapes the composition and incentives of city councils. However, theory does not yield a unique prediction about how these institutional changes affect municipal budgets or Black and White residents. Instead, several competing mechanisms imply sharply different outcomes. This section presents three such mechanisms as alternative hypotheses to be evaluated empirically.

Hypothesis 1: White Backlash and Ethnic Fragmentation.

A first perspective emphasizes racial backlash and resistance to minority political empowerment. A long tradition in political sociology and political behavior emphasizes racial threat and group competition dynamics, whereby increases in minority political power can induce defensive responses among majority voters (Key, 1949; Blalock, 1967; Giles and Buckner, 1993; Ang, 2019; Bernini et al., 2025).

From this view, descriptive representation does not guarantee substantive influence: while Black representatives who share racial identity with constituents are more likely to advocate for group interests due to shared experiences, information, and preferences (Pitkin, 1967; Mansbridge, 1999), White majorities may respond strategically to the election of Black officials by opposing redistribution, constraining fiscal expansion, or limiting the effectiveness of minority representatives within governing coalitions.

Thus, even when single-member districts succeed in electing Black representatives, these officials may face strong opposition from White voters, politicians, and local institutions. Recent empirical work documents such backlash dynamics. Enos (2016) exploits the demolition of public housing in Chicago to show that White voter turnout fell in areas where Black residents left as result. Ang (2019) shows that federal civil rights interventions increased Black political participation

but simultaneously triggered political responses among Whites that muted or reversed policy gains. Similarly, Bernini et al. (2025) provides evidence that expansions in Black political representation can induce counter-mobilization by White voters, leading to electoral and policy outcomes that offset the intended effects of minority empowerment. These responses may operate through voting behavior, elite coordination, or institutional veto points, rather than through changes in formal electoral rules.

Predictions. Under this hypothesis, the adoption of single-member district elections may have limited or even negative effects on municipal spending and taxation. Although Black representatives gain office, their ability to influence the city budget is constrained by backlash-driven opposition. As a result, Black outcomes—such as access to public services or improvements in neighborhood conditions—may remain unchanged. Whites may be unaffected or may improve relative to Blacks if policy choices reflect defensive responses to minority political gains. Because improvements in neighborhood conditions are unlikely to materialize, the reform should not lead to increases in the Black population share, and demographic patterns may remain largely unchanged.

Hypothesis 2: Information, Learning, and Minimum Winning Coalitions

An alternative perspective emphasizes the informational effects of minority representation. White voters may initially hold inaccurate or stereotypical beliefs about Black political leadership due to limited exposure. The election of Black representatives under single-member district systems generates repeated, salient information about Black leaders' competence and governing behavior. As argued by Hajnal (2006), exposure to Black incumbents can lead White voters—particularly moderates, liberals, and independents—to revise their attitudes when observed performance contradicts prior stereotypes, thereby reducing opposition to Black leadership and associated policies rather than triggering persistent backlash. Direct causal evidence for this informational mechanism comes from Beaman et al. (2009), who exploit the randomized reservation of village council leader positions for women in India and show that exposure to female leaders improves perceptions of women's effectiveness, weakens gender stereotypes, and increases both the likelihood that women run for office and their probability of winning subsequent council elections. Although focused on gender rather than race, their findings provide clean experimental support for the broader claim that exposure to minority leadership can update majority beliefs and reduce bias.

These changes in voter attitudes relax the political constraints faced by Black representatives inside city councils. Policy outcomes are shaped through legislative bargaining rather than simple majority rule, and influence does not require numerical dominance. Building on Riker's (1962) theory of minimal winning coalitions, the canonical model of legislative bargaining developed by Baron and Ferejohn (1989), predicts that governing coalitions form just large enough to secure

passage, allowing pivotal legislators to extract policy concessions. By guaranteeing representation that would otherwise be unattainable under at-large elections, single-member districts allow Black council members to become pivotal coalition partners when aligned with White liberals or swing representatives.

Predictions. Under this hypothesis, the adoption of single-member district elections should lead to increases in municipal spending and taxation, particularly in policy areas salient to Black communities. Economic gains should be concentrated among Black residents but may also extend to Whites if public goods are broadly consumed. Crucially, effects need not scale with the number of districts or council seats; instead, outcomes depend on whether Black representatives become pivotal actors in minimum winning coalitions and whether White voters revise their attitudes in response to observed governing performance. If improvements in public goods raise neighborhood quality, the reform may also increase the Black population share by attracting additional residents or reducing out-migration from historically underserved neighborhoods.

Hypothesis 3: Common Pool Effects of District-Based Representation

A third explanation abstracts from race and emphasizes the fiscal consequences of district-based representation itself. In standard common-pool models of public finance, legislators elected from geographic districts internalize the benefits of spending targeted to their constituencies while bearing only a fraction of the associated tax costs (Weingast et al., 1981). As a result, the move from at-large elections—where all council members represent the same constituency—to single-member district elections increases incentives for logrolling and distributive spending.

Under this view, observed changes in budgets following the adoption of single-member district elections reflect structural features of legislative organization rather than racial politics or changes in voter attitudes. Spending increases arise mechanically from the multiplication of districts and representatives, regardless of who occupies those seats or which groups benefit.

Predictions. If common-pool forces dominate, municipal spending and taxation should increase after the adoption of single-member district elections, with effects that grow monotonically in the number of districts or council members. Economic gains should be broadly distributed across districts and racial groups, rather than disproportionately benefiting Black residents. Policy changes should not depend on the racial composition of the council or on measures of racial polarization.

5 Empirical Strategies and Results

5.1 Effects on Black Representation

We study the causal impact of changing the electoral rule from at-large to single-member districts on Black representation in municipal councils using a staggered difference-in-differences design that exploits within-city variation over time. Cities adopt single-member districts in different years as a result of court-driven reforms associated with the development of Section 2 anti–vote dilution jurisprudence, which allows us to trace the dynamic effects of electoral reform relative to the timing of adoption.

A rapidly growing literature has shown that two-way fixed effects regressions may deliver biased estimates in settings with staggered treatment adoption when treatment effects are heterogeneous across cohorts or evolve over time (de Chaisemartin and D'Haultfoeuille, 2020; Borusyak et al., 2024; Callaway and Sant'Anna, 2021; Sun and Abraham, 2021). In our context, the effects of moving to single-member districts on Black representation may plausibly vary across municipalities and over time. For example, early reforming cities may experience different representational gains than later adopters, either because early Black representatives face steeper institutional constraints or because later cohorts can draw on accumulated political experience and legal precedent.

To address these concerns, we adopt the interaction-weighted (IW) estimator proposed by Sun and Abraham (2021). This estimator is consistent under a parallel-trends assumption, allows for cohort-specific treatment effects, and permits treatment effects to follow a common dynamic profile relative to the year of reform. We implement event-study specifications that compare representation outcomes in treated cities to those in never treated cities, while flexibly controlling for calendar-year shocks and time-invariant municipal characteristics. In the Appendix, we show that our main results are robust to alternative estimators for staggered difference-in-differences designs, including those proposed by de Chaisemartin and D'Haultfoeuille (2020); Borusyak et al. (2024); Callaway and Sant'Anna (2021), as well as to conventional two-way fixed effects OLS.

Our outcome variables capture multiple dimensions of Black descriptive representation in municipal councils. Specifically, we examine: the share of council seats held by Black elected officials; the Black representation gap, defined as the difference between the Black share of council seats and the Black share of the municipal population; ethnic fractionalization in the council; and the log number of council members.[19] All specifications include municipality and year fixed effects, as well as baseline (1970) municipal characteristics—population, Black population share, average income, share of employed residents, share of college educated residents, and elderly

[19]The Black representation gap is measured as $\left|\frac{BlackElected_{it}}{Elected_{it}} - \frac{BlackPopulation_{it}}{Population_{it}}\right|$. Ethnic fractionalization in the city council is measured with the formula: $1 - \left(\frac{BlackElected_{it}}{Elected_{it}}\right)^2 - \left(\frac{WhiteElected_{it}}{Elected_{it}}\right)^2$.

share—interacted with year indicators to flexibly account for differential trends across cities. We also control for the presence of state-imposed property tax limits, which may affect local political and institutional responses. Standard errors are clustered at the municipal level.

Figure 3 summarizes the dynamic effects of electoral reform on Black representation. Panel (a) shows a large increase in the share of council seats held by Black officials following the transition from at-large to single-member district elections. Panel (b) documents a clear post-reform decline in the Black representation gap, indicating movement toward proportional representation. Panel (c) shows a corresponding rise in ethnic fractionalization within city councils, reflecting increased racial diversity as Black candidates gain office. The discrete break in outcomes precisely after the reform supports a causal interpretation and is unlikely to reflect demographic or political trends.

Table 3 quantifies these effects. Column 1 shows that switching to single-member districts increases Black council representation by 20.1 percentage points. This corresponds to a 648 percent increase relative to pre-reform levels. The magnitude of this effect underscores the central role of electoral rules, rather than enfranchisement alone, in shaping minority political representation at the local level.

These estimates complement and extend the evidence in Bernini et al. (2023) on the effects of the Voting Rights Act on Black descriptive representation. Using county-level comparisons between Section 5 covered and non-covered jurisdictions, they show that gains in Black representation after 1965 were larger in covered county governments, especially in counties with larger Black population shares. At the same time, their estimated effects for municipalities and school districts are small and statistically insignificant, suggesting that enfranchisement and federal oversight alone did not generate comparable gains in those jurisdictions. They also provide suggestive evidence that county-level gains were larger in places with electoral rules more favorable to minority representation, albeit using information on county electoral systems only in 1957 and 1980. As a result, their analysis cannot trace the timing of electoral reforms or study their effects for municipalities.

We complement this evidence by directly observing when cities changed from at-large to single-member district elections between 1970 and 1989, the period in which Section 2 litigation and anti–vote dilution jurisprudence became most consequential. This allows us to identify the causal effects of these court-mandated electoral reforms on Black city council representation. Our results show that large gains in Black representation in municipalities arose precisely after transitions to single-member districts. Taken together with Bernini et al. (2023), the evidence paints a more complete picture of the effects of the Voting Rights Act: prior work highlights the importance of enfranchisement and federal oversight, while our analysis shows that Section 2 litigation and the judicial prohibition of vote dilution were also central in translating voting rights into effective

representation at the local level.[20]

Column 2 of Table 3 shows that the reform reduces the Black representation gap by 9 percentage points relative to the control group, a decline equal to 34.6 percent of the baseline gap. Substantively, this implies that council composition in treated cities moved markedly closer to proportional representation of the Black population than in cities that did not reform their electoral systems. The raw magnitudes underscore the size of the effect: in treated cities, Black residents made up roughly 26 percent of the population in 1970 but held only 3 percent of council seats, whereas by 1990 they accounted for 32 percent of the population and 26.2 percent of seats. The reform therefore produced not a merely symbolic increase in descriptive representation, but a substantial reduction in persistent underrepresentation.

This substantial reduction of the representation gap stands in sharp contrast to evidence on political participation and White countermobilization. Bernini et al. (2025) show that although the VRA increased Black voter registration, much of this gain was offset by a strong rise in White registration, reducing the implied decline in the Black–White registration gap from 3.6 percentage points (absent White responses) to just 0.3 percentage points once countermobilization is taken into account. By comparison, the large reduction in the representation gap we document suggests that eliminating at-large elections provides a more effective and durable mechanism for closing racial disparities in political influence. Because single-member districts mechanically concentrate minority voting strength, they preserve representational gains even in the presence of differential mobilization across racial groups.

