**Municipal Annexations and the Changing Color Line After *Shelby v. Holder***

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**WORD COUNT: 11,078 (not including references)**

**Keywords:** municipal annexation, racial exclusion, political geography, 1965 Voting Rights Act

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**Abstract**

How cities include and exclude racial minority resident has important implications for between-place segregation. Between 2000-2020, I estimate that at least 12% of over 15,000 municipalities expanded their city boundaries via annexation. Prior research finds some evidence that cities discriminate against Black and Hispanic residents at city fringes when annexing, especially after the Supreme Court invalidated Sections 4 and 5 of the 1965 Voting Rights Act in *Shelby v. Holder* on June 25th, 2013. Annexations can be detrimental to political representation of racial minority communities already residing within the city if their relative population shares decrease after annexation, but less is known about whether cities pursued annexations to this effect more after *Shelby*. Using a difference-in-differences design, I analyze all annexations for cities in continued existence from 2000-2020 across 41 U.S. states. I find limited evidence that Section 5 coverage prevented Black population dilution in city annexations pre-*Shelby* and suggest that unexpectedly insignificant effects of post-*Shelby* annexations nevertheless reflect ongoing racial exclusion in cities. These findings contribute to research on the role of administrative boundaries at the city-level in perpetuating racial inequality and the limits to federal oversight in suppressing cities’ ability to racially exclude.

**Introduction**

Across over 20,000 cities in the United States, local governments use a wide range of policy levers to shape where people live. A large body of research shows that such policies and practices as restrictive density zoning and the spatially targeted construction of affordable housing contribute to within-place racial segregation as racial groups are differentially sorted across neighborhoods within the city (Massey, Rothwell, and Domina 2009; Owens 2019; Rugh and Massey 2014), and many of these policies also contribute to between-place segregation by influencing the overall racial composition of their city (LaBriola 2022; Lichter, Parisi, and Taquino 2015; Rothwell and Massey 2009; Shlay and Rossi 1981; Trounstine 2018).

Importantly, city boundaries can be leveraged to achieve desired proportions of racial groups within the city and is an understudied practice that contributes to between-place segregation. Termed “municipal underbounding,” much of prior research on municipal annexations highlights how cities exclude Black and Hispanic residents at the city fringe by not annexing them (Aiken 1987; Durst 2014, 2019; Johnson et al. 2004; Moeser and Dennis 2020; Mukhija and Mason 2013; Murphy 1978), but annexations can also be detrimental to racial minority residents already living within the city if the addition of White residents dilutes their political power in local elections (*Gomillion v. Lightfoot* 1960; Moeser and Dennis 2020; Murphy 1978; *Richmond v. Virginia* 1970). While these types of racially diluting annexations were previously subject to federal oversight for many cities through Sections 4 and 5 of the Voting Rights Act (VRA), these federal oversight requirements were ruled unconstitutional and invalidated on June 25th, 2013, by the US Supreme Court in *Shelby v. Holder*.

Research on the implications of policy changes for racial inequality tend to examine what happens when a new policy is put into place, such as the New Deal and the G.I. Bill (Faber 2020) or Ban the Box initiatives (Doleac and Hansen 2020), but the relationship between removing an existing legal protection and racial inequality is less clear. If it is the regulation that is preventing racial exclusion, removal of the regulation would likely result in an increase in those exclusionary practices. On the other hand, if a law was never effective, its removal would likely have no effect. Laws can also become ingrained norms, such that compliance would plausibly persist even after removal because the public agrees enough with the principle behind the law (Hirsh 2009).

In this paper, I investigate whether and how annexations are associated with minority racial composition in over 15,000 cities in the United States between 2000 to 2020, covering 41 states outside of the Northeast, and how these associations vary in relation to the *Shelby* ruling.[[2]](#footnote-2) Using difference-in-differences regression models, I 1) compare the probability for cities to conduct annexations before and after *Shelby* and 2) examine whether annexations are associated with greater racial minority population decreases after *Shelby*. Based on my findings, I argue that the removal of federal oversight of municipal annexations has not resulted in a drastic increase in municipalities wielding annexations to suppress non-White population growth—at least not immediately so in the 6 years after.

However, the reason for this is not likely explained by a diffusion of anti-racism norms that renders regulations unnecessary (Hirsh 2009), but because Section 5 was not successful at preventing annexations resulting in racial dilution even when it was in effect. Additionally, demographic shifts occurring since *Shelby* likely limited the extent to which cities could racially exclude through annexation compared to other voter suppression methods like voter ID laws and registration purges that ballooned in frequency after *Shelby* (Brater et al. 2018; Feder and Miller 2020; Hardy 2019).

This study contributes to research on administrative boundaries as a source of racial inequality, the role of regulations in limiting racial exclusion, and the enduring bright Black/non-Black racial boundary. First, I highlight the importance of an understudied method through which cities can shape their citywide racial composition, which may have implications for macro-segregation (Lichter et al. 2015). I echo other research showing hat place matters and the importance of centering city practices in understanding racial inequality (Judd 2005; Lichter et al. 2015; Trounstine 2009). Second, I provide evidence that Section 5 was limited in effectiveness against strategic annexations used to dilute minority voting power, supplementing prior findings based in the Houston area prior to Shelby (Baumle, Fossett, and Waren 2008). Finally, I show significant differences in outcomes for Black versus non-Black racial minority groups in the process of annexation that signal persistent Black exceptionalism in residential racial discrimination (Parisi, Lichter, and Taquino 2011).

**Background**

*Municipal governance of race and city boundaries*

Even as the country becomes more racially diverse as a whole, scholars have highlighted the uneven racial diversification patterns between cities, or “between-place” (Hall and Lee 2010; Lichter et al. 2015). This body of research highlights the importance of paying attention to racial sorting processes at geographic levels beyond tracts or neighborhoods within cities. Lichter et al. (2015) document a rise in racial segregation across cities within metropolitan areas: predominantly White suburbs become Whiter while predominantly non-White cities continue to gain minority residents and experience White depopulation. In concluding, they call for more research on how “places—as political and economic actors—play a large and typically unappreciated role in excluding blacks and other minorities from the geographic mainstream” (2015:870).

Cities exclude Black and other minority residents by reinforcing racial boundaries. Practices like burdensome fines and fees and increased police surveillance in minority neighborhoods can have the effect of disproportionately discouraging minority residents from living there, even if there is no expressed racist intent (Beck 2019, n.d.; Carmichael and Kent 2014; Collins, Stuart, and Janulis 2021; Harris 2016; Muhammad 2011; Pacewicz and Robinson 2021). Cities can also enforce limits on geographic boundaries that deter Black and minority population growth. For example, the proliferation of zoning laws in many cities is associated with growth in higher income White residents while suppressing the availability of housing for lower income minority residents (LaBriola 2022; Lens 2022; Rothwell and Massey 2009; Shlay and Rossi 1981; Trounstine 2018). Research from other types of administrative boundaries shows how school district boundaries, state legislative district boundaries, and congressional voting district boundaries can be drawn and manipulated in ways that facilitate racial inequality (Bischoff 2008; Cain and Zhang 2016; Cooperstock 2022; Palandrani and Watson 2020; Reardon, Yun, and Eitle 2000; Vargas et al. 2021; Yarbrough 2002).

Recent research by Vargas et al. (2021) reveals how the Chicago, Milwaukee, and St. Louis city councils gerrymandered their city council voting district boundaries since as early as the 1800s to maintain White political dominance over growing threats of Black political strength. Politicians in these three manipulated the redistricting process to use political boundaries as an “instrument of race- and class-based social control” (2021:3). Their research focused on city redistricting of internal boundaries, whereas I argue that the boundaries of the city itself is also an instrument of race- and class-based social control because “[cities] are the locality where political or economic battles are fought and where affluent or poor, White or minority, or immigrant or native groups are included or excluded from the community” (Lichter, Parisi, and Taquino 2012:367).

