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COLLECTIVE ACTION, WHITE FLIGHT, AND THE ORIGINS OF FORMAL SEGREGATION
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Collective Action, White Flight, and the Origins of Formal Segregation Laws
Werner Troesken and Randall Walsh
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ABSTRACT

This paper develops and tests a simple model to explain the origins of municipal segregation ordinances. Passed by cities between 1909 and 1917, these ordinances prohibited members of the majority racial group on a given city block from selling or renting property to members of another racial group. Our results suggest that prior to these laws cities had created and sustained residential segregation through private norms and vigilante activity. Only when these private arrangements began to break down during the early 1900s did whites start lobbying municipal governments for segregation ordinances.

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1. Introduction

Residential segregation is among the most durable and salient features of American urban life (Massey and Denton, 1993; Cutler et al. 1999). It is widely recognized that governments at all levels have played at least some role in promoting and sustaining residential segregation. At the federal level, for example, urban renewal projects, federally-financed highway construction, and lending practices promulgated by New Deal agencies are often invoked as explanatory factors in the rise of segregation (Boustan 2010; Fishback et al., 2013). Similarly, at the local level, zoning laws and ordinances are often thought to have helped create racial disparities in access to housing.¹ In this paper, we ask: how and why did residential segregation in American cities come to enjoy state sponsorship? Much like Alston and Ferrie's (1993, 1999) analysis of paternalism and the rise of the American welfare state, we explore how the demise of informal institutions can generate political demand for formal state laws. In the process, we formalize and test a simple framework that offers new insight into how political and market processes interacted to shape the evolution of residential segregation in American cities.

At first glance, explaining how and why residential segregation came to be state sponsored seems both simple and obvious: white voters preferred to live in all white neighborhoods, and sought legislation to forestall black in-migration. There are, however, at least two problems with this simple, preference-based answer. First, to the extent that anti-

¹ See, for example, Rothwell and Massey (2010), Rothwell (2011), Shertzer et al. (2016), and Silver (1997).

black sentiments were widespread and generally held among white voters, an exclusively-preference-based answer suggests that laws promoting residential segregation would have been ubiquitous. Yet, the available historical evidence suggests that demand for formal segregation laws varied over time and across space. As explained below, the first laws governing the locational choices of urban-dwelling African Americans did not appear until around 1910, and even then, those laws were limited to a handful of cities in the South and various border states. Second, any answer to the question “why do we have laws promoting residential segregation” that relies solely on white preferences ignores the underlying economic processes that shaped demand for such laws. For example, standard neighborhood tipping models suggest that the threat of sharp reductions in real estate values, not just preferences per se, would have been an important driver in the demand for municipal segregation laws and other formal measures restricting black mobility within cities.

To understand how and why residential segregation came to enjoy formal state support, we explore the passage of municipal segregation ordinances. First passed by local governments during the early 1900s, segregation ordinances prohibited blacks from occupying residences on the streets and blocks where whites occupied most residences. Although these ordinances were in operation for less than a decade before the Supreme Court struck them down as unconstitutional, they ushered in a host of formal laws, regulations, and government agencies thought to have promoted and sustained residential segregation over the past century. Before segregation ordinances, white property owners relied exclusively on private forms of collective action, often in the form of threats and private vigilante activity, to deter blacks from migrating

into previously all-white neighborhoods. Only after the passage of segregation ordinances did whites begin supplementing their private efforts with state action. In this way, one might think of segregation ordinances as a watershed event that marked the transition toward a more statist and formal approach of promoting and sustaining residential segregation.

We organize our analysis around a political economy framework that integrates the logic of collective action (Olson 1969) with a simple tipping framework (e.g., Card et al. 2008). Although segregation is always an equilibrium outcome in our framework, the model suggests demand for segregation laws could have arisen through two possible channels. The first channel relates to increased demand for housing in black neighborhoods. In particular, because the black housing stock was relatively limited, as black urban populations during the early 20th century expanded, black households had to pay a premium over whites for the same housing stream. This difference created incentives for blacks to violate the informal norms that dictated where black families could, and could not, reside. The second channel focuses on the ability of whites to organize and carry out private vigilante activity designed to discourage blacks from violating the informal norms governing neighborhood choice. To the extent that the ability of whites to impose costs on defectors declined over time, one expects demand for state-sponsored segregation laws to have risen. This logic suggests that cities with the lowest ability to provide segregation through private vigilante activity would have been the first places to pass segregation laws.

After developing this model, we turn to our empirical analysis. The goal of the analysis is to identify which of the two channels (i.e., increases in black housing demand and/or

reductions in white vigilante activity) actually drove demand for passage of municipal segregation ordinances. Although our data and estimating strategies are limited, the patterns we observe are consistent with the predictions of the model, though the evidence for the vigilante channel is stronger than for the housing demand channel. In particular, whether we use city-level or ward-level data, we find only mixed evidence that demand for segregation ordinances is strongest in areas with the fastest growing black populations.