Column 3 indicates that ethnic fractionalization in the council rises by 24.4 percentage points, a 498 percent increase relative to baseline. Together, these results show that the move to single-member districts not only raises the number of Black elected officials but also fundamentally reshapes the racial composition of local councils. This pattern is consistent with the more proportional character of the new electoral system, which allows the racial diversity of the population to be more accurately reflected in the composition of local legislative bodies.

Finally, the average number of elected aldermen increased by approximately 20 percent over the period, indicating that council size expanded alongside the adoption of single-member districts.[21] This pattern suggests that part of the increase in Black representation may have been facilitated by an enlargement of the local legislative body.

[20] Relatedly, Shah et al. (2013) use data on cities that include information on electoral structure and show that Black representation is positively associated with Section 5 coverage and with single-member district elections. However, their empirical strategy does not exploit the timing of transitions from at-large to single-member districts as a source of identification. Their results should therefore be interpreted as suggestive evidence on the role of electoral institutions, rather than as causal estimates of the effects of court-mandated electoral reform.

[21] Information on council size is available only for 1970 and 1989 in the Davidson and Grofman (1994) dataset, so we observe changes between these benchmark years rather than annual adjustments. We obtain the council size for control municipalities from the ICMA database.

5.2 Effects on the Municipal Budget

We now turn to municipal fiscal outcomes and find evidence of increases in public spending following the transitions to single-member district elections. This pattern runs counter to Hypothesis 1, which predicts limited or no policy change due to political resistance and White backlash, even when Black candidates are elected.

We estimate the impact of single-member district elections on city budgets using the same empirical strategy as in the analysis of political representation (Sun and Abraham, 2021), and report robustness to alternative estimators (de Chaisemartin and D'Haultfoeuille, 2020; Callaway and Sant'Anna, 2021; Borusyak et al., 2024).

Figures 4 and 5 present the event-study estimates for municipal spending and revenues. The results show clear post-reform increases in fire protection expenditures and in water utility spending. We also observe an increase in water utility revenues following the transition to single-member districts. This pattern is consistent with cities financing improvements in water infrastructure through higher user fees, with residents paying more in exchange for better services. Notably, the increase in water utility revenues is largest in the first years after reform, coinciding with the period in which water utility expenditures rise most sharply.[22]

Both fire protection and water utility spending exhibit a dynamic pattern in which expenditures rise sharply following the reform and then partially attenuate over time. One plausible interpretation is that these effects reflect lumpy public investments rather than permanent expansions in operating budgets. Historical accounts document that racially unequal infrastructure provision often took the form of missing or inadequate capital investments—such as the absence of fire hydrants or insufficient water pressure in Black neighborhoods (Button, 1989). Court-mandated electoral reforms increased Black political representation and, in doing so, may have triggered concentrated efforts to remedy these longstanding deficiencies. The resulting investment push likely generated large initial increases in spending, particularly in fire protection and water infrastructure, followed by a stabilization phase. Although spending levels subsequently moderated, they remained persistently above pre-reform baselines, consistent with durable improvements in service provision rather than temporary spikes.

Table 4 reports the average post-reform effects on municipal budgets. Following the adoption of single-member district elections, fire protection expenditures increase by 5.3 percent. Water utility expenditures rise by 10.3 percent, while water utility revenues—defined as revenues from the sale of water services—increase by 8 percent. Although the short-run increase in water revenues is smaller than the corresponding increase in expenditures, the event-study estimates indicate that

[22] Water utility revenue refers to the gross receipts of municipally owned water supply systems, including user charges and other revenues from the sale and delivery of water services, as classified under the Census of Governments' utility functions (Water Supply Utility).

revenue effects are more persistent over time. This pattern suggests that the initial expansion in water infrastructure and service provision is financed through a gradual adjustment in user charges.

These magnitudes are comparable to those documented in related work. Bernini et al. (2023) finds that a 10 percentage point increase in the Black population share in covered counties that elect commissioners through single-member districts leads to a 3.9 percent increase in capital spending, implying an aggregate increase of approximately 12.7 percent over the sample period.

The estimates also indicate an increase in sewage expenditures of 19 percent following the adoption of single-member district elections, a pattern that is also consistent with historical accounts of severe underprovision of sanitation infrastructure in Black neighborhoods (Button, 1989). However, the corresponding event-study coefficients display evidence of pre-treatment dynamics suggestive of anticipation effects. As a result, although the point estimates are economically large, we interpret the sewage results more cautiously than those for fire protection and water utilities, as the timing of the estimated effects does not cleanly align with the reform and may partly reflect pre-existing trends rather than a causal response to the electoral change.

In contrast, we find no robust evidence of increased spending on police, roads, or parks following the reform. The absence of effects for roads and parks may reflect lower urgency in these policy areas relative to essential services such as fire protection and water. In the specific case of roads, spending decisions are also more strongly shaped by intergovernmental transfers, potentially limiting the scope for locally driven adjustments in response to changes in political representation.

Spending on policing—which is almost entirely financed by local revenues—is another matter. Policing is a policy area of particular salience to Black communities, yet we observe no corresponding increase in police expenditures following the reform. This pattern is consistent with Facchini et al. (2020), who show that improvements in the treatment of Black residents by law enforcement after the Voting Rights Act occurred primarily through changes in enforcement behavior rather than increased resources. They document a decline in Black arrest rates—driven by less serious offenses and enforcement discretion—in counties with newly enfranchised Black voters, with no corresponding changes for Whites, and show that these effects are concentrated among elected law enforcement officials. Together, this evidence suggests that improvements in policing outcomes for Black communities need not operate through higher police expenditures, but can instead arise from changes in political accountability and enforcement practices.

We next examine how the observed increase in local public goods—defined as the sum of fire protection, police, parks, roads, and sewage expenditures—is financed.[23] Columns 8 and 9 in Table 4 show that aggregate local public good expenditures rise by a magnitude similar to that of local tax revenues. On average, total local public good spending and local taxes increase by

[23] We exclude water utility expenditure from this aggregate because it is financed largely through water utility revenues rather than general local taxation.

comparable amounts. Although the aggregate estimates are imprecisely estimated, their similarity in magnitude is consistent with the interpretation that the expansion in public good provision was broadly accompanied by higher tax collection, rather than reflecting pure reallocation across spending categories or deficit financing. The lack of statistical precision at the aggregate level is not unexpected, given that individual spending components exhibit heterogeneous responses and not all categories respond significantly to electoral reform.

The results reported in this section relate to a large literature that documents a negative association between ethnic fragmentation and the provision of public goods, a pattern most prominently articulated by Alesina et al. (1999) and synthesized in Alesina and La Ferrara (2005). In this framework, ethnic heterogeneity reduces public spending because groups hold polarized preferences over the nature and allocation of public goods, making agreement on taxation and collective provision more difficult. Crucially, this literature is largely institution-free: it treats ethnic diversity as a population characteristic and abstracts from the political institutions that translate demographic heterogeneity into representation. As Alesina and La Ferrara (2005) explicitly note, their model cannot address how different institutional arrangements may mitigate or amplify the political consequences of diversity, even though representation may shape minorities' willingness and ability to cooperate in the political process. Our findings speak directly to this gap by showing that electoral rules fundamentally mediate the relationship between diversity and policy. By transforming population heterogeneity into legislative representation rather than electoral exclusion, single-member district systems reshape the composition of local governing bodies and alter the political mechanisms through which diversity affects public goods provision. This suggests that the negative relationship between ethnic fragmentation and public spending documented in prior work may, in part, reflect institutional environments in which diversity is weakly represented, rather than an inherent incompatibility between heterogeneity and collective provision.

5.3 Testing the Mechanisms

In this section, we examine whether the observed increases in public spending following the adoption of single-member district elections are consistent with the common-pool hypothesis or with mechanisms based on changes in representation and policy targeting.

5.3.1 Test of the Common Pool Hypothesis

Weingast et al. (1981) show theoretically that aggregate public spending increases with the number of legislative districts. Because legislators fully internalize the benefits of spending targeted to their own districts but bear only a fraction of the associated tax costs, each has an incentive to support others' spending proposals in exchange for support for their own. This logic of fiscal externalities

across districts leads to logrolling and, in equilibrium, to higher overall expenditures. Thus, if the reason why we observe a rise in local public good spending is due to a common-pool problem, we should see that the effects are stronger the more districts the city created. We test that hypothesis by focusing only on cities that changed their electoral rule, and including dummies for the number of districts created. The specification is:

$$y_{it} = \alpha + \delta_i + \delta_t + \beta_1 Change_{it} + \sum_{k \in G} \beta_{2k} Change_{it} * \#Districts_{itk} + \gamma_t X_{i1970} + \varepsilon_{it} \quad (1)$$

$\#Districts_{itk}$ is a dummy equal to 1 if the city has k districts. G refers to the set of cities that created 5 or more districts grouped in the following way, $G = \{5-6 \text{ districts}, 7-8 \text{ districts}, 9 \text{ or more}\}$. Thus, we include three groups in the regression, and its coefficients have to be interpreted relative to the effect on cities that created 4 or less districts. In Figure 6, we plot the coefficients β_{2k}.

The figures do not show a positive monotonic relationship between changes in public spending with respect to the number of districts. As such, our findings are against the increases happening through a common-pool channel. In the next section, we provide further evidence in favor of the rise being caused by the legislative power that Blacks enjoy with single-districts.[24]

5.3.2 Infrastructure Improvements, Demographic Adjustment, and Housing Market Responses

In this subsection, we examine whether improvements in local public goods translated into changes in neighborhood conditions and housing market outcomes. Improvements in water and fire infrastructure should first manifest in better access to basic services; we therefore examine changes in the share of Black- and White-occupied housing units with complete plumbing facilities. We then study demographic responses by analyzing changes in the Black and White population shares. Finally, we examine housing market outcomes by analyzing median rents for Black and White renter-occupied housing units and median values for Black- and White-owner-occupied housing units. If the improvements in public goods documented above disproportionately benefited Black neighborhoods, as implied by Hypothesis 2 in Section 4, we should observe larger improvements in infrastructure access and stronger housing market responses among Black households, potentially accompanied by increases in the Black population share. Conversely, if political resistance muted these effects, consistent with Hypothesis 1, improvements in infrastructure and housing outcomes

[24] Boylan (2019), studying roughly 1,800 cities, finds that district elections increase fire spending in court-ordered cases—a result consistent with ours—and interprets this as evidence of a common-pool problem, since moving from at-large to single-member districts increases the number of geographically defined constituencies represented on the council. However, his analysis does not exploit variation in the number of districts—the margin along which common-pool incentives should operate. In contrast, we test this central comparative-statics implication directly and find no evidence that effects scale with the number of districts created, pointing instead to targeted responses to unmet needs.

should be limited, and demographic patterns should remain largely unchanged.

The analysis uses data from 1970 and 2000 and is estimated in first differences to capture long-run effects, allowing sufficient time for electoral reform to affect political representation, public spending, and subsequent changes in infrastructure access, population composition, and housing market outcomes. The main specification is:

$$\Delta Y_i = \beta_1 \Delta Change_i + \gamma \Delta X_i + \varepsilon_i. \tag{2}$$

where ΔY_i denotes the change in the outcome variables described above between 1970 and 2000. $\Delta Change_i$ equals 1 if a city changes the electoral rule from at-large elections to single-member districts during this period, and 0 otherwise. X_i is a vector of control variables including average income, the share of college-educated residents, the share of employed residents, the share of residents older than 65, the share of housing units built before 1939 (by race), and the share of housing units with three or more bedrooms (by race). The operator Δ denotes the change between 1970 and 2000.