Termed “municipal underbounding,” some cities refuse to annex neighboring territories with racial minority groups and instead annex majority-White neighborhoods (Aiken 1987; Anderson 2008; Durst 2014, 2019; Durst et al. 2021; Johnson et al. 2004; Marsh, Parnell, and Joyner 2010; Mukhija and Mason 2013; Murphy 1978). Less is understood about the consequences of annexations for the racial minority residents already living within the city. Annexation can weaken minority political power in local government if the addition of predominantly White residents through annexation dilutes their population share (Baumle et al. 2008; Moeser and Dennis 2020; Taper 1962). If pursued in this way, racially selective annexations is one method that cities can use to shape their overall demographic makeup to the effect of racial control (Lichter et al. 2015; Vargas et al. 2021), but prior research on this aspect of annexations this is limited in scope and has not looked at post-Shelby changes (Baumle et al. 2008; Berri 1989; Motomura 1982). Although annexations are not the only form of boundary changes, it is the dominant form compared to incorporation, consolidation, disincorporation, or secession. In official records of city-level boundary changes. discussed more in Data and Methods, at least 97% of all recorded boundary changes between 2000 to 2021 were for annexations.[[3]](#footnote-3)

*Federal oversight and Section 5 Preclearance*

While local governments are responsible for the vast majority of the type of day-to-day policymaking that influence people’s lives (Trounstine 2009), federal policymaking undeniably shapes the racial geography of cities (Faber 2020; Rothstein 2017). Federal policies can cement racially exclusionary practices (Faber 2020), but they can also be important sources of protection for minority rights. In 1965, Congress enacted the Voting Rights Act, one of the most important pieces of federal civil rights legislation to ensure that that citizens’ rights to free and fair elections would be guaranteed without racial discrimination, regardless of their state-, county-, or city-level governments.[[4]](#footnote-4)

One mechanism for federal oversight in the VRA was preclearance: jurisdictions subject to the preclearance requirement in Section 5 must submit any proposed changes to election administration and boundary changes to a federal court to “preclear” these changes before they come into effect.[[5]](#footnote-5) Section 4 outlined a formula determining which jurisdictions should be covered by this requirement, using a combination of historical voter registration statistics and a demonstrated history of using racist voter suppression techniques like poll taxes and literacy tests.[[6]](#footnote-6) Eight states in the South were covered entirely, a few states had only some counties subject to Section 5 coverage, and a few counties in other states were at one time covered but later bailed out (released from oversight) after judicial review.[[7]](#footnote-7) Municipal annexations were subject to the preclearance requirement under Section 5 because they could result in minority population dilution and threaten minority citizens’ right to fair representation in elections (Baumle et al. 2008; Berri 1989; Motomura 1982). Between the VRA’s enactment in 1965 to 2013, over 112,000 proposed municipal annexations were submitted to the Department of Justice seeking preclearance.[[8]](#footnote-8) For covered jurisdictions, the burden of proof rested on the jurisdictions to show there will be no racially disparate effect of a proposed change (Baumle et al. 2008; Berri 1989; Hardy 2019; Motomura 1982).

On June 25th, 2013, the coverage formula used in the Section 4 was ruled unconstitutional by the US Supreme Court in a case called *Shelby v. Holder*, so Section 5 jurisdictions no longer needed to submit preclearance requests.[[9]](#footnote-9) On the same day that the decision was announced, multiple jurisdictions enacted voter ID laws that had previously been rejected at Section 5 hearings (Hardy 2019; The Brennan Center for Justice 2018). Subsequent research strongly suggests that cities increased anti-Black racial discrimination when selecting territory to annex as a result of *Shelby* (Durst 2019). However, it is not yet been examined whether *Shelby* exacerbated the use of annexations to dilute minority populations in cities.

On the one hand, removing a regulation against racial discrimination would plausibly result in increases in that behavior. Reardon and colleagues (2012) find that schools previously subject to court-mandated desegregation orders resegregated after the mandates ended, albeit at a slower pace than expected. Specific to the Voting Rights Act, case studies showing that minority voter suppression laws like strict voter ID and registered voter purges increased significantly after *Shelby* (Feder and Miller 2020; Hardy 2019; The Brennan Center for Justice 2018), and Durst (2019) finds that Section 5 cities discriminated against Black residents at city fringes more during annexations after *Shelby*.

On the other hand, the removal of an ineffective law would not be associated with increases in those behaviors because the existence of the regulation never mattered for the behavior, with many examples from the immigration law enforcement context (Cox and Goodman 2018; Ryo 2019; Wong 2018). In the case of annexations, an examination of objection letters issued by the US Attorney General over the years—letters explaining the Department of Justice’s objection to proposed voting law changes through preclearance court—suggests that cities may have conducted questionable annexations without consequences until much later, if any. In an objection letter dated August 25th, 2008, the City of Calera, Alabama, was reprimanded for having conducted 177 annexations since 1993 that significantly diluted its Black population without first seeking preclearance (Becker 2008), but there were no legal ramifications for having done so. A study of pre-*Shelby* annexations in the Houston metropolitan area concludes that Section 5 was not effectively preventing annexations that reduce minority population shares (Baumle et al. 2008).

If Section 5 were not effective at preventing annexations that dilute minority population share prior to its invalidation, its removal may have no discernible effect. Or, if the principle behind regulation was so publicly accepted that it becomes a norm to comply, compliance might persist even with removal Hirsh (2009). In this study, I leverage longitudinal data on cities’ behavior spanning the period before and after *Shelby* to adjudicate between these two different predictions about the effect of *Shelby* on minority-diluting annexations.

*Racial control and the changing color line*

Previous research on municipal annexations has primarily investigated the avoidance of Black communities (Aiken 1987; Durst 2019; Johnson et al. 2004; Lichter et al. 2007), with three exceptions that investigate the avoidance of Hispanic communities (Durst 2014, 2018; Wilson and Edwards 2014). But, as the U.S. continues to experience growth in racial minority populations through immigration from a diverse set of countries, cities are becoming even more diverse beyond Black, White, and Hispanic, with the predominant racial minority group(s) additionally varying across metropolitan areas and states (Jensen et al. 2021). The theory of racial threat posits that as cities become more racially diverse, White communities intensify efforts to maintain their dominant group position (Blumer 1958; Bobo and Hutchings 1996; Wilkes and Okamoto 2002). Some research finds that White people living in places with White population share decreases participate in a variety of racially exclusionary behavior reflecting fear or resentment towards these demographic changes (Enos 2016; King and Wheelock 2007; Pape 2022; Stacey, Carbone-López, and Rosenfeld 2011 but see Hill, Hopkins, and Huber 2019). However, in the residential context, racial threat is not merely based on differences in White/non-White population shares.

Black exceptionalism refers to the distinctly large social distance between Black versus non-Black residents compared to any other pairwise comparisons between racial groups (Parisi et al. 2011). This is apparent in residential segregation patterns, individual preferences for neighborhoods by neighborhood racial composition, and other indicators of closeness like interracial relationships across a variety of contexts (see Hwang and McDaniel 2022 for a review).[[10]](#footnote-10) Therefore, I expect cities’ annexation patterns to also reflect this bright Black/non-Black boundary (Fox and Guglielmo 2012; Lee and Bean 2004). In this study, I consider annexations that dilute Black population share to a greater extent than for non-Black minority populations as evidence of Black exceptionalism.