By contrast, we find relatively strong and robust evidence for the second channel involving white vigilante activity. Across a variety of model specifications and different measures of white vigilante activity, it is clear that in the cities where whites were able to police color lines and punish deviations through private channels, there was relatively little demand for segregation ordinances. For example, the data show that in cities located in counties with high lynching rates (a direct indicator of the ability of whites to organize privately to punish blacks for violating established racial norms) the probability of passing a segregation ordinance is significantly lower than in places with low lynching rates. Similarly, cities that possessed a robust volunteer fire department (an alternative measure of the ability to provide public goods through private channels) are significantly less likely to pass a segregation ordinance. We supplement our city-level analysis with ward level data from St. Louis. With the ward-level data from St. Louis, we can identify which wards were the strongest supporters of the city's segregation ordinance. The patterns observed in St. Louis suggest that support for the city's segregation ordinance was strongest in the wards where it was difficult for white communities to coordinate private vigilante activity.

The findings reported here are significant on three dimensions. First, economists typically invoke one of the following three mechanisms to explain the origins and persistence of residential segregation: market-based processes (e.g., neighborhood tipping and white flight); privately-coordinated collective action (e.g., vigilante activity and steering by real estate agents); and publically-coordinated collective action through formal legal instruments (e.g., segregation ordinances, redlining, discriminatory lending rules promulgated by government agencies). While there is much evidence, econometric and otherwise, to suggest all of these institutions and processes matter to some degree, there is no unifying model that predicts how they interact, how one mechanism might come to supplant another, or how and why their incidence and effectiveness might vary over time and across space. Integrating the logic of collective action with a simple model of white flight, this paper provides such a framework, and provides systematic testing of its central predictions.

Second, prevailing historical accounts suggest that segregation ordinances were passed in the immediate aftermath of black families moving into previously all-white neighborhoods, and more generally, in response to growing demand for housing among a small group of upwardly-mobile urban dwelling blacks (e.g., Rice 1968; Meyer 2001, p. 21). While such secondary accounts are consistent with our model, they have not been formalized or tested empirically. In this way, the existing historical literature treats it as an article of faith that segregation ordinances were first passed in the cities with the largest and fastest growing black populations. The empirical results below, however, provide only modest support for this claim. Furthermore, the existing secondary literature on the early history of segregation largely

ignores how changes in the ability of whites to coordinate their vigilante activity through private channels helped shape both the demand for segregation ordinances and the frequency with which black families violated established neighborhood color lines. Our evidence suggests understanding the efficacy of white vigilante activity is key to explaining the origins of state-sponsored laws and policies governing residential segregation.

Third, Alston and Ferrie (1993, 1999) and Alston and Higgs (1985) show how informal institutions such as paternalism and share-cropping shaped economic and political outcomes in the American South during the late nineteenth and early twentieth century. One of the most interesting contributions of the Alston and Ferrie work is to show how the viability of an informal institution (i.e., paternalism) hindered the development of a formal welfare state. In the same spirit, we show how private vigilante activity undercut demand for formal laws segregating housing markets in cities in border states and the South. In the context of a stylized tipping model, we show how threats to an established segregated equilibrium drive demand for formal segregation laws. Consistent with the model, we find evidence that the cities most likely to pass segregation ordinances were characterized by two features: first, they had rapidly growing white populations, which undermined the ability of white neighborhoods to organize and punish defectors through private mechanisms; and second they exhibited relatively low rates of lynching, which is consistent with the hypothesis that segregation ordinances were a publicly-provided substitute for private vigilante activity.

2. The Rise and Fall of Municipal Segregation Ordinances: A Brief Overview

In 1910, Baltimore passed the first municipal segregation ordinance in American history. The ordinance forbade any white person from moving into or using as a residence a house or apartment on a city block where the majority of residences were occupied by “colored persons;” and by the same token, it prohibited African Americans from doing the same. As a result, no African American could move into, or occupy residences on city blocks where most residences were occupied by whites.² Within eight years, 23 other cities in the American South, and various border states, followed suit. Table 1 lists the 24 cities that passed one or more segregation ordinances between 1910 and 1917.³ Only one of these cities is outside the South: Colwyn, a small town in Southeastern, Pennsylvania. Six of the cities were located in Virginia, and three were in North Carolina. These ordinances typically included fines that ranged from 50 to 200 dollars, and confinement in city jails from thirty to ninety days.⁴

² On the passage of the Baltimore segregation ordinance, see *Philadelphia Inquirer*, Dec. 20, 1910, p. 2; Rice (1968); Stephenson (1914); Power (1983); and Higginbotham (1990).

³ To identify all cities passing segregation ordinances, we first searched the Lexis-Nexis database for court cases and laws involving segregation ordinances and other local laws regulating the locational choices of African Americans. We then consulted the *Historical Newspapers* database at the University of Pittsburgh and the newspaper database at the Library of Congress (search terms included “municipal”, “segregation”, “ordinance,” “law”, “residence”, “negro”, and “neighborhood”). At the Library of Congress, we also surveyed every issue of *The Crisis* for discussions of segregation ordinances. *The Crisis* was the primary outlet for the NAACP during the early twentieth century.