The long-difference specification in Equation (2) is intended to capture the cumulative effects of electoral reform on neighborhood conditions and housing markets. Improvements in infrastructure and changes in residential patterns may take several years to materialize following institutional changes in political representation and public spending, making long-run differences particularly informative in this context. The identifying assumption underlying this specification is that, absent the reform, treated and untreated cities would have experienced similar long-run changes in infrastructure access, demographic composition, and housing market outcomes. Directly testing this assumption is challenging because comparable data for these outcomes are not available for municipalities prior to 1970, and several variables are observed only intermittently across Census decades.[25]

Given these data limitations, we do not interpret these estimates as causal. Instead, the objective of this analysis is to assess whether the observed patterns are consistent with improvements in neighborhood conditions and housing outcomes for Black communities following electoral reform.

Results based on the main specification are reported in Table 5. Overall, the patterns are consistent with Hypothesis 2, which predicts that the adoption of single-member districts allows Black representatives to influence policy through coalition bargaining and leads to improvements in public goods provision that disproportionately benefit historically underserved Black neighborhoods. By contrast, the results provide little support for Hypothesis 1, under which backlash and ethnic fragmentation would limit policy changes and prevent improvements in outcomes for Black

[25] Housing values by race are available only in 1970 and 2000, while the Census does not report comparable information for 1980 and 1990. Similarly, data on plumbing access and rents by race are not consistently available for all municipalities in 1980.

residents.

Panel A examines access to basic infrastructure. Following the adoption of single-member district elections, the share of Black-occupied housing units with complete plumbing facilities increases by 16.8 percentage points. In 1970, only 73.3 percent of Black-occupied houses had complete plumbing, so this estimate implies an increase of roughly 23 percent relative to the baseline level. This result is consistent with the earlier evidence documenting increases in water infrastructure spending and water utility revenues. In contrast, the share of White-occupied housing units with complete plumbing facilities declines slightly, by 0.5 percentage points. This effect is economically negligible: in 1970, approximately 97.5 percent of White-occupied housing units already had complete plumbing facilities. Taken together, these results suggest that infrastructure improvements were concentrated in historically underserved Black neighborhoods. Electoral reform is associated with a substantial reduction in the share of Black households lacking access to basic water infrastructure, while changes for White households are comparatively small, leading to a decline in the racial infrastructure gap.

Panel B reports changes in population composition. Relative to control cities, the Black population share increases by 6.6 percentage points following electoral reform. This relative increase is mirrored by a decline of similar magnitude in the share of residents belonging to other non-White racial groups, while the White population share remains statistically unchanged. These results suggest demographic adjustment following improvements in neighborhood conditions, consistent with the possibility that better public services in previously underserved areas attracted additional Black residents or reduced out-migration. This interpretation is consistent with recent evidence that local institutions and signals of political inclusion or exclusion can influence the location choices of Black residents (Ferlenga, 2025).

Panel C examines changes in population levels. The estimates suggest an increase of roughly 12 percent in the Black population following electoral reform, although the estimate is not precisely estimated. In contrast, the estimated effect on the White population is also positive, but small and statistically insignificant. This pattern helps rule out a compositional explanation for the plumbing results in Panel A. If the observed improvement in plumbing access for Black households were driven by Black residents moving into previously White neighborhoods with better infrastructure, we would expect the White population to decline. Instead, the fact that the estimates do not indicate general declines in the White population suggests that the increase in plumbing access reflects improvements in infrastructure rather than changes in the composition of the housing stock occupied by Black households.

Panels D and E examine housing market responses. In Panel D, median rents increase by 32 percent for Black renter-occupied housing units and by 16.7 percent for White renter-occupied units. These increases are consistent with improvements in public goods directly raising housing

quality. Investments in water infrastructure and related municipal services improve the bundle of amenities associated with housing units, and such improvements are expected to be reflected in higher rents. In addition to this direct quality effect, rents may also increase through a demand channel. The rise in the Black population share documented in Panel B suggests that improved neighborhood conditions may have attracted additional residents or reduced out-migration, thereby increasing housing demand in affected areas. Finally, the increase in White rents suggests that the benefits of expanded public spending might not have been confined to Black neighborhoods. White communities may have experienced spillovers from improvements in city-wide infrastructure or may have benefited from the broader expansion in municipal spending following electoral reform. These patterns are therefore consistent with the mechanism described in Hypothesis 2, in which Black representatives become influential actors and are able to shape public spending in ways that improve public goods provision in historically underserved neighborhoods while also generating broader benefits across the city. This aligns with previous accounts suggesting that the election of Black representatives may have led to policies that may have also benefited Whites (Wright, 2013).

Panel E reports results for owner-occupied housing values. Improvements in public goods are typically expected to be capitalized into housing prices, as better infrastructure and local amenities increase the value of the housing bundle. We do not detect statistically significant effects on the median value of either Black- or White-owned housing, although the point estimate for White-owned housing suggests an increase of roughly 6.4 percent. One possible explanation is that Census measures of housing values rely on homeowners' assessments of what their property would sell for, which may be imprecise if owners have not recently participated in the housing market or do not closely follow local house prices. By contrast, rent is reported as a current monthly payment, which respondents are likely to know more accurately. Combined with the relatively infrequent timing of Census observations, this may reduce our ability to detect capitalization effects in housing values even if improvements in public goods increased housing quality and housing demand.

Taken together, the results provide little evidence for the backlash mechanism described in Hypothesis 1. Instead, they suggest that electoral reform was followed by improvements in infrastructure access for Black households, demographic adjustment consistent with improved neighborhood conditions, and housing market responses reflecting both improvements in housing quality and increased demand. These patterns are consistent with Hypothesis 2, in which Black representatives become pivotal actors in governing coalitions and are able to influence public spending in ways that improve public goods provision in historically underserved communities, with benefits that may extend more broadly.

6 Robustness Analysis

This section evaluates the robustness of the main findings along four dimensions. First, we assess whether the estimated effects are sensitive to the choice of estimator used to address staggered adoption of single-member district elections. Second, we examine whether the results depend on the definition of the estimation sample by varying the population thresholds used to select municipalities based on their Black population share. Third, we test the robustness of the common-pool analysis by using council size, defined as the number of legislators on the city council, as an alternative measure of legislative fragmentation. Finally, we re-estimate the mechanism analysis using alternative specifications that exploit all available Census decades and different measures of exposure to electoral reform.

Alternative staggered difference-in-differences estimators. The main analysis relies on the interaction-weighted event-study estimator proposed by Sun and Abraham (2021). To assess whether the results depend on this specific estimator, we re-estimate the main specifications using several alternative methods developed in the recent literature on staggered difference-in-differences, including the estimators proposed by Callaway and Sant'Anna (2021), de Chaisemartin and D'Haultfoeuille (2020), and Borusyak et al. (2024). These approaches differ in how they construct comparison groups and aggregate cohort-specific treatment effects, but all are designed to remain valid under staggered adoption.

Figures A1, A2, and A3 present the corresponding event-study estimates for Black political representation and for key municipal budget outcomes using these alternative estimators. Across methods, the estimated dynamic effects closely mirror those obtained using the Sun and Abraham (2021) estimator shown in the main figures.

Alternative controls and population thresholds. In the baseline specification, the analysis sample is restricted to municipalities with a Black population share between 2.5 and 40 percent. This restriction focuses attention on cities in which changes in Black political representation are most empirically relevant, while excluding places with either very small Black populations or Black population shares so large that the scope for underrepresentation is more limited. As a robustness check, we vary both the lower and upper population thresholds, expanding and contracting the sample accordingly. In these exercises, we include a more parsimonious set of controls—population, the share of Black residents, and the share of older residents—because these variables are available for a larger set of municipalities. This allows us to maximize sample size when moving the population thresholds and to ensure that changes in results are not driven by differential data availability across specifications.

Tables A1 and A3 report the results under these alternative sample definitions. Across specifications, the estimated effects on Black political representation and on municipal budget outcomes remain stable in sign and magnitude, with statistical significance largely preserved. In particular, the association between increased Black political representation and shifts in spending toward core local public goods is robust to alternative population cutoffs. These results indicate that the baseline findings are not driven by the specific choice of population thresholds and hold across a wide range of plausible sample definitions.

Alternative measure of the common-pool incentive. In the baseline analysis, the common-pool incentive is proxied by the number of electoral districts, which captures the extent to which spending decisions are made by multiple representatives with geographically concentrated constituencies. However, not all districts necessarily elect a single legislator, and changes in district structure may not map one-to-one into changes in the size of the legislative body.

As a robustness check, we therefore re-estimate the common-pool specifications using the number of council members as an alternative measure of fragmentation. This measure directly captures the number of legislators participating in budgetary decision-making, regardless of the underlying district configuration (see, also Baqir (2002), and MacDonald (2008)). The results using council size closely mirror those obtained using the number of districts: the estimated coefficients are similar in magnitude and statistical significance, and the qualitative conclusions are unchanged. This is in line with MacDonald (2008), who applies two-way fixed effects to a large panel of U.S. cities from 1982 to 2002 and finds that council size has no effect on spending. By contrast, our findings differ from Baqir (2002), who, using OLS and TSLS on a cross section of more than 1,400 U.S. cities around 1990, reports that larger councils are associated with higher spending. However, Baqir's estimates are potentially confounded by omitted variable bias and reverse causality (MacDonald, 2008; Pettersson-Lidbom, 2012).

Alternative mechanism specifications. This section examines the robustness of the mechanism results using alternative specifications that exploit all available Census decades between 1970 and 2000. Because the outcomes used to study mechanisms are observed only at decennial frequency and in some cases only for a subset of years, these specifications allow us to assess whether the results depend on the particular way in which exposure to the electoral reform is measured.

The general specification takes the form

$$\Delta Y_{it} = \beta X_{it} + \gamma \Delta Z_{it} + \lambda_t + \varepsilon_{it},$$

where ΔY_{it} denotes the change in the outcome between Census decades, X_{it} captures exposure to

the electoral reform using alternative measures, ΔZ_{it} includes changes in the control variables, and λ_t denotes decade fixed effects. The outcomes correspond to changes in infrastructure access, demographic composition, and housing market outcomes. The three alternative measures of X_{it} capture different aspects of the timing and persistence of electoral reform. The results are consistent with the baseline specification and with the expected timing of the mechanisms: infrastructure access and housing rents respond relatively quickly following electoral reform, while demographic adjustments occur more gradually.

Evidence Using All Available Decades. Table A5 replicates the baseline specification while incorporating all available Census decades for each outcome. In this specification, the regressor equals one only in the decade in which a city adopts single-member districts, capturing more immediate adjustments around the time of reform. The results for infrastructure improvements remain very similar to the baseline estimates. The share of Black-occupied housing units with complete plumbing increases by 16.1 percentage points in the decade of reform. Given that only 73.3 percent of Black-occupied houses had complete plumbing facilities in 1970, this corresponds to a large improvement in access to basic infrastructure. Plumbing access among White households declines slightly by 0.65 percentage points, although the magnitude is small relative to the baseline level of 97.5 percent in 1970.

Demographic adjustments are smaller in magnitude, consistent with the idea that population responses occur more gradually. The Black population share increases by about 0.5 percentage points in the reform decade, although the estimate is imprecise. By contrast, the share of residents classified as other races declines by roughly 1.5 percentage points. Changes in population levels are modest and statistically insignificant. Housing rents increase significantly following reform, rising by 18.7 percent for Black renters and 9.9 percent for White renters.