Formally, I make the following hypotheses in this paper:

* H1: After invalidation by *Shelby*, Section 5 cities are more likely to conduct annexations compared to pre-invalidation, since annexations are no longer subject to federal oversight before they can take place. Null hypothesis: the difference between pre- and post-*Shelby* probabilities for Section V cities is not statistically significantly different from 0.
* H2: After invalidation, Section 5 cities that annex will have greater reduction in their percent Black and percent non-Black minority population shares at the end of the period, since they are no longer subject to federal oversight prohibiting such annexations. Null hypotheses: the difference between pre- and post-*Shelby* effects of annexations on non-White racial composition is not statistically significantly different from 0.
* H3: The associated negative change should be greater (more negative) for percent Black than for percent non-Black minority. Null hypothesis: no difference in magnitude between Black and non-Black minority groups.

**Data and Methods**

*Identifying Annexations*

Annexations are conducted by cities, which are measured as Census places. Census blocks, the smallest available geographic units with enough publicly available demographic data, can be annexed, and they nest up to Census places. While the Census Bureau surveys all municipalities each year to record boundary changes through the Boundary and Annexation Survey (BAS), it is generally not used in quantitative research on municipal annexations because it is highly incomplete and subject to delays (Aiken 1987; Baumle et al. 2008; Durst 2019; Lichter et al. 2007; Wilson and Edwards 2014).[[11]](#footnote-11) For example, the earliest recorded annexation in the 2021 BAS, the most recent survey year available, is an annexation with an effective date of 11/10/1984, which occurred in Columbia City, South Carolina. Moreover, the database does not identify which blocks are annexed. Therefore, there is no way of identifying the demographic characteristics of the annexed territory through the BAS.

Following previous approaches on identifying municipal annexations, I identify annexations by comparing block- and place-level shapefiles using spatial analysis tools in the R package ‘sf’ (Pebesma 2018). I identify annexations occurring in three periods: 2007-2013, which corresponds to the period immediately prior to the Supreme Court decision; 2014-2020, which corresponds to the period immediately after the decision; and 2000-2007, which serves as an additional pre-decision period for assessing time trends prior to the decision.[[12]](#footnote-12) Following prior approaches, I define a block as having been annexed if a block 1) exists both in the beginning and the end of the period 2) was not already part of another municipality at the beginning of the period, and 3) was not within the boundary of a place in the beginning of the period but became within the boundary of a place by the end of the period (Durst 2014, 2018, 2019; Lichter et al. 2007; Wilson and Edwards 2014).[[13]](#footnote-13) I chose 2013 to be the last pre-Shelby year because shapefiles are updated and published annually. The 2013 shapefile represents boundaries as of January 1, 2013, and similarly so for the 2014 shapefile.[[14]](#footnote-14)

One significant challenge of this approach is that boundaries change between Census years. While shapefiles for both 2000 and 2007 are on 2000 boundaries, shapefiles for 2013 and 2014 are on 2010 boundaries, and shapefiles for 2020 are on 2020 boundaries. Refinements in how Census place boundaries are drawn over time, even when based on the same boundary year, can also result in boundary changes that are artificially recorded as annexation. I explain analytical procedures in greater detail in the Supplementary Appendix, but I reduce the possibility of misclassification in two main ways: first, I only classify Census blocks as having been annexed if they have at least 90% areal overlap with the place boundaries at the end of the period.[[15]](#footnote-15) Second, I validate my identified annexations with annexations recorded in the BAS, since the database lists an annexation effective date. In other words, I check whether a city I identified as annexing during a given period is also officially recorded as having conducted an annexation in the BAS. These comparisons are listed in Table 1, shown both for cities before and after further sample limitations. This table shows that first, while the validation rate is very low for the 2007-2013 and 2014-2020 periods, the high validation rate for the 2000-2007 period lends confidence in my procedure and suggests that discrepancies arise from the extensive lag time before annexations become officially recorded in the BAS. Importantly, I do not miss any annexations: there are no annexations recorded officially in the BAS that I do not pick up. Relying only on the subset of observations that are validated in the BAS does not change results.[[16]](#footnote-16)

**[INSERT TABLE 1]**

Annexations are identified for all states in the United States except the nine states in the Northeast, consistent with prior approaches that exclude these states due to lack of available territory for annexation (Durst 2018, 2019; Edwards 2008), resulting in 41 total states. Census Designated Places (CDPs) are unincorporated communities assigned place IDs by the Census but do not have conventional municipal government structures and functions. I exclude them as places that could conduct annexations, but blocks located in CDPs are still viable candidates for annexation. Unincorporated Census blocks located within a 400-meter buffer of places are candidates for annexation (Durst 2018, 2019).[[17]](#footnote-17) Places must have at least one populated annexable block to be included in the sample, and they must fulfill this criteria in both years (2007, and 2014) and have been in existence from 2000 to 2020 to ensure a balanced panel. As described in more detail below, I rely on 2000 data to generate trends as a control variable in models, so places must have been in existence since 2000 to be included in the 2007-2013 period. This means that newly incorporated places after 2000 or those that disincorporated at any point are not included. Places that only annexed unpopulated blocks are not considered to have annexed. In total, my panel consists of observations for 15,962 cities between 2007-2020 across 41 states. I identify 2,752 and 1,430 annexations in 2007-2013 and 2014-2020 respectively.

Figures 2 and 3 show two examples of city boundaries changing due to annexations between 2000-2020. Blocks are shaded with a greyscale gradient corresponding to racial composition of the fringe territory. Blocks highlighted in red are those that I identify as having been annexed during the period. Boundaries for 2000 and 2020 are shown for comparison.

**[INSERT FIGURE 2]**

**[INSERT FIGURE 3]**

*Block and place-level demographic data*

I estimate block-level demographic data for 2007 and 2014 by linear interpolation using 2000, 2010, and 2020 Census data. Using 2000-to-2010 and 2020-to-2010 block-to-block crosswalks provided by the NHGIS, I harmonize 2000 and 2020 block-level data to 2010 boundaries. Unique cross-year block pairs are selected by only retaining blocks with the largest areal overlap. Blocks with missing weights, no corresponding 2010 block IDs, or missing data at either the beginning or end of the period are dropped from the analysis. Variables are then multiplied by the weights given in the crosswalk files (Manson et al. 2021). 2000 blocks identified to be annexable and annexed for the 2000-2007 are harmonized to 2010 boundaries before merging with interpolated block variables for 2007 on 2010 boundaries.

I use the 2000 Census for 2000 place-level data, 2005-2009 ACS for 2007 place-level data, 2011-2015 ACS for 2013 place-level data, and 2016-2020 ACS for 2020 data. I estimate place-level data for 2014 by linear interpolation using the 2008-2012 (as 2010) ACS and the 2015-2019 ACS (as 2017). To reduce overall missingness, I then linearly interpolate missing data for the whole panel of variables between 2000 to 2020 and linearly extrapolate for 2020 if necessary.

*Labor market data*

Census block-level data are limited in socioeconomic indicators. I use the Residential Area Characteristics (RAC) and Worker Area Characteristics (WAC) files from the Census Bureau’s LODES datasets to proxy for block-level economic health (Durst 2019). Using the RAC file, I derive the percent of residents in each Census block with jobs at the highest salary tier in the data, $3,333 per month for 2007 and 2014, both harmonized to 2010 boundaries.[[18]](#footnote-18) Using the WAC file from LODES, I calculate the percent of jobs in each block in the retail and manufacturing industries for each base period year in the same fashion as above.

*Dependent Variables*

To address the first question of how probabilities to annex changed before and after *Shelby*, I use a binary indicator of conducting an annexation as the outcome variable. This is assigned 1 if the place conducted an annexation in the period (i.e., 2007-2013, and 2014-2020) and 0 otherwise. To answer the second question of whether annexations play a role in shaping the racial composition of cities and how the relationship changes after *Shelby*, I use three measures of racial composition change of the place between the beginning and end of the period (i.e., 2007-2013 and 2014-2020). These are % Black, % White, and % Non-Black minority, which includes everyone who is not non-Hispanic White or non-Hispanic Black. The categories are mutually exclusive and add up to 100%. These variables are z-standardized by subtracting the mean value and dividing by the standard deviation.