⁴ For descriptions of various ordinances, see the following sources. *Hopkins v. Richmond, and Coleman v. Ashland* 117 Va. 692 (1915) describes ordinances in Richmond and Ashland, Virginia. *The Philadelphia Inquirer*, Jan. 24, 1915, p. 4, describes the ordinance in Colwyn, Pennsylvania. *State of Maryland v. John H. Gurry* 121 Md. 534 (1913) describes the Baltimore ordinance. *Harris v. City of Louisville, Buchanan v. Warley* 165 Ky. 559 (1915) describes the Louisville ordinance. *The Charlotte Observer*, Sept. 27, 1913, p. 4, describes segregation ordinances in Anderson, South Carolina; Baltimore, Maryland; Greenville, South

From their inception, segregation ordinances were surrounded by debates about their constitutionality. State courts in Maryland and North Carolina struck down segregation ordinances for infringing on the vested property rights of blacks in particular and property owners in general, while state courts in Virginia and Kentucky upheld segregation ordinances as a legitimate exercise of local police powers. In Georgia, the state's highest court struck down Atlanta's first segregation ordinance, but upheld a later ordinance re-shaped in light of the court's earlier ruling. The uncertain constitutional status of segregation ordinances was only resolved in 1917, when the United States Supreme Court struck down a Louisville ordinance in its landmark decision, *Buchanan v. Warley*. Quoting liberally from other opinions, the Court explained that residential segregation ordinances were different from laws segregating railroad cars and schools. In the latter instances, "the complaining person was afforded the opportunity to ride, or to attend institutions of learning, or afforded the thing of whatever nature . . . he was entitled. The most that was done was to require him as a member of a class to conform with reasonable rules in regard to the separation of the races." By contrast, "the effect" of segregation ordinances "was not merely to regulate a business or the like, but was to destroy the right of the individual to acquire, enjoy, and dispose of his property (*Buchanan v. Warley* 245 U.S. 60 1917, p. 81)."

Carolina; and Atlanta, Georgia. The *Columbia State*, Feb. 3, 1915, p. 3, describe a segregation ordinance in Spartanburg, South Carolina.

Following the Supreme Court's decision in *Buchanan v. Warley*, cities eventually stopped passing segregation ordinances. The significance of the Court's decision is shown in figure 1, which plots the (cumulative) number of cities in the United States to have ever passed a segregation ordinance over time. Starting in 1910, there is steep upward trend in the number of cities having ever passed an ordinance.⁵ If that trend had continued on its pre-*Buchanan* pace, a linear projection suggests that nearly seventy cities would have passed segregation ordinances by 1930. But as it was, after the Court's decision in 1917, only seven cities passed such laws and those were all declared unconstitutional in light of *Buchanan v. Warley*.

3. Two Questions

Given the pervasiveness of white racism over time and across space, this brief historical overview raises to two related questions: first, why did not more cities pass segregation ordinances, and second, why did cities wait until around 1910 to begin passing such laws? The dearth of such ordinances seems even more surprising when one puts them in historical context, noting that there were laws segregating virtually every other aspect of the social life of African Americans in cities and states including parks, hotels, schools, public auditoriums, libraries, hospitals, street cars, railroads, and many other areas of activity.⁶ The existing

⁵ One might view segregation ordinances (and Jim Crow more generally) as an example of the tyranny of the majority. *Buchanan v. Warley*, in turn, might be seen as an example of how an independent judiciary can effectively check the tyrannical impulses of a racist white majority. See, more generally, Fleck and Hanssen (2012).

⁶ See Margo (1990) and Pritchett (1989) on schools. Roback (1986) discusses segregation on street cars. The *Civil Rights Cases* 109 U.S. (1882) is a landmark court case describing private actions segregating hotels and public auditoriums. Klarman (1998) analyzes railroad segregation and judicial treatment of

historical literature answer these two questions by appealing to shifts in black demand: in times and places, where there was limited demand for black housing in urban areas, there was no need for segregation ordinances and none were passed. It was only when black populations in urban areas began to grow that black families began moving into previously all-white neighborhoods.⁷

While the emphasis on black housing demand is plausible and intuitively appealing, we argue that this focus misses a key part of the story: the breakdown of a privately-provided and sustained apartheid. Understanding this dimension of the story addresses a fundamental question: why were African Americans migrating into white neighborhoods at an increasing rate in the first place? More precisely, white homeowners could create and sustain racially segregated neighborhoods through private organizations or the state, and for most of the

segregation laws more generally. Stephenson (1911) provides an encyclopedic review of segregation and race-separation laws in the American South before 1910. Kirsch (2007) and McKay (1954) look at the history of segregation of public golf courses and other forms of recreation. Cresswell (1996) and Wolters (2002) focus on libraries. Doyle (1990) and Connerly (2013) explore various types of segregation laws in a series of Southern cities. The canonical treatment of Jim Crow remains Woodward (1955).

⁷ Writing in the *Journal of Southern History*, Rice (1968) argues: “[African-American] sections were traditionally located in the older, run-down parts of a town. Since the migration increased at a faster rate than the [housing stock in the black area] expanded, crowding became a severe problem. In addition . . . more prosperous [blacks] sought relief from the crowded conditions