Years Since Reform. Table A6 replaces the reform indicator with a continuous measure of exposure equal to the number of years since the adoption of single-member districts. This specification captures whether the effects of electoral reform accumulate over time. The estimates indicate that improvements in infrastructure access grow steadily following reform. Each additional year since reform increases the share of Black-occupied housing units with complete plumbing by approximately 0.67 percentage points. Over a decade, this corresponds to an increase of roughly 6.7 percentage points, suggesting substantial improvements in infrastructure access over time. Plumbing access among White households changes very little, declining by roughly 0.03 percentage points per year.

Demographic adjustments follow a similar pattern. Each additional year since reform increases the Black population share by approximately 0.19 percentage points while reducing the share of residents of other races by roughly 0.28 percentage points. These magnitudes imply that demographic changes accumulate gradually over time following the institutional reform. In contrast,

population levels show little systematic response. Housing rents increase modestly with exposure to reform, although the magnitude of these effects is small relative to the baseline estimates.

Post-Reform Indicator. Table A7 instead uses an absorbing-state specification in which the regressor equals one in all decades after a city adopts single-member districts. This specification captures average differences between the pre- and post-reform periods but does not isolate the immediate timing of the reform. The estimated effect on plumbing access for Black households remains positive and significant, increasing by 8.7 percentage points. This magnitude lies between the baseline estimate and the immediate-decade specification, consistent with the interpretation that infrastructure improvements occur relatively quickly after the reform and are partially diluted when averaging across all post-reform decades.

Demographic responses remain evident under this specification. The Black population share increases by approximately 1.4 percentage points in the post-reform period, while the share of residents of other races declines by about 2.5 percentage points. Population levels again show no statistically significant response. Housing rents increase substantially in the post-reform period, rising by about 7.6 percent for Black renters and 3.7 percent for White renters. Taken together, these results confirm the main pattern documented in the baseline specification: electoral reform is associated with large improvements in infrastructure access for Black households and more gradual demographic adjustments in treated cities.

7 Conclusions

This paper studies how electoral institutions shape the extent to which expanded voting rights translate into political representation and public policy. We show that the judicial prohibition of Black vote dilution under Section 2 of the Voting Rights Act had large, durable, and substantively meaningful effects on both. Exploiting the staggered timing of court-mandated transitions from at-large to single-member district elections, we document sharp and persistent increases in Black representation in municipal councils, alongside a substantial reduction of the Black representation gap and a marked increase in the racial diversity of local legislative bodies. These representational gains translated into higher investment in core municipal services—most notably fire protection and water utilities—public goods that had been historically underprovided in Black neighborhoods. Consistent with these policy changes, we document patterns consistent with improvements in access to basic infrastructure for Black households, increases in the Black population share, and higher housing rents, particularly among Black renters. Taken together, these findings indicate that electoral institutions governing how votes are translated into seats were central to converting minority political participation into effective representation and improvements in public goods provision in historically underserved communities.

These findings carry important implications for the contemporary institutional architecture of voting rights enforcement. Section 2 of the Voting Rights Act now functions as the principal federal safeguard against discriminatory electoral practices, particularly in the absence of an operative preclearance regime. After Shelby County v. Holder (2013) rendered Section 5 largely inoperative, jurisdictions regained broad discretion to alter electoral rules, district boundaries, and voting procedures without prior federal approval. In this environment, Section 2 serves as the central results-based constraint on practices that dilute minority voting strength or otherwise restrict meaningful political participation. By prohibiting voting arrangements with discriminatory effects—regardless of intent—and empowering courts to invalidate at-large systems, redistricting plans, and other institutional mechanisms that weaken minority voters' capacity to translate participation into representation, Section 2 remains foundational to the enforcement of political equality.

The continuing force of Section 2 was illustrated most clearly in Allen v. Milligan (2023). The case arose after Alabama's post-2020 congressional redistricting plan created only one majority-Black district out of seven, despite Black voters comprising roughly a quarter of the state's population. Black voters challenged the map under Section 2, and the Supreme Court, in a 5–4 decision, affirmed a lower court ruling that the plan likely violated the statute. Writing for the majority, the Court rejected Alabama's attempt to narrow the scope of Section 2 and confirmed that the Thornburg v. Gingles framework and the results test remain the governing standards for evaluating vote dilution claims. By requiring Alabama to redraw its map to include an additional district in which Black voters could elect candidates of their choice, the decision underscored that minority political power depends not only on access to the ballot, but also on electoral structures that fairly translate votes into representation.

More broadly, Allen v. Milligan demonstrates that Section 2 continues to play a critical role in constraining discriminatory electoral design after the effective dismantling of Section 5 preclearance. Our findings clarify the material consequences of these contemporary disputes. We show that court-mandated shifts from at-large to single-member districts increase Black political representation, reshape the racial composition of local councils, and are followed by persistent increases in investment in core municipal services such as fire protection and water infrastructure. These changes are also accompanied by improvements in basic living conditions in Black neighborhoods, including increases in the share of Black-occupied housing units with complete plumbing, as well as by demographic and housing-market responses, including a higher Black population share and higher rents for Black households. In today's institutional environment, Section 2 is therefore essential not merely for expanding access to the ballot, but for preserving the institutional conditions under which minority votes meaningfully shape policy outcomes (Bernini et al., 2024).

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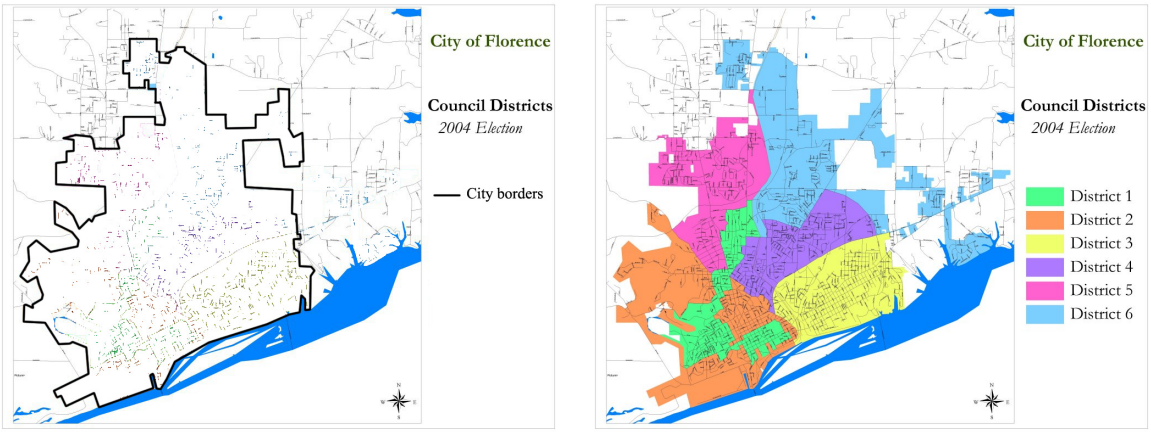
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A Figures

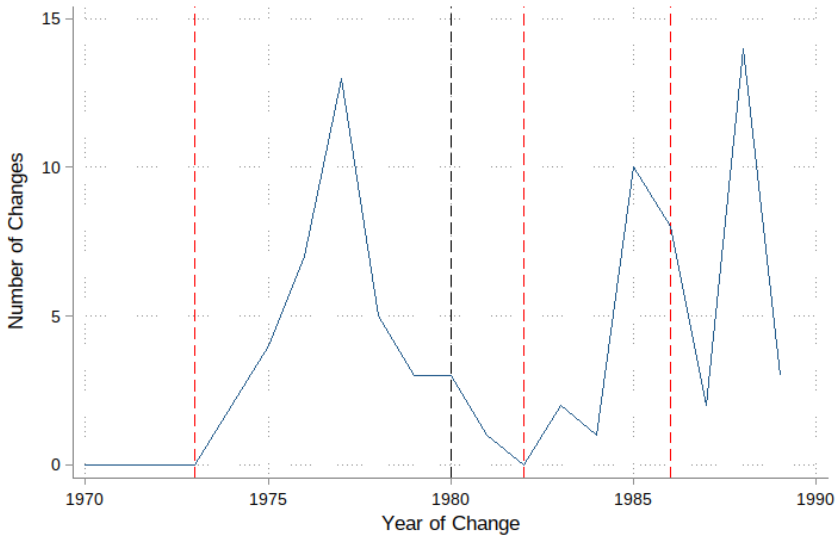
Figure 1: **Map of Electoral District in Florence, AL**



(a) At-Large Elections **(b) Single-District Elections**

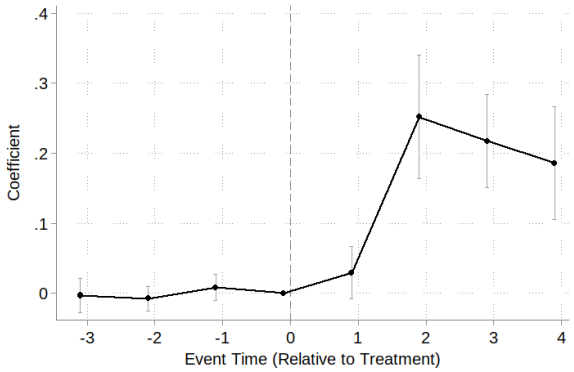
Notes: Panel (a) and (b) show the electoral constituencies when elections are at-large or organized through single-districts, respectively. The maps are from one of the municipalities in the sample, the city of Florence, Alabama. When elections are at-large, the whole city is the electoral district. In contrast, when elections are organized by single-districts, the city is partitioned into multiple electoral constituencies. For the case of Florence, district 1 concentrates most of the 19.4% Black population in the city, allowing the Black community to elect a representative.

Figure 2: **Number of Changes Towards Single-Districts by Year**

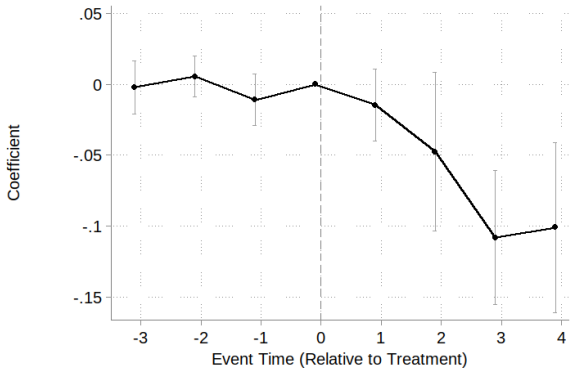


Notes: The figure displays the evolution of changes from at-large elections to single-member district elections. The red dashed lines show years in which a landmark case for the anti-vote dilution jurisprudence was ruled. The Black line shows the only case that increased the burden of proof that plaintiffs needed to demonstrate in court to ban at-large elections. Each peak of changes happens after each of the three significant anti-vote dilution rulings, whereas the years in which there were barely changes correspond to periods when discriminatory intent had to be proven (1970-1972), or after the negative ruling for anti-vote dilution (1980-1982). Sources are Davidson and Grofman (1994)

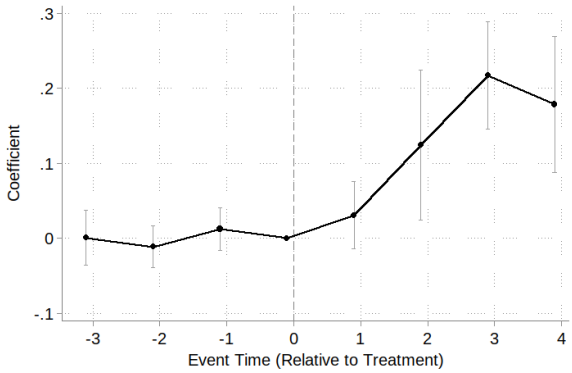
Figure 3: **Effects on Black Representation**



(a) % Black Representatives



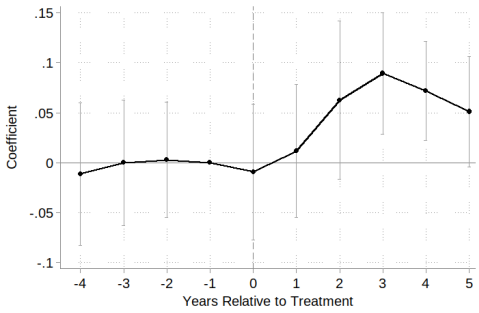
(b) Black Representation Gap



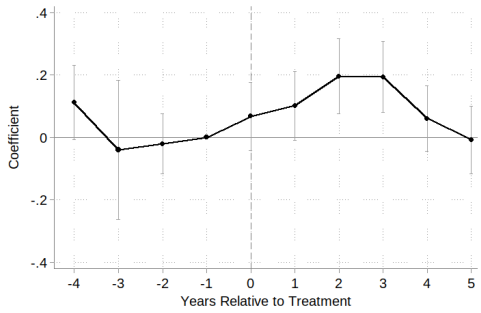
(c) Council Ethnic Fractionalization

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using the Sun and Abraham (2021) interaction weighted estimator. See text for additional details. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform.