*Independent Variables*

For the first question on whether the *Shelby* decision changes the probability to annex, the independent variable is an interaction term between prior Section 5 coverage and being in the post-2013 period. Some states are covered by Section 5 entirely, whereas only a selection of counties is covered in others. If the city is in a fully covered state, or if the city is in a covered county, they are assigned 1 for the Section 5 variable throughout 2007-2013 and 2014-2020 (time-invariant). Cities do not have county identifiers, but Census blocks do. If any block in the city is within a Section 5-covered county, the place is considered covered. For the period variable, observations in the 2007-2013 period are assigned 0 and observations in the 2014-2020 period are assigned 1. If this interaction term is statistically significant, it would suggest that there is an association between Section 5 removal and municipalities’ likelihood to conduct annexations.

For the second question on whether a place’s racial composition at the end of a period is significantly associated with having conducted annexations during the period, and whether the *Shelby* decision changes this relationship, I use an interaction term between conducting an annexation and being in the post-*Shelby* period as the independent variable. The coefficient on the annexation term itself allows me to see whether annexations are associated with reductions in minority racial composition. If the coefficient on the interaction term is significant, it would suggest that Section 5 invalidation moderates the relationship between annexation and racial composition.

*Control variables*

For the first outcome, probability to annex, I include controls for covariates that are plausibly associated with the outcome at the beginning of the period (i.e., 2007 and 2014). A variety of state-level regulations govern annexations, such as ordinances requiring petitions and public hearings (Durst 2018). Though these laws may change over time, available data on these laws are time-invariant. I use state fixed effects to capture these factors shown to influence likelihood to annex.[[19]](#footnote-19) The model includes city fixed-effects to account for unobserved, time-invariant unit-level variation influencing likelihood to annex, such as municipal regulations, community appetite for annexations, taste for discrimination and so on.

Prior research finds that demographic growth variables at the place-level are strong predictors of annexation (Lichter et al. 2007). I include controls for the population size, prior decade population growth rate, and population density. Racial composition of the city and of its annexable territory are also likely associated with the likelihood to annex. A predominantly White municipality may be less likely to annex predominantly Black blocks (Durst 2019; Durst et al. 2021; Lichter et al. 2007). I include controls for the percent White, percent Black, and prior decade change in the percent White population at the city-level. To measure minority threat, I include city-level prior decade changes in percent White, percent Black and percent non-Black minority. Since the block-level racial composition is likely associated with whether the place annexes (Durst 2019; Lichter et al. 2007), I control for the percent Black and non-Black minority population in annexable blocks. I also include a binary indicator of whether the average percent White in annexable blocks is larger than the percent White in the place to additionally account for minority threat. Annexations in one period can help make a subsequent annexation in the next period more or less likely. I included a lagged indicator of whether the city conducted an annexation in the prior period.

Socioeconomic considerations also play a role in annexation decisions (Anderson 2008, 2010). Areas with commercial activities that could generate high sales tax revenue and areas with potential for increasing the property and income tax bases are attractive candidates for annexation (Durst 2018, 2019). Block-level controls include percent owner-occupied housing units, percent high-income earners, and percent jobs in manufacturing and retail. City-level controls include median home value, median household income, percent poverty, and percent owner-occupied housing units. Because socioeconomic considerations can often mask underlying racial stereotypes, I include a control for the percent Black and percent non-Black minority in poverty (Lichter et al. 2007).

For question 2 where the outcome is the city racial composition at the end of the period, I control for the prior decade change in percent of the population of that race and the average percent in surrounding blocks. Table 2 below shows the mean values of covariates included in equation 1 by period and Section 5 coverage. For simplicity, I do not further separate observations by annexation, but I present covariates by annexation, period, and Section 5 coverage in Appendix Table A1. Table 2 shows a few important trends: first, even though there are fewer Section 5 cities and fewer annexations in those cities overall, a larger proportion of Section 5 cities conducted an annexation compared to non-Section 5 cities regardless of the period. Whereas about 15.7% of non-Section 5 cities conducted an annexation in the pre-*Shelby* period, 22.6% of Section 5 cities did so. The corresponding percentages are 7.8% and 12.8% in the post-*Shelby* period. These trends are consistent with those shown earlier in Figure 3.

Second, Section 5 cities differ from non-Section 5 cities on many demographic characteristics. Section 5 cities on average have larger populations and higher population growth rate but lower population density. Cities across the country are on average majority White, but Section 5 cities have a smaller proportion of White population by at least 20 percentage points. Whereas non-Section 5 cities are on average 87% to 85% White in the two periods respectively, Section 5 cities are on average only 62% and 59% White. In Section 5 cities, Black-only groups are the largest non-White minority group, whereas non-Black racial minority groups far exceed Black residents in Section 5 cities. For example, by 2014, Section 5 cities are 22.5% Black compared to 18.4% for all other racial minority groups combined, whereas non-Section 5 cities are only 3.8% Black compared to 11.4% for all other racial minority groups in the same year. Nevertheless, Section 5 cities have higher shares of non-Black minority groups overall. For the prior period changes in the percentages of each racial group, the prior period for 2007-2013 is 2000-2007 and 2007-2014 for 2014-2020. Section 5 cities have larger percentage point decreases in the White population share in the prior period and larger percentage point increases in the Black and non-Black minority population share in the prior period. In other words, Section 5 cities are diversifying racially at faster rates than non-Section 5 cities.

At the block-level, the surrounding blocks to Section 5 cities have substantially higher shares of Black and non-Black minority residents compared to non-Section 5 cities. While only about 2% of residents living at the fringes of non-Section 5 cities are Black, the percentage is 15-16% for Section 5 cities. Additionally, even though the largest racial minority group in Section 5 cities are Black residents, there are higher shares of non-Black minority residents than Black residents at the city fringes. If cities are surrounded by predominantly Black and minority residents, annexations are unlikely to result in dilution of existing Black and minority residents in the city. But the majority cities (at least 62%) are surrounded by blocks that have higher shares of White residents, and a larger proportion of Section 5 cities compared to non-Section 5 cities fall into this category—64% compared to 61-62%.

In terms of socioeconomic differences, Section 5 cities are on average lower on these socioeconomic indicators. They have lower median home values, median household incomes, and owner occupancy rates compared to non-Section 5 cities. Household income is declining over time for Section 5 cities whereas it is increasing for non-Section 5 cities. Section 5 cities also have higher poverty rates, and a higher percent of their Black and non-Black minority residents are in poverty. The blocks surrounding Section 5 cities similarly have lower rates of owner occupancy, although rates are increasing over time across cities. Section 5 cities have lower shares of residents in jobs earning high incomes but have higher shares of jobs in the retail and manufacturing industries, which suggest higher potential for revenue tax-generating businesses to be annexed in Section 5 cities. Overall, these substantial differences between Section 5 and non-Section 5 cities point to underlying sources of demographic variation that could be associated with differing probabilities of annexations and consequences of annexations.