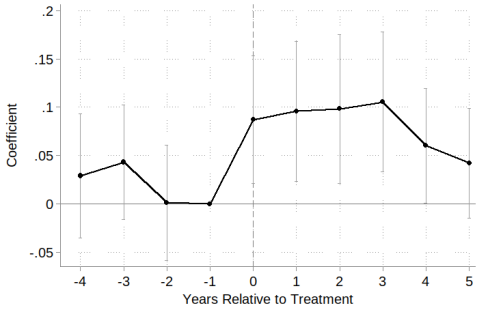
Figure 4: **Effects on City Budget (I)**



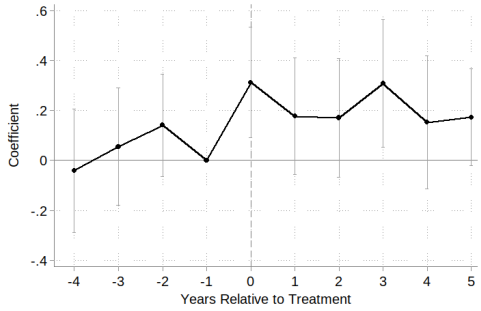
(a) Fire Protection



(b) Water Utilities Expenditure



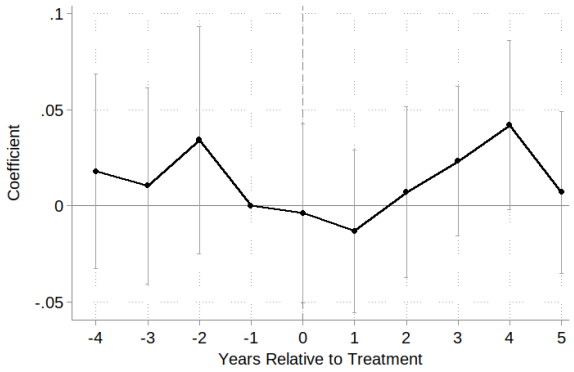
(c) Water Utilities Revenue



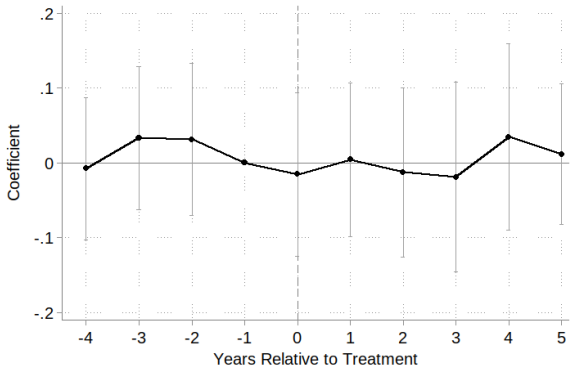
(d) Sewage

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using the Sun and Abraham (2021) interaction weighted estimator. See text for additional details. We plot the effects on fire protection (Panel (a)), water utilities expenditure (Panel (b)), water utilities revenue (Panel (c)), and sewage (Panel (d)). All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform.

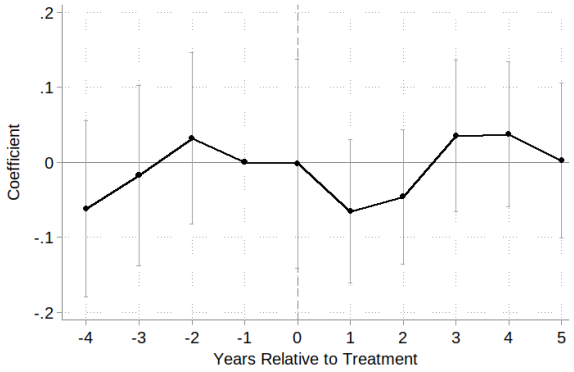
Figure 5: **Effects on City Budget (II)**



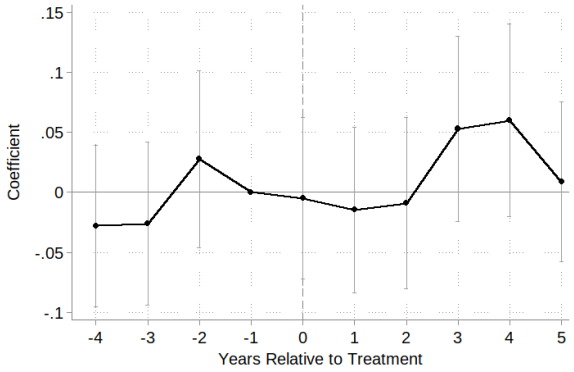
(a) Police Protection



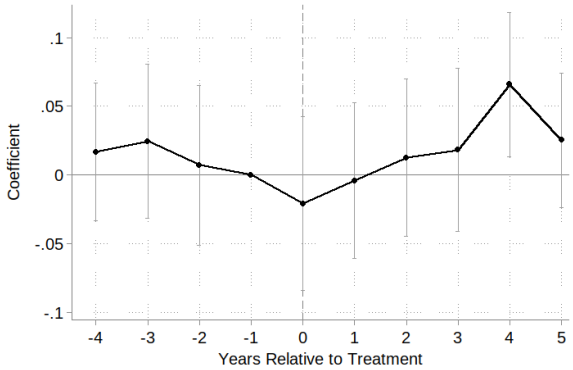
(b) Roads



(c) Parks



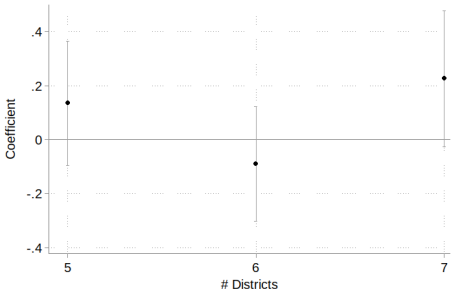
(d) Local Public Good



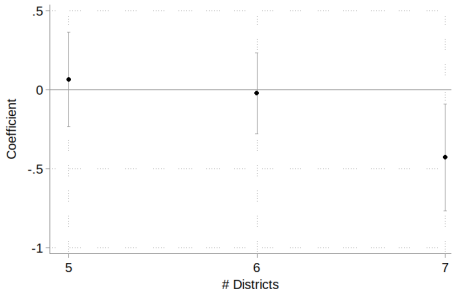
(e) Local Tax Collection

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using the Sun and Abraham (2021) interaction weighted estimator. See text for additional details. We plot effects on police protection (Panel (a)), roads (Panel (b)), parks (Panel (c)), local public good aggregate spending (Panel (d)), and local tax collection (Panel (e)). All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform.

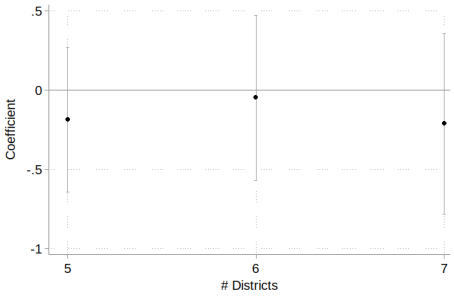
Figure 6: **Test of the Common Pool Hypothesis**



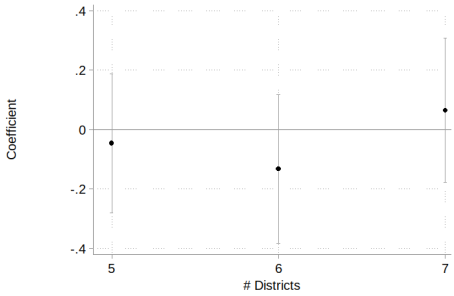
(a) Fire Protection



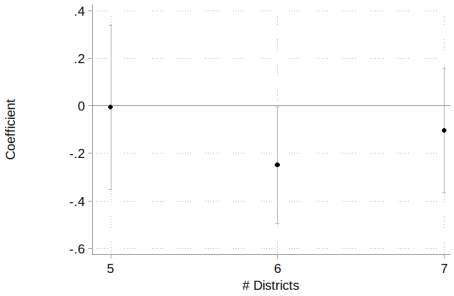
(b) Water Utilities Expenditure



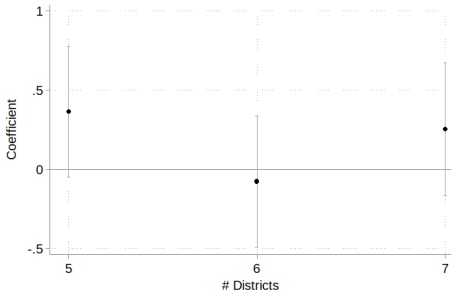
(c) Sewage



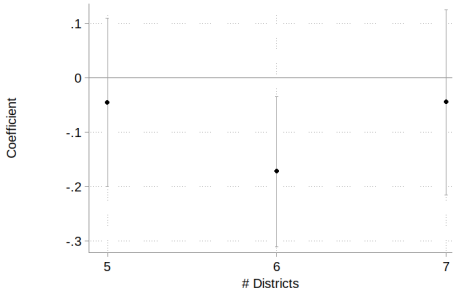
(d) Police Protection



(e) Roads



(f) Parks



(g) Local Public Good

Notes: These figures plot the coefficients and 95% confidence intervals of the coefficients β_{2k} in specification 1. They show if the effects on budget variables increase with the number of districts created, relative to cities that created 4 or less single-districts. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level.

B Tables

Table 1: Municipal Budget

	(1) % of the Budget		(2) $ per capita		(3) Transfer / Direct Exp.	
	Mean	SD	Mean	SD	Mean	SD
Water Utilities	10.402	8.720	116.832	113.951	0.129	0.134
Police Protection	9.817	5.239	118.851	56.486	0.001	0.006
Roads	7.773	5.675	91.987	60.220	0.254	0.278
Fire Protection	6.501	3.702	78.662	38.565	0.000	0.001
Sewage	6.323	6.798	86.213	112.155	0.027	0.328
Parks	4.483	3.449	56.035	44.500	0.074	2.099
Housing	2.605	4.702	34.175	62.754	0.081	3.919
Health	0.602	1.403	7.805	27.525	0.908	11.223
Number of cities	130		130		130	

Notes: The table reports sample means and standard deviations of main municipal expenditure categories. Statistics are computed over all years in the panel (1970–2000).