**[INSERT TABLE 2]**

*Models*

To model the probability of annexation, I use a difference-in-differences approach by using an interaction term between the binary variables for Section 5 coverage and being in the post-Shelby period. This interaction term is used to assess whether the *Shelby* decision is associated with an increase in the probability of a previously covered city to conduct an annexation. Interaction terms in a logistic model are not easily interpretable (Ai and Norton 2003) and its use in a difference-in-differences set-up that relies on the interaction term is challenging and not recommended without further restrictions to the data (Athey and Imbens 2006; Karaca-Mandic, Norton, and Dowd 2012). To facilitate a more straightforward analysis of the coefficient, I use a linear probability model with city, period, and state fixed effects regressing annexation on the difference-in-differences estimator:

(1)

Where is a binary indicator assigned 1 if a municipality conducted an annexation within the period *i* and 0 otherwise. *i* takes on values 2007-2013 and 2014-2020. Period is a binary indicator assigned 1 if the period was in 2014-2020, post-*Shelby*, and 0 otherwise. is matrix of time-varying covariates, though the use of time-varying covariates is contentious in difference-in-differences estimation, especially if the treatment plausibly influences the covariate in the next period (Angrist and Pischke 2009; Caetano et al. 2022; Gelman and Hill 2007). This source of confounding is especially plausible here. For example, prior research suggests the socioeconomic status of Black residents in Section 5 jurisdictions declined after the decision (Aneja and Avenancio-León 2019). Following the approach taken in recent work to address this source of potential bias, I estimate models both with and without these time-varying covariates and use cluster-robust standard errors (Faber 2020; Torche and Rauf 2021).

For question 2, to understand whether annexations are associated with a city’s racial composition after the annexations, and whether the *Shelby* decision moderates this association, I use a fixed effects linear regression model. I interact the binary variable for annexation with the binary indicator of period to test this moderation effect. I model the share of the population that is a given race at the end of the period as follows:

(2)

Where *i* can take on values % White, % Black, % Hispanic, and % non-Black minority and *t* can take on values 2014 and 2020. City and state fixed effects are included. Covariates include the share of that racial group in the beginning of the period (2007 or 2014) and their prior period change (between 2000 to 2007 and between 2007 to 2014). As with model 1, I also compare models with and without these time-varying covariates.

My difference-in-differences model follows the “canonical” two groups in two periods set-up, which requires that two important assumptions be met: the parallel trends and strict exogeneity assumptions (Wing, Simon, and Bello-Gomez 2018). Put in terms to the present study, the first assumption requires that cities not previously covered by Section 5—the control, and cities previously covered by Section 5—the treated, exhibit parallel trends in outcomes prior to the *Shelby* decision, such that I can assume cities would have followed the same trend absent of *Shelby*. Because I have an additional set of pre-period observations (2000-2007), I can use a visual test of trends prior to Shelby (2000-2007 and 2007-2013) and an event study to estimate any statistically significant violations of the assumptions. Figure 4 shows that the over-time trends between Section 5 and non-Section 5 cities are parallel for annexation. With racial composition, I separated trends by whether the city annexed during the period in Figure 5. While trends appear parallel between the treatment and control groups that do not annex, trends diverge prior to *Shelby* for cities that annexed. The differences in trends between the top and bottom panels of Figure 5 provide reason to expect trends to differ by an interaction between annexation and the difference-in-differences estimator.

Both the visual test and the event study, shown in Appendix Figure A1, indicate that there is a violation of the second assumption for difference-in-differences: treated groups exhibit a relative spike in annexation activity in the 2007-2013 period. The second assumption for the model requires that control and treatment groups do not modify their behavior prior to *Shelby* because they anticipate the decision. An example of anticipation would be if cities ramp up annexation activity in expectation that these annexations are soon released from having to be justified in federal court, which is highly plausible. The statistically significant increase in annexations in 2007-2013 compared to 2000-2007 and 2007-2013 in the event study suggests an anticipation effect.

**[INSERT FIGURE 4]**

**[INSERT FIGURE 5]**

Another aspect about the data additionally cautions against causal interpretation. Even if *Shelby v. Holder* were an exogenous shock with no anticipation, Section 5 coverage is not randomly assigned. Jurisdictions subject to this requirement have such a documented history of anti-Black voter suppression that non-Section 5 cities may not be comparable control units for Section 5 cities. Indeed, descriptive analyses discussed below reveal some systematic differences between Section 5 and non-Section 5 cities. Nevertheless, I rely on difference-in-differences models to help with descriptively understanding how annexations vary by Section V coverage and the *Shelby* decision in a before-and-after framework.

**Results**

Table 3 shows the mean values of the outcomes and covariates in equation 2, disaggregated by whether they were covered by Section 5, period, and whether they annexed. First, comparing within non-Section V cities, cities that annexed have a higher percent Black, higher percent non-Black minority, and lower White population at the end of the period compared to for similar cities that did not annex across both periods. This contrasts with Section 5 cities. Among cities covered by Section 5, those that annexed have a *lower* share of Black residents at the end of the period across both periods. Notably, Section 5 cities that annexed in the post-Shelby period have a substantially larger share of non-Black minority residents by 2020, whether compared to similar cities that did not annex in the same period, similar cities that annexed in the pre-period, or to non-Section 5 cities that annexed in the same period. By 2020, Section 5 cities that annexed are on average minority White cities. This is surprising and contrary to expectations.

The difference in percent White between annexing and non-annexing cities in 2014-2020 across Section 5 and non-Section 5 cities is fairly similar, around 14%. However, I expected that annexing cities would have a higher percent White at the end of the period compared to non-annexing cities. These trends also provide context for prior results on municipal underbounding against Black and Hispanic residents after *Shelby*: predominantly Black and Hispanic residents at the fringe may be less likely to be annexed into a city, but conditional on annexation, there is little descriptive evidence to suggest that the annexation of blocks with lower shares of Black and Hispanic residents results in minority population dilution for residents already living in the city. It may instead be the opposite: compared to not annexing at all, annexations could hasten racial diversification of cities.

These descriptive averages suggest that there are associations between city-level racial composition and annexations. However, the reasons driving these associations are less clear. More racially diverse cities could be more likely to pursue annexations to regulate the growing percent Black and non-Black minority residents, since annexing cities also have higher shares of non-White groups at the beginning of the annexation period. But, less racially diverse cities could be less likely to pursue annexations to regulate and maintain existing shares of White residents. Especially since annexations seem to be associated with lower shares of White residents at the end of the period, the strategy with which to respond to racial threat could be to not annex at all, especially as annexable territory becomes less White over time.

**[INSERT TABLE 3]**

*Model results*

Table 4 presents coefficients from linear probability models predicting annexation for both the base model without time-varying covariates and the full model with covariates, with place and state fixed effects across both models. There are no coefficients for being previously covered by Section 5 as it is time-invariant attribute and thus absorbed in city fixed effects. Consistent with descriptive results, there is a statistically significant, negative coefficient for the post-*Shelby* period. In the 2014-2020 period, non-Section 5 cities are estimated to have a lower probability by about 7.8% to annex compared against themselves in 2007-2013, while Section 5 cities are estimated to have a (-0.078-0.02) 9.8% lower probability to annex in this period compared to uncovered cities in 2007-2013. Focusing on the DID estimator, the removal of Section 5 oversight is associated with a 2% reduction in the probability to annex among previously covered cities. These coefficients are slightly smaller in magnitude when including time-varying covariates, with a larger reduction in magnitude for the period effect. In the model with covariates, the removal of Section 5 oversight is associated with a 1.6% reduction in the probability to annex among previously covered cities. While the null hypothesis for hypothesis 1 (difference-in-differences estimator = 0) is still rejected, the direction is opposite to hypothesized. Instead of encouraging annexations among previously restricted cities, the removal of the restriction is associated with a decrease in annexations both for those cities and cities that were never subject to the restriction, but the extent of the decrease is greater for Section 5 cities.