Table 2: Summary Statistics for Treatment and Control Cities

	(1) Treatment, 1970		(2) Control, 1970		(3) Treatment, 2000		(4) Control, 2000	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Share Single-district	0.000	0.000	0.194	0.349	0.879	0.147	0.205	0.357
Black Population Share	0.260	0.090	0.079	0.049	0.349	0.144	0.102	0.089
White Population Share	0.737	0.089	0.904	0.050	0.598	0.129	0.733	0.182
Other Races Population Share	0.003	0.003	0.017	0.022	0.053	0.046	0.165	0.178
Council Size	5.273	2.094	6.282	1.700	6.295	1.634	6.284	1.754
Share Black Representative	0.031	0.073	0.015	0.045	0.259	0.161	0.041	0.097
Population	57140.654	109501.898	51312.981	53201.232	76221.758	153932.067	71324.189	78029.968
Water Utility per capita ($)	97.294	78.923	86.505	81.989	207.996	177.897	137.274	103.884
Fire per capita ($)	42.478	19.175	60.463	31.142	114.965	40.506	116.668	43.697
Police per capita ($)	61.307	21.698	74.207	33.261	182.180	39.904	190.424	79.845
Roads per capita ($)	73.390	45.767	81.779	45.752	121.478	68.567	120.467	86.194
Sewage per capita ($)	45.772	90.521	47.713	55.505	102.392	105.817	127.025	89.643
Park per capita ($)	24.902	20.830	46.381	34.835	83.342	56.411	88.564	52.642
Total taxes per capita ($)	201.095	125.149	284.863	322.861	471.285	292.270	495.078	398.268
Share Northeast	0.000	0.000	0.097	0.298	0.000	0.000	0.095	0.294
Share Midwest	0.000	0.000	0.369	0.485	0.000	0.000	0.358	0.482
Share South	1.000	0.000	0.282	0.452	1.000	0.000	0.295	0.458
Share West	0.000	0.000	0.252	0.437	0.000	0.000	0.253	0.437
Median House Value – White	15999.727	2200.293	17607.542	4733.810	92710.000	21777.406	129023.810	98474.381
Median House Value – Black	9402.938	1986.993	12535.247	5579.954	56147.143	13155.081	108297.436	86225.724
Median Rent – White	73.838	18.449	98.341	31.371	405.614	88.610	517.619	238.037
Median Rent – Black	41.366	10.559	74.720	33.662	315.457	74.373	510.769	241.208
Population Share 65+	0.094	0.024	0.112	0.054	0.144	0.032	0.140	0.050
3 Bedrooms – White	0.249	0.073	0.216	0.078	0.253	0.080	0.218	0.066
3 Bedrooms – Black	0.196	0.102	0.237	0.209	0.290	0.066	0.275	0.095
Built Before 1939 – White	0.284	0.103	0.388	0.229	0.096	0.048	0.208	0.160
Built Before 1939 – Black	0.365	0.125	0.491	0.292	0.081	0.044	0.162	0.138
Observations	78		52		78		52	

The table reports summary statistics for treated and control cities in the first year of the panel (1970) and the last year (2000). For each variable, we report the mean, standard deviation, and number of observations. Sample sizes are smaller for some variables because of missing data. In particular, the number of observations for council size is 66, 51, 71, and 43 across columns 1–4, respectively. For the share of Black representatives, the corresponding numbers are 58, 39, 69, and 37. Data for Black representatives is for the year 1992, instead of 2000.

Table 3: Results for Black Representation and Council Size

	(1) % Black Repr.	(2) Black Repr. Gap	(3) Council Ethnic Frac.	(4) Council Size
Change	0.201***	-0.090***	0.177***	0.244***
	(0.031)	(0.021)	(0.032)	(0.054)
Observations	819	819	819	194

Notes: The table shows the effect of changing from at-large to single-member district elections on black representation in the municipal council (Columns 1 and 2), ethnic fractionalization in the council (Column 3), and the log of the number of council members. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. Representation data is for the years 1970, 1973, 1975, 1977, 1980, 1986, 1989, and 1992. We only observe the variable council size in 1970 and 1989. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Effects on City Budget

	(1) Fire Protection	(2) Water Util. Expenditure	(3) Water Util. Revenue	(4) Sewage	(5) Police Protection	(6) Roads	(7) Parks	(8) Local Public Goods	(9) Local Tax Collection
Overall ATT	0.053**	0.103**	0.080***	0.186**	0.018	0.003	-0.003	0.021	0.024
	(0.023)	(0.042)	(0.029)	(0.082)	(0.015)	(0.040)	(0.037)	(0.026)	(0.024)
Observations	3859	3330	3330	2587	3860	3703	3492	3860	3799

Notes: The table shows the effect of changing from at-large to single-member district elections on several budget variables. We report the average coefficient for post-treatment periods 1 to 5. We use the estimator by Sun and Abraham (2021) due to the staggered implementation of the electoral reforms. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5: Mechanisms: Infrastructure Improvements, Demographic Adjustment, and Housing Market Responses

	(1)	(2)	
Panel A. Infrastructure Improvements			
	Δ Plumbing – Black	Δ Plumbing – White	
Δ Change	0.168***	-0.00521*	
	(0.0247)	(0.00274)	
Observations	108	111	
Panel B. Demographic Adjustment (Population Shares)			
	Δ Population Share – Black	Δ Population Share – White	Δ Population Share – Other
Δ Change	0.0658***	-0.00555	-0.0695***
	(0.0122)	(0.0241)	(0.0250)
Observations	108	111	108
Panel C. Demographic Adjustment (Population Levels)			
	Δ Log Black Population	Δ Log White Population	
Δ Change	0.136	0.0261	
	(0.103)	(0.104)	
Observations	108	111	
Panel D. Housing Rents			
	Δ Log Rent – Black	Δ Log Rent – White	
Δ Change	0.322***	0.167***	
	(0.0505)	(0.0419)	
Observations	108	111	
Panel E. Housing Values			
	Δ Log House Value – Black	Δ Log House Value – White	
Δ Change	-0.0105	0.0639	
	(0.0600)	(0.0491)	
Observations	108	111	

Notes: The table reports estimates from regressions of the form given in Equation 2, where both the dependent variable and the main regressors are expressed in first differences between 1970 and 2000. The dependent variables measure changes in infrastructure access, demographic composition, and housing market outcomes. Panel A reports changes in the share of Black- and White-occupied housing units with complete plumbing facilities. Panel B reports changes in the population shares of Black residents, White residents, and residents of other races. Panel C reports changes in the log number of Black and White residents. Panel D reports changes in the log of median rent for Black and White renter-occupied housing units. Panel E reports changes in the log of median housing values for Black- and White-owner-occupied housing units. The main regressor is the first difference of an indicator equal to one when a city changes its electoral rule from at-large elections to single-member districts between 1970 and 2000. All specifications include controls for average income, the share of college-educated residents, the share of employed residents, the share of residents older than 65, the share of housing units built before 1939 (by race), and the share of housing units with three or more bedrooms (by race). Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A Online Appendix (Not for Publication)

A Qualitative Evidence on Underprovision of Public Goods

This appendix provides qualitative evidence illustrating the patterns of underprovision of municipal public goods in Black neighborhoods discussed in Section 2.4. Historical case studies and court records document how institutional arrangements, particularly at-large electoral systems, limited Black political representation and shaped the allocation of local public services.

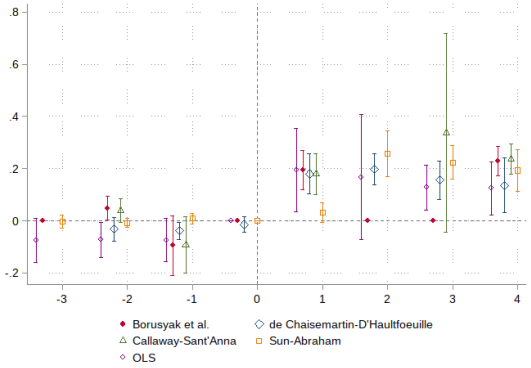
A prominent example is the case of *Dowdell v. City of Apopka* (U.S. District Court for the Middle District of Florida, 1981), which examined disparities in public service provision in the city of Apopka, Florida. The Court's findings describe how Black residents were systematically disadvantaged in access to municipal services and excluded from positions of influence within the local government:

> *"The City of Apopka is governed by a mayor and city council. The mayor as well as members of the city council are elected at large. Although a Black man has served on the city council since 1970, all appointments by the mayor and council for unexpired vacancies on the council have been White. Although Blacks serve on the City's Zoning Board of Adjustment, Zoning Commission, Citizens Planning Advisory Committee, Crime Prevention Committee, and a Black person represents the City on the board of the Lake Apopka Natural Gas District, the key administrative positions in the City including city clerk, fire chief, police chief, director of streets and sanitation, recreation director, parks director, city attorney, and city prosecutor are all held by Whites...The City has virtually ignored complaints and requests by Black residents concerning the quantity and quality of the municipal services provided the Black community, while at the same time, the City has acted favorably on many similar requests from White residents."*

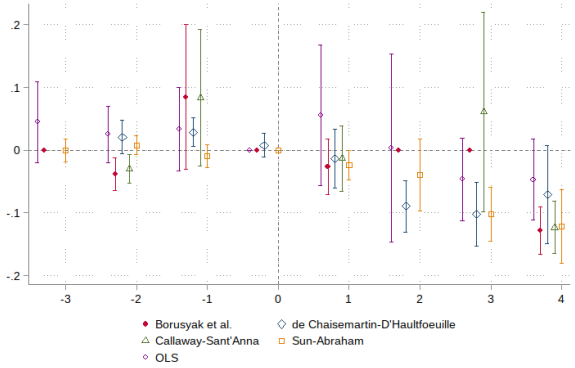
These findings, drawn from the Court's "Findings of Fact," reflect a broader pattern in which limited Black political representation under at-large electoral systems was associated with systematic disparities in public goods provision. While this example is drawn from a specific municipality, it is consistent with the wider historical evidence documenting underinvestment in infrastructure and public services in Black neighborhoods across the American South (Button, 1989).

B Robustness of Black Representation Results

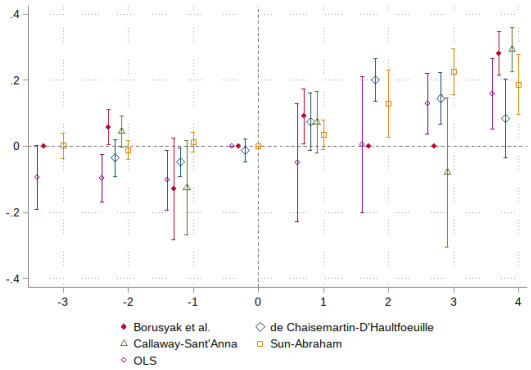
Figure A1: **Effects on Black Representation**



(a) % Black Representatives



(b) Black Representation Gap



(c) Council Ethnic Fractionalization

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using (de Chaisemartin and D'Haultfoeuille, 2020; Borusyak et al., 2024; Callaway and Sant'Anna, 2021; Sun and Abraham, 2021), as well as using traditional two-way fixed effects OLS. See text for additional details. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform. The data only allow for the estimation of three pre-treatment periods using de Chaisemartin and D'Haultfoeuille (2020). For the same reason, some event-time coefficients are not reported for Borusyak et al. (2024) (periods 2 and 3) and Callaway and Sant'Anna (2021) (periods -3 and 0), as these periods lack sufficient support in the data.

Table A1: Results for Black Representation and Council Size

	(1) % Black Repr.	(2) Black Repr. Gap	(3) Council Ethnic Frac.	(4) Council Size
	Panel A: Black Minority Less than 40% of Population			
Change	0.208***	-0.100***	0.186***	0.202***
	(0.031)	(0.020)	(0.033)	(0.050)
Observations	819	819	819	194
	Panel B: Black Minority Less than 30% of Population			
Change	0.128***	-0.074***	0.180***	0.114**
	(0.021)	(0.015)	(0.029)	(0.055)
Observations	593	593	593	142
	Panel C: Black Minority Less than 35% of Population			
Change	0.171***	-0.073***	0.166***	0.174***
	(0.034)	(0.020)	(0.033)	(0.051)
Observations	705	705	705	166
	Panel D: Black Minority Less than 45% of Population			
Change	0.208***	-0.100***	0.186***	0.202***
	(0.031)	(0.020)	(0.033)	(0.050)
Observations	819	819	819	194
	Panel E: Black Minority Less than 50% of Population			
Change	0.208***	-0.100***	0.186***	0.202***
	(0.031)	(0.020)	(0.033)	(0.050)
Observations	819	819	819	194

Notes: The table shows the effect of changing from at-large to single-member district elections on representation variables. We report the average coefficient for post-treatment periods 1 to 5. We use the estimator by Sun and Abraham (2021) due to the staggered implementation of the electoral reforms. The sample in each panel changes depending on the percentage of black population in each municipality. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, and share of old people. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

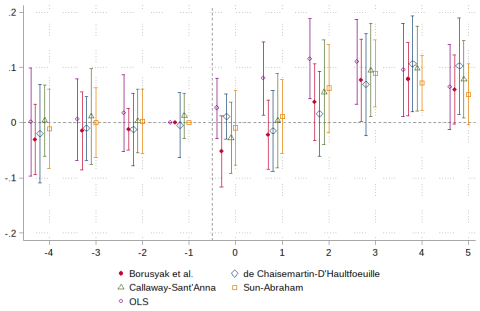
Table A2: Effects on Black Representation and Council Size by % of Black Population (Changing Lower Threshold)

	(1) % Black Repr.	(2) Black Repr. Gap	(3) Council Ethnic Frac.	(4) Council Size
	Panel A: Black Minority More than 2.5% of Population (Baseline)			
Change	0.208***	-0.100***	0.186***	0.202***
	(0.031)	(0.020)	(0.033)	(0.050)
Observations	819	819	819	194
	Panel B: Black Minority More than 0% of Population			
Change	0.208***	-0.100***	0.186***	0.202***
	(0.031)	(0.020)	(0.033)	(0.050)
Observations	819	819	819	194
	Panel C: Black Minority More than 5% of Population			
Change	0.197***	-0.100***	0.169***	0.202***
	(0.034)	(0.021)	(0.037)	(0.051)
Observations	715	715	715	168
	Panel D: Black Minority More than 7.5% of Population			
Change	0.181***	-0.100***	0.146***	0.183***
	(0.040)	(0.025)	(0.049)	(0.052)
Observations	627	627	627	146
	Panel E: Black Minority More than 10% of Population			
Change	0.158***	-0.084***	0.103*	0.173***
	(0.048)	(0.027)	(0.058)	(0.058)
Observations	577	577	577	134

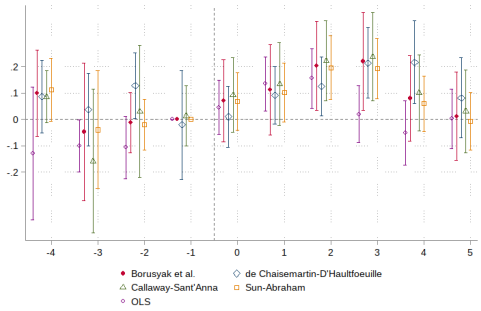
Notes: The table shows the effect of changing from at-large to single-member district elections on representation variables. We report the average coefficient for post-treatment periods 1 to 5. We use the estimator by Sun and Abraham (2021) due to the staggered implementation of the electoral reforms. The sample in each panel changes depending on the percentage of black population in each municipality. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, and share of old people. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

C Robustness of Municipal Budget Results

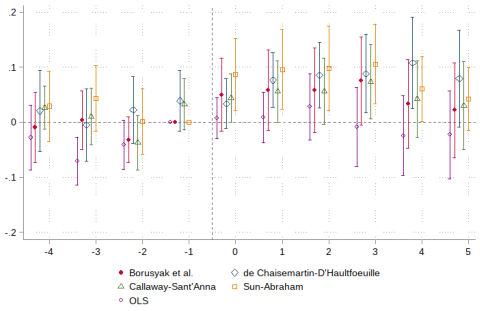
Figure A2: **Effects on City Budget (I)**



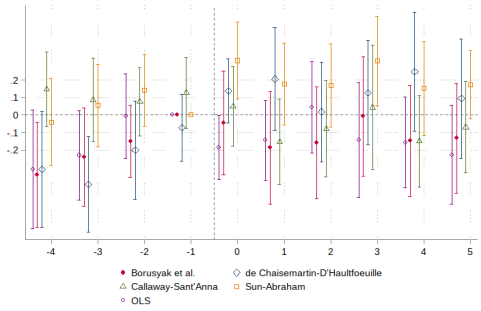
(a) Fire Protection



(b) Water Utilities Expenditure



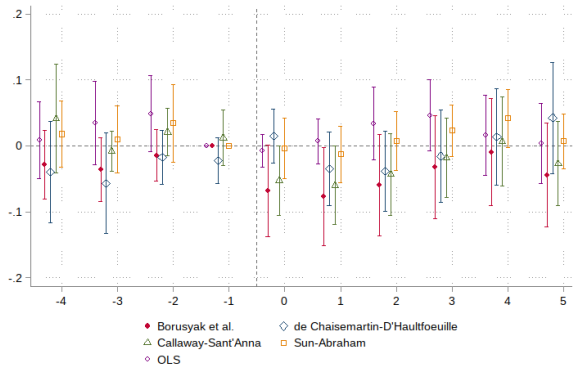
(c) Water Utilities Revenue



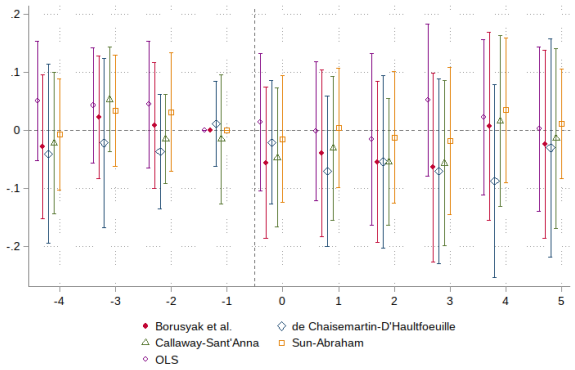
(d) Sewage

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using (de Chaisemartin and D'Haultfoeuille, 2020; Borusyak et al., 2024; Callaway and Sant'Anna, 2021; Sun and Abraham, 2021), as well as using traditional two-way fixed effects OLS. See text for additional details. We plot effects on fire protection (Panel (a)), water utilities expenditure (Panel (b)), water utilities revenue (Panel (c)), and sewage (Panel (d)). All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform.

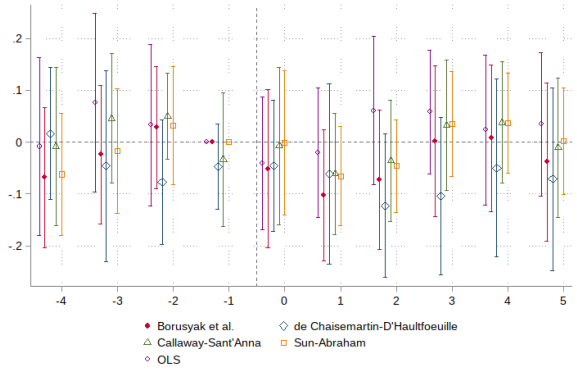
Figure A3: **Effects on City Budget (II)**



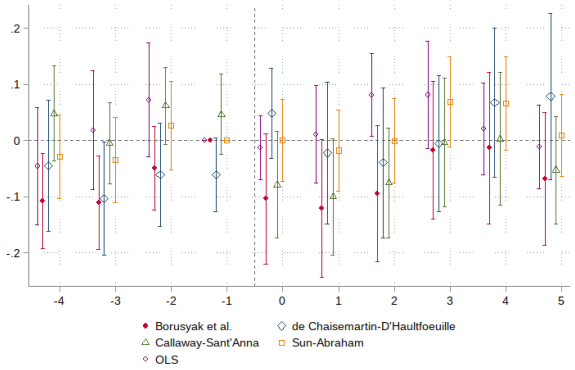
(a) Police Protection



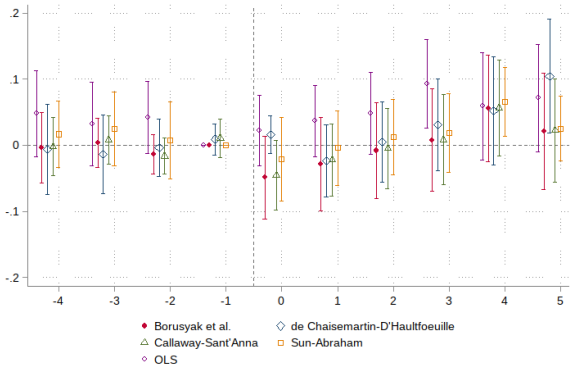
(b) Roads



(c) Parks



(d) Local Public Good



(e) Local Tax Collection

Notes: These figures plot the coefficients and 95% confidence intervals from event study regressions of changing the electoral rule from at-large to single-member districts using the Sun and Abraham (2021) interaction-weighted estimator. See text for additional details. We plot effects on police protection (Panel (a)), roads (Panel (b)), parks (Panel (c)), local public good aggregate spending (Panel (d)), and local tax collection (Panel (e)). All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level. The vertical red line depicts the month of the reform.

Table A3: Effects on City Budget by % of Black Population (Changing Upper Threshold)

	(1) Fire Protection	(2) Water Util. Expenditure	(3) Water Util. Revenue	(4) Sewage	(5) Police Protection	(6) Roads	(7) Parks	(8) Local Public Goods	(9) Local Tax Collection
Panel A: Black Minority Less than 40% of Population (Baseline)									
Overall ATT	0.057**	0.108***	0.080***	0.169**	0.013	0.004	-0.007	0.020	0.024
	(0.023)	(0.041)	(0.028)	(0.080)	(0.015)	(0.039)	(0.037)	(0.025)	(0.024)
Observations	3890	3453	3453	2648	3983	3826	3615	3983	3921
Panel B: Black Minority Less than 30% of Population									
Overall ATT	0.069***	0.031	0.063*	0.170	0.017	0.006	0.016	0.021	0.043
	(0.024)	(0.052)	(0.037)	(0.110)	(0.018)	(0.046)	(0.036)	(0.031)	(0.030)
Observations	2930	2556	2556	2002	2992	2868	2747	2992	2930
Panel C: Black Minority Less than 35% of Population									
Overall ATT	0.061***	0.078*	0.075**	0.186**	0.013	-0.019	-0.000	0.016	0.030
	(0.021)	(0.043)	(0.031)	(0.089)	(0.015)	(0.041)	(0.039)	(0.027)	(0.025)
Observations	3395	2989	2989	2341	3457	3332	3181	3457	3395
Panel D: Black Minority Less than 45% of Population									
Overall ATT	0.047**	0.097**	0.076***	0.110	0.004	-0.007	-0.025	-0.006	0.009
	(0.022)	(0.040)	(0.026)	(0.080)	(0.015)	(0.050)	(0.040)	(0.027)	(0.023)
Observations	4166	3731	3731	2802	4260	4134	3922	4291	4229
Panel E: Black Minority Less than 50% of Population									
Overall ATT	0.050**	0.084**	0.064**	0.089	0.008	-0.010	-0.026	-0.005	0.012
	(0.021)	(0.039)	(0.026)	(0.078)	(0.015)	(0.048)	(0.039)	(0.025)	(0.023)
Observations	4290	3855	3855	2894	4353	4258	3984	4415	4353