**[INSERT TABLE 4]**

Next, I ask whether cities can use annexations to shape the racial composition of the population within the city, and whether *Shelby* exacerbates the use of annexations in this way. Recall that prior to the June 25th decision in 2013, cities covered by Section 5 must receive prior authorization from a federal judge before conducting any annexation, and the burden of proof is on the city to show that the annexation does not dilute minority representation, regardless of intent (Baumle et al. 2008; Berri 1989).[[20]](#footnote-20) Table 5 presents coefficients from models examining how racial composition in cities varies by annexation, Section 5 coverage, and the *Shelby* decision, with models run separately for the each of the outcomes, Black, White, and non-Black minority population share at the end of the period, z-standardized against their respective standard deviations—16.9%, 23%, and 17%. These models are run both with and without time-varying covariates. The substantive results are consistent across both models.

**[INSERT TABLE 5]**

Focusing first on the coefficients for the annexed variable in Table 5, annexation between 2007-2013 has a statistically significant association with the city’s racial composition in 2013 for the % White and % non-Black minority models, in non-Section 5 cities. In these cities that were never subject to federal voting rights oversight, annexation is associated with a 4.1% standard deviation increase in the White population share at the end of the period, and with a 5.4% standard deviation decrease in the non-Black minority population share compared to other non-Section 5 cities that did not annex, based on models without covariates. There are no statistically significant associations in the % Black model. These coefficients are similar in models with covariates.

Next, focusing on the coefficients for the interaction term between annexation and Section 5 coverage, Section 5 coverage significantly moderates these associations in the % Black and % non-Black minority models. Prior to *Shelby*, Section 5 cities that annexed have a 3.4% standard deviation lower Black population share compared to non-Section 5 cities that also annexed. Section 5 cities that annexed have a 6.9% standard deviation higher non-Black minority population share in 2013 compared to non-Section 5 cities that also annexed between 2007 to 2013. But, there is no such significant variation in association for White population share except in models with covariates. These results suggests that Section 5 coverage prior to its invalidation may not have been successful at preventing cities from pursuing annexations that result in Black population dilution, consistent with analysis of Section 5 objection letters and prior research (Baumle et al. 2008; Becker 2008).

To facilitate the interpretation of the three-way interaction term and to interpret statistical significance, I present estimated effect sizes in Table 6, separated by period, Section 5 coverage, and whether the city annexed in that period. These estimates are derived by running each model multiple times, varying each time which level of the independent variables is the reference category. For example, by setting the reference category to pre-*Shelby*, non-Section 5 coverage, the coefficient of the annexation term is therefore the estimated effect size of annexation for non-Section 5 cities prior to invalidation. Because the substantive conclusions drawn do not vary across the baseline model and the model with covariates, I discuss coefficients for the model without covariates for brevity.

**[INSERT TABLE 6]**

Focusing first on the top left block, Table 6 shows the estimated effect size of annexation on Section 5 cities prior to invalidation, with their actual value rather than in standard deviations also shown. Prior to invalidation, Section 5 cities that annexed within the period see a 3.5% standard deviation decrease in the Black population share, which translates to a reduction of 0.6% of the population share.[[21]](#footnote-21) While the magnitude of composition shifts appears relatively small, translating to about lower share of Black residents by 0.6% in Section 5 cities prior to Shelby, it is nevertheless above the smallest dilution threshold of 0.5% in Section 5 case law denying an annexation attempt (Motomura 1982).

While estimates in the percent Black model are statistically significant, the coefficients in the model for White and non-Black population share are not statistically significant. These findings reinforce conclusions drawn from the Annexed \* Section 5 coefficients in Table 6. If Section 5 coverage were effective prior to invalidation, annexations should not be significantly negatively associated with Black population share for Section 5 cities. Even though these types of annexations are explicitly prohibited unless federally approved, they nevertheless occurred during this period when federal oversight was still required, consistent with case studies by others (Baumle et al. 2008; Becker 2008). To compare, the bottom left block in Table 6 shows these estimates for cities not covered by Section 5 in the same period, which are the same coefficients as in Table 6 for annexed. Annexation is associated with a larger magnitude of White population share increases in non-Section 5 cities—4.1% (0.94%) for Section 5 cities compared to about 1.4% and statistically insignificant for non-Section 5 cities, and it is negatively associated with non-Black minority population composition in non-Section 5 cities whereas there is no significant association in Section 5 cities. These comparisons suggest that annexations by Section 5 cities at least did not significantly increase the White population composition prior to *Shelby*, and when compared to non-Section 5 cities, may have been effective against the dilution of non-Black minority residents.

Turning to the right half of Table 6, the *Shelby v. Holder* decision is not associated with a worsening of these trends for both Section 5 and non-Section 5 cities. In the top right block, I present estimates of annexation for Section 5 cities after Shelby.[[22]](#footnote-22) Annexation is not significantly associated with any population shares at the end of the period, whether for Black, White, or non-Black minority groups. By contrast, for non-Section 5 cities, annexation is associated with a statistically significant decrease in the White population share and a statistically significant increase in the non-Black minority population share, whereas the opposite occurred in the 2007-2013 period.[[23]](#footnote-23) Annexation is associated with a 4% standard deviation decrease in the White population share (0.92%) and a 4.5% standard deviation increase in the non-Black minority population share (0.77%). There are no statistically significant associations for Black composition.

Taken together, coefficients from Table 5 and 6 allow me to reject the null hypothesis in hypothesis 2a that the estimate of the coefficient for the three-way interaction would not be significantly different from zero. However, these findings are unexpected. First, they do not align with hypothesis 2b that the associated consequences of annexation on racial composition would be more negative for Black than non-Black minority groups after invalidation. Second, they do not align with expectations that *Shelby* would be associated with greater magnitudes of Black and non-Black minority population decreases when Section 5 cities annex. These findings suggest that in the post-*Shelby* period, cities have not reverted back to using annexations to dilute minority populations. As suggested in prior studies of municipal annexations after Shelby, cities may choose to not annex at all if the only available annexation options are limited, such as if the surrounding blocks are lower in White population composition (Durst 2018). Further analysis included in the Supplementary Appendix shows that the racial composition of blocks at the fringe became less White over time and less Black after *Shelby*, but experienced significant increases in the non-Black minority population share.

An alternative explanation is that the 2007-2013 and 2014-2020 comparison merely reflects the plausible anticipation show in Figures 3 and A1, such that these results are unique to this comparison. I repeat these models comparing 2000-2007, when anticipation 6-13 years in advance of the court case was less likely, and the 2014-2020 instead. Table AX in the Supplemental Appendix shows estimated effect sizes by whether the period was 2000-2007 or post-Shelby, Section 5 coverage, and annexation. Results from these models suggest that findings are not unique to the 2007-2013 and 2014-2020 comparison.

Second, the political economy of place perspective would predict that cities’ annexation patterns reflect cities’ desire to increase their socioeconomic strength, rather than being racially motivated.[[24]](#footnote-24) In models discussed in the Supplemental Appendix, I also test the association between annexation, Section 5 coverage, and period with the city’s poverty rate and median household income at the end of the period. These analyses suggest that it is unlikely that results discussed above merely reflect preferences for annexing higher socioeconomic status residents.

*Discussion*

Even though these results are contrary to expectations about the effects of *Shelby v. Holder*, a landmark case removing a crucial protection against minority voter suppression, they emphasize the importance of paying attention to how city boundaries can be leveraged against racial minority groups and the limits of federal oversight. First, I find that cities that were previously covered by Section 5, which theoretically mandated federal authorization prior to annexation, among others, are significantly *less* likely to annex after the requirement was invalidated in *Shelby*. In descriptive statistics, I show that annexation activity was more frequent in the years prior to Shelby, and that a larger proportion of Section 5 cities annexed compared to non-Section 5 cities. Second, I find that prior to *Shelby*, annexation in Section 5 cities was associated with a significantly lower Black population share at the end of an annexation period, but not after *Shelby*. Moreover, while annexations in non-Section 5 cities prior to *Shelb*y are associated with significant increases in White population share and significant decreases in non-Black minority population share at the end of period, the opposite was true after *Shelby*: non-Section 5 cities annexing after *Shelby* have significantly higher shares of non-Black minority residents and significantly lower shares of White residents.