Notes: The table shows the effect of changing from at-large to single-member district elections on several budget variables. We report the average coefficient for post-treatment periods 1 to 5. We use the estimator by Sun and Abraham (2021) due to the staggered implementation of the electoral reforms. The sample in each panel changes depending on the percentage of Black population in each municipality. All specifications include city and year fixed effects and baseline controls interacted with year: population, share of Black residents, and share of elderly residents. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

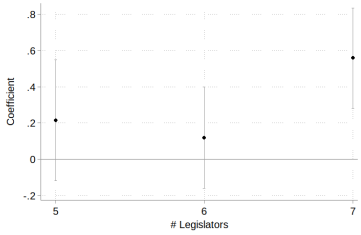
Table A4: Effects on City Budget by % of Black Population (Changing Lower Threshold)

	(1) Fire Protection	(2) Water Util. Expenditure	(3) Water Util. Revenue	(4) Sewage	(5) Police Protection	(6) Roads	(7) Parks	(8) Local Public Goods	(9) Local Tax Collection
Panel A: Black Minority More than 2.5% of Population (Baseline)									
Overall ATT	0.057**	0.108***	0.080***	0.169**	0.013	0.004	-0.007	0.020	0.024
	(0.023)	(0.041)	(0.028)	(0.080)	(0.015)	(0.039)	(0.037)	(0.025)	(0.024)
Observations	3890	3453	3453	2648	3983	3826	3615	3983	3921
Panel B: Black Minority More than 0% of Population									
Overall ATT	0.038*	0.102***	0.079***	0.224***	-0.010	-0.007	-0.003	0.020	-0.003
	(0.023)	(0.039)	(0.026)	(0.074)	(0.015)	(0.038)	(0.036)	(0.024)	(0.023)
Observations	7365	6530	6470	5445	7855	7761	7061	7919	7797
Panel C: Black Minority More than 5% of Population									
Overall ATT	0.052**	0.117***	0.089***	0.196**	0.018	0.009	-0.014	0.023	0.036
	(0.023)	(0.042)	(0.028)	(0.080)	(0.015)	(0.040)	(0.038)	(0.025)	(0.025)
Observations	3426	3082	3082	2308	3519	3362	3213	3519	3458
Panel D: Black Minority More than 7.5% of Population									
Overall ATT	0.053**	0.107**	0.090***	0.221***	0.025	0.007	-0.014	0.024	0.046*
	(0.023)	(0.043)	(0.029)	(0.083)	(0.015)	(0.040)	(0.039)	(0.026)	(0.026)
Observations	3025	2714	2714	1970	3088	2931	2782	3088	3027
Panel E: Black Minority More than 10% of Population									
Overall ATT	0.048**	0.107**	0.092***	0.220***	0.021	0.018	-0.024	0.022	0.045*
	(0.023)	(0.044)	(0.031)	(0.085)	(0.016)	(0.041)	(0.041)	(0.027)	(0.026)
Observations	2748	2531	2530	1723	2811	2654	2505	2811	2750

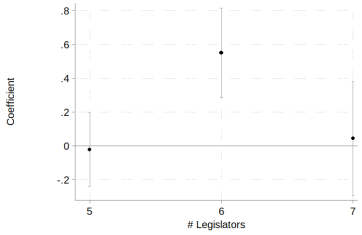
Notes: The table shows the effect of changing from at-large to single-member district elections on several budget variables. We report the average coefficient for post-treatment periods 1 to 5. We use the estimator by Sun and Abraham (2021) due to the staggered implementation of the electoral reforms. The sample in each panel changes depending on the percentage of black population in each municipality. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of black people, and share of old people. We also control for limits to property tax collection. Robust standard errors clustered at the city level are shown in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

D Robustness of Mechanism Evidence

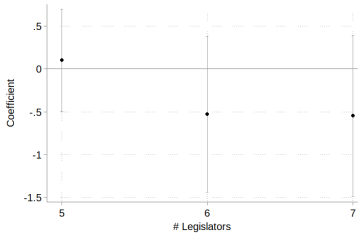
Figure A4: **Test of the Common Pool Hypothesis (Legislators)**



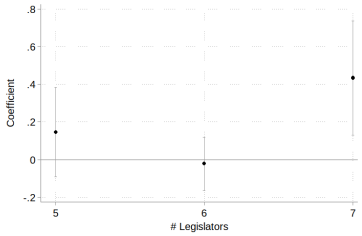
(a) Fire Protection



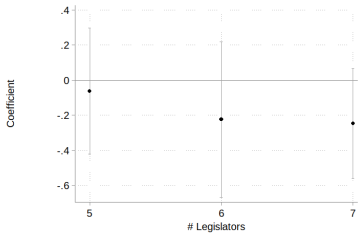
(b) Water Utilities Expenditure



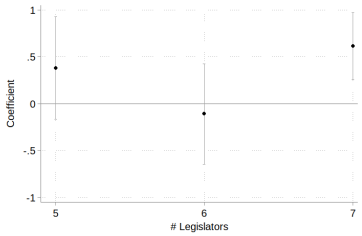
(c) Sewage



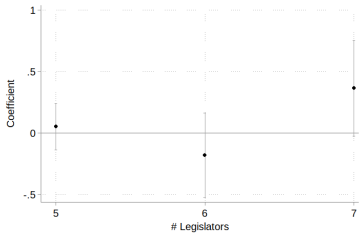
(d) Police Protection



(e) Roads



(f) Parks



(g) Local Public Good

Notes: These figures plot the coefficients and 95% confidence intervals of the coefficients β_{2k} in specification 1. They show if the effects on budget variable increase with the number of legislators, relative to cities that had 4 or less legislators. All specifications include city and year fixed effects and the following control variables at baseline interacted with year: population, share of Black people, average income, share of college-educated residents, share of employed residents, and share of old people. We also control for limits to property tax collection. Robust standard errors are clustered at the city level.

Table A5: Mechanisms: Infrastructure Improvements, Demographic Adjustment, and Housing Market Responses — Evidence Using All Available Decades

	(1)	(2)	
Panel A. Infrastructure Improvements			
	Δ Plumbing – Black	Δ Plumbing – White	
Δ Change	0.161***	-0.00650**	
	(0.0223)	(0.00270)	
Observations	234	237	
Panel B. Demographic Adjustment (Population Shares)			
	Δ Population Share – Black	Δ Population Share – White	Δ Population Share – Other
Δ Change	0.00479	0.0103	-0.0151***
	(0.00484)	(0.00648)	(0.00473)
Observations	362	362	362
Panel C. Demographic Adjustment (Population Levels)			
	Δ Log Black Population	Δ Log White Population	
Δ Change	0.0251	0.0407	
	(0.0328)	(0.0281)	
Observations	362	362	
Panel D. Housing Rents			
	Δ Log Rent – Black	Δ Log Rent – White	
Δ Change	0.187***	0.0995***	
	(0.0361)	(0.0273)	
Observations	234	237	

Notes: The table reports estimates from regressions similar to those in Table 5, but using all available Census decades between 1970 and 2000. The dependent variables measure changes in infrastructure access, demographic composition, and housing market outcomes. Panel A reports changes in the share of Black- and White-occupied housing units with complete plumbing facilities. Panel B reports changes in the population shares of Black residents, White residents, and residents of other races. Panel C reports changes in the log number of Black and White residents. Panel D reports changes in the log of median rent for Black and White renter-occupied housing units. Population outcomes use data from 1970, 1980, 1990, and 2000, while plumbing and rent outcomes use data from 1970, 1990, and 2000. The main regressor equals one in the decade in which a city changes its electoral rule from at-large elections to single-member districts. All specifications include controls for average income, the share of college-educated residents, the share of employed residents, and the share of residents older than 65. Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Mechanisms: Infrastructure Improvements, Demographic Adjustment, and Housing Market Responses — Years Since Reform

	(1)	(2)	
Panel A. Infrastructure Improvements			
	Δ Plumbing – Black	Δ Plumbing – White	
Years Since Change	0.00666***	-0.000339**	
	(0.00141)	(0.000140)	
Observations	234	237	
Panel B. Demographic Adjustment (Population Shares)			
	Δ Population Share – Black	Δ Population Share – White	Δ Population Share – Other
Years Since Change	0.00193***	0.000826	-0.00276***
	(0.000462)	(0.000814)	(0.000801)
Observations	362	362	362
Panel C. Demographic Adjustment (Population Levels)			
	Δ Log Black Population	Δ Log White Population	
Years Since Change	0.00444	0.00159	
	(0.00418)	(0.00344)	
Observations	362	362	
Panel D. Housing Rents			
	Δ Log Rent – Black	Δ Log Rent – White	
Years Since Change	0.00413*	-0.000181	
	(0.00226)	(0.00174)	
Observations	234	237	

Notes: The table reports estimates from regressions similar to those in Table 5, but replacing the reform indicator with a continuous measure of exposure equal to the number of years since the adoption of single-member districts. The regressions use all available Census decades between 1970 and 2000. Population outcomes use data from 1970, 1980, 1990, and 2000, while plumbing and rent outcomes use data from 1970, 1990, and 2000. The dependent variables measure changes in infrastructure access, demographic composition, and housing market outcomes. Panel A reports changes in the share of Black- and White-occupied housing units with complete plumbing facilities. Panel B reports changes in the population shares of Black residents, White residents, and residents of other races. Panel C reports changes in the log number of Black and White residents. Panel D reports changes in the log of median rent for Black and White renter-occupied housing units. All specifications include controls for average income, the share of college-educated residents, the share of employed residents, and the share of residents older than 65. Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Mechanisms: Infrastructure Improvements, Demographic Adjustment, and Housing Market Responses — Post-Reform Indicator

	(1)	(2)	
Panel A. Infrastructure Improvements			
	Δ Plumbing – Black	Δ Plumbing – White	
Change	0.0869***	-0.00254	
	(0.0128)	(0.00158)	
Observations	234	237	
Panel B. Demographic Adjustment (Population Shares)			
	Δ Population Share – Black	Δ Population Share – White	Δ Population Share – Other
Change	0.0141***	0.0108	-0.0249***
	(0.00420)	(0.00727)	(0.00684)
Observations	362	362	362
Panel C. Demographic Adjustment (Population Levels)			
	Δ Log Black Population	Δ Log White Population	
Change	0.0350	0.0237	
	(0.0335)	(0.0290)	
Observations	362	362	
Panel D. Housing Rents			
	Δ Log Rent – Black	Δ Log Rent – White	
Change	0.0759***	0.0368**	
	(0.0213)	(0.0168)	
Observations	234	237	

Notes: The table reports estimates from regressions similar to those in Table 5, but replacing the reform indicator with a post-reform dummy equal to one for all years after the adoption of single-member districts. The regressions use all available Census decades between 1970 and 2000. Population outcomes use data from 1970, 1980, 1990, and 2000, while plumbing and rent outcomes use data from 1970, 1990, and 2000. The dependent variables measure changes in infrastructure access, demographic composition, and housing market outcomes. Panel A reports changes in the share of Black- and White-occupied housing units with complete plumbing facilities. Panel B reports changes in the population shares of Black residents, White residents, and residents of other races. Panel C reports changes in the log number of Black and White residents. Panel D reports changes in the log of median rent for Black and White renter-occupied housing units. All specifications include controls for average income, the share of college-educated residents, the share of employed residents, and the share of residents older than 65. Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.