Previous studies on regulations intended to limit discrimination find that regulations can became ingrained norms such that compliance is driven out of normative alignment with the principles of the regulation rather than enforcement (Hirsh 2009). There is insufficient evidence that problematic annexation activity decreased after Shelby due to declining levels of racial prejudice or a diffusion of voter protection norms. Rather, sharp increases in other forms of voter suppression tactics after *Shelby* (Feder and Miller 2020; Hardy 2019; Sweren-Becker 2021; The Brennan Center for Justice 2018) raise the possibility that different forms of voter suppression tactics are compensatory—decreases in one type can be accompanied by increases in another type and vice versa. Though voter ID laws and voter purges were less frequent in Section 5 cities prior to Shelby, cities were nevertheless still able to conduct annexations significantly associated with Black population share reductions. After Shelby, these types of annexations are significantly less likely to happen, but the other types of practices increased instead. Future research should further investigate interactions between various types of voter suppression tactics.

Given the dramatic drop in annexation activity and supplementary analyses showing significant decreases in White population shares at the annexable fringes of cities, in the 2014-2020 period after *Shelby*, cities may choose to not annex at all to avoid significant decreases in White population share (Durst 2019). The more plausible interpretation of my findings is not that discrimination no longer exists, but that they no longer manifest as annexations. Instead, they manifest as a refusal to conduct *any* annexations. I also argue that the pre-*Shelby* trends in the relationship between annexations and racial composition highlight the limited effectiveness of the preclearance requirement when it was in place to prevent the use of annexations to suppress minority representation. Prior research concludes that Section 5 was a vanguard against racial gerrymandering of cities because cities excluded Black communities from annexation more after *Shelby* compared to before (Durst 2018, 2019). However, these studies did not consider the demographic consequences of annexation for racial minority groups within the city in coming to that conclusion. Elsewhere, it has been shown in case studies that annexations nevertheless result in Black and Hispanic population dilution within annexing cities long before Section 5 was invalidated (Baumle et al. 2008). Even if Section 5 may have been effective at curbing other voter suppression behaviors, understanding why it appeared ineffective in the case of annexations allows us to be more vigilant about the precise strengths and weakness the Voting Rights Act to prevent racial exclusion.

This is of particular concern because Congress is currently considering legislation modeled after Section 5. Called the John Lewis Voting Rights Advancement Act (“JLVRAA”), the proposed legislation has a very specific formula for determining a preclearance standard inspired by Sections 4 and 5. According to the JLVRAA, a city conducting an annexation would be subject to preclearance prior to being allowed to annex if 1) the voting age population share of a given minority group would decrease by more than 3% as a result of the annexation and 2) at least two separate minority groups in the jurisdiction each comprises at least 20% of the voting age population. Only 0.72% of the place-period observations fulfill the latter criteria, while only 4 annexations out of 4,677 observed annexations would fall under this preclearance requirement. In addition to only applying to a very small handful of cities, evidence from this study suggests future requirements modeled after Section 5 in the 1965 VRA are unlikely to prevent questionable annexations from occurring.

Finally, I find mixed evidence for different annexation trends between Black and non-Black minority residents. In Section 5 cities, annexations prior to Shelby are associated with significantly lower Black population share but has no statistically significant associations with non-Black minority population shares. This is consistent with expectations informed by the Black exceptionalism hypothesis, which posits that even as the country has moved from Black/White to become more multiracial, there is still a bright Black/non-Black boundary that significantly distinguishes Black residents from other racial minority groups (Fox and Guglielmo 2012; Lee and Bean 2004; Parisi et al. 2011). However, in non-Section 5 cities prior to *Shelby*, annexation is associated with significantly higher White population share and significantly lower non-Black population share. There are no significant associations with Black population share. Further research should disentangle city-level factors that contribute to bright Black/non-Black racial boundaries versus White/non-White ones.

There are a few important limitations to these results that provide fruitful avenues for further research. First, even though validation against an official source of boundary changes suggests that I accurately identified annexations, there could nevertheless be measurement error at both the city- and block-levels. For the 2007-2013 and 2014-2020 periods, the low rate of validation against the BAS could either be due to the demonstrated lag in official records of annexation or due to measurement error. While my results are still robust to the subset of annexations validated against the BAS, another study using a different method of identifying annexations may find different trends. Second, I compared pre- and post-*Shelby* annexations using 6-year periods, but this approach lacks fine-grained temporal detail to determine whether cities that annexed did so through one annexation or multiple, additive annexations. Studying each annexation event individually could yield richer information on the relationship between annexation and racial composition, and future research would benefit from identifying sources of data to conduct this analysis. These two limitations highlight the need for more timely, complete, and official recordkeeping on annexations with enough block-level detail, which would not only help with further research, but also with enforcement of federal laws. It is also possible that effects have not yet emerged, such that future research using a longer time span after *Shelby* would yield different results.

Third, my analysis does not incorporate information on other boundary changes like incorporations and mergers, which also fell under the purview of Section 5. Unincorporated, predominantly White communities can use incorporation to avoid being annexed into a more racially diverse neighboring city (Miller 1981), or if they are already part of the city, secede (Owens and Gillespie 2018). My analysis does not account for these boundary changes, as the vast majority of officially recorded boundary changes are annexations, but the actual number may be very different. Relatedly, my analysis does not address whether unincorporated communities at the fringes of cities wish to be annexed or whether they resist it (Durst 2018; Miller 1981), and similarly I do not address whether minority communities in cities encourage or resist the city’s annexation plans. Including this data may provide a more complete picture of the experiences of affected communities, and it is an important qualitative aspect beyond the scope of the present study.

Lastly, while racial composition is one way of understanding the consequences of annexation for minority groups, it is an incomplete picture. What are the implications of reduced Black population share or increased White population share? For example, I am not able to analyze local electoral outcomes to assess whether population composition translates into tangible political consequences. While my findings highlight the importance of paying attention to how cities can leverage boundaries to shape racial composition, future research could shed light on what’s at stake for individuals and communities belonging to these racial groups.

*Conclusion*

In this paper, I first argue that municipal annexation patterns are a significant but understudied policy lever cities use to influence the racial composition of their city. City boundaries are shaped by active decisions made about where to grow into through the process of annexation. While prior research provides some evidence that cities avoid growing into predominantly Black and Hispanic territories (Durst 2014, 2019; Durst et al. 2021; Edwards 2008), I analyze all annexations in 41 states between 2007-2020 to understand whether cities use annexations to dilute minority population shares already within the city. My results show that prior conclusions drawn about the effectiveness of Section 5 preclearance in preventing cities from discriminating against non-White residents prior to *Shelby* are incomplete in light of Section 5 violations that occurred during this time. Second, I argue that federal regulations will likely have limited effectiveness in curbing this practice without additional attention paid to why they failed prior to *Shelby v. Holder*.

In a linear probability model using a difference-in-differences design, I find that cities previously covered by Section 5 preclearance—a requirement mandating that jurisdictions with a past history of Black voter suppression submit any changes to voting laws and boundaries to a federal court and prove the absence of racially disparate impact prior to implementation—were significantly less likely to annex after *Shelby v. Holder* removed the preclearance requirement. However, descriptive trends prior to Shelby show that a greater proportion of Section 5 cities annexed than did non-Section 5 cities. Next, in linear difference-in-differences regression models, I find that these pre-*Shelby* annexations were associated with significantly lower shares of Black residents and significantly higher shares of White residents in the city after annexation—precisely the type of annexations Section 5 theoretically made challenging for cities to pursue. In Section 5 cities, I find evidence to support the Black exceptionalism hypothesis in annexation patterns prior to *Shelby.* Annexations were associated with significant decreases in the Black population share but not in the non-Black population share.

Even though there is no evidence to suggest that *Shelby* exacerbated the use of annexations to dilute the share of residents in cities that are Black or non-Black minority residents, at least not in the 6 years after, these findings cannot be interpreted as a decline in minority voter suppression or that oversight is no longer needed. On the contrary, combined with case studies of annexations “slipping through” the preclearance process (Becker 2008), these findings suggest that annexations may have been overlooked as a way cities violated the Section 5 requirement in the pre-Shelby period, and continue to be overlooked in current drafts of voting rights protections which would apply to less than 1% of cities and only a handful of annexations. Evidence from other studies showing that *Shelby* worsened the use of voter suppression tactics Section 5 was intended to prevent further support the possibility that in the post-Shelby era, choosing to not annex at all and thus avoiding White population share decreases observed after annexations in non-Section 5 cities is the more straightforward way to racially exclude.

In conclusion, these findings center cities as important units of analysis for racial inequality. Building on recent work highlighting municipal practices that exclude racial minority groups (Beck 2019, n.d.; Douds 2021; Pacewicz and Robinson 2021; Vargas et al. 2021), I show how municipal annexations is yet another way cities can exert racial control. They also provide avenues for further research into how to better craft federal legislation to guard against racially exclusionary behavior. Since cities may conduct to conduct annexations, scholars should nevertheless continue to monitor city boundary changes after the *Shelby v. Holder* decision. While much attention is placed on the gerrymandering of higher-level boundaries like congressional districts, gerrymandering of city boundaries also matter and have important implications for macro-segregation and minority political representation (Anderson 2010; Durst 2018; Durst et al. 2021; Lichter et al. 2015). Future research on city boundaries would benefit from more transparency in the annexation process, including better and more timely data on annexations at the appropriate geographic levels.

**Tables**

**Table 1. Comparison of Annexations by Author and Annexations Recorded in the 2000-2021 Census Boundary and Annexation Surveys (BAS)**



**Table 2. Descriptive Statistics for Analytical Sample**



**Table 3. Average Racial Composition Across Period and Geographic Level for Analytical Sample**



**Table 4. Linear Probability Regression Results Predicting Annexation by Section 5 Coverage and Period**



**Table 5. OLS Regression Results Predicting City Racial Composition at End of Annexation Period, by Annexation, Section 5 Coverage, and Period**

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**Table 6. Coefficients for Annexation for Models 2a-2c by Section 5 Coverage and Period**



**Figures**

**Figure 1. Annexations in the City of Atlanta, GA, between 2000-2020**



**Figure 2. Annexations in the City of Jonesboro, GA, between 2000-2020**



**Figure 3. Visual assessment of Parallel Trends for Annexation**



**Figure 4. Visual assessment of Parallel Trends for Racial Composition by Annexation**



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**Appendix**

**Table A1. Descriptive Statistics for Analytical Sample by Annexation, Section 5, and Period**

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**Figure A1. Event Study for the Probability to Annex**

Chart

Description automatically generated

1. Direct correspondence to Iris Hui Zhang, Department of Sociology, 450 Jane Stanford Way, Bldg. 120, Stanford, CA 94305; e-mail: [ihzhang@stanford.edu](mailto:ihzhang@stanford.edu); phone number: 215-421-9343. Jackelyn Hwang, Asad Asad, Michael Rosenfeld, and C. Matt Snipp provided extensive feedback to earlier versions of this draft. The author also thanks members of the MERN Workshop and 2019-2020 Research Practicum at Stanford University and various audiences at conferences for helpful comments and suggestions. Tyler McDaniel and Vas Kumar provided technical support with software. Some of the computing for this project was performed on the Sherlock cluster supported through the Stanford Research Computing Center. The Digital Humanities Graduate Fellowship at Stanford University provided funding for this project. [↑](#footnote-ref-1)
2. The nine Northeast states are Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Washington D.C. is also excluded. [↑](#footnote-ref-2)
3. Derived from author’s own calculations from the Boundary and Annexation Survey: <https://www.census.gov/geographies/reference-files/time-series/geo/bas/annex.html>. [↑](#footnote-ref-3)
4. <https://www.justice.gov/crt/history-federal-voting-rights-laws>. [↑](#footnote-ref-4)
5. <https://www.justice.gov/crt/about-section-5-voting-rights-act>. [↑](#footnote-ref-5)
6. <https://www.justice.gov/crt/section-4-voting-rights-act>. [↑](#footnote-ref-6)
7. <https://www.justice.gov/crt/jurisdictions-previously-covered-section-5>. “Bailed out” jurisdictions are not included in the present study as covered jurisdictions. [↑](#footnote-ref-7)
8. In comparison, there were only 5,179 requests submitted for incorporations and 1,862 for political unit consolidations. <https://www.justice.gov/crt/section-5-changes-type-and-year>. [↑](#footnote-ref-8)
9. <https://www.justice.gov/crt/jurisdictions-previously-covered-section-5>. [↑](#footnote-ref-9)
10. Certainly, the racial composition of residents at the unincorporated fringe is itself a legacy of race and class segregation that sort people into often lower quality living conditions at the fringe (Anderson 2008; Lichter et al. 2007), especially at the edges of new immigrant destinations (Durst 2014; Hall 2013; Lichter et al. 2010). The segregation levels between cities and their unincorporated, fringe territory are beyond the scope of the present study, but methodological innovations in the measurement of racial segregation should allow for future research at this geographic level (Roberto 2018). [↑](#footnote-ref-10)
11. <https://www.census.gov/geographies/reference-files/time-series/geo/bas/annex.html>. None of the scholars cited use BAS data to identify annexations. [↑](#footnote-ref-11)
12. It would be more ideal to have all three periods correspond to the same number of years, but the earliest available inter-Censal year for shapefiles is 2007. [↑](#footnote-ref-12)
13. In Decennial Censuses, every Census block is assigned a corresponding unique place identifier through the NHGIS. To track annexations between two Census years, one could harmonize block boundaries and compare the list of blocks within each unique place to discover which blocks were annexed during the decade, but block-level shapefiles for inter-Censal years do not contain corresponding place identifiers. [↑](#footnote-ref-13)
14. <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2013.html>; <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2014.html>. [↑](#footnote-ref-14)
15. Results do not change significantly at other higher thresholds of 92% and 95%. [↑](#footnote-ref-15)
16. Results from the sub-sample validated against the BAS are available upon request. [↑](#footnote-ref-16)
17. Prior research shows that using immediate contiguity instead as a criteria for a block to be considered annexable does not make a substantive difference in identifying them (Durst 2014, 2019). [↑](#footnote-ref-17)
18. The earliest year that LODES data is available is 2002 for some states and 2004 for others. [↑](#footnote-ref-18)
19. A database of state laws on annexations is available by request, compiled from sources cited in Durst (2018). [↑](#footnote-ref-19)
20. <https://www.justice.gov/crt/about-section-5-voting-rights-act>. [↑](#footnote-ref-20)
21. This is equivalent to the sum of coefficients for annexed (-0.0008) and annexed \* Section 5 (-0.034) in Table 5, rounded up. [↑](#footnote-ref-21)
22. These estimates are equivalent to the sum of coefficients on annexed, annexed\*period, annexed\*Section 5, and annexed\*period\*Section 5 in Table 5. [↑](#footnote-ref-22)
23. These estimates are equivalent to the sum of coefficients for annexed and annexed\*period in Table 5. [↑](#footnote-ref-23)
24. Note, however, that Section 5 was indifferent towards the question of intent. Cities have to show no racially disparate impact—also known as the “retrogression standard,” and if there were such an impact, provide an approved plan to mitigate against this impact (Berri 1989). [↑](#footnote-ref-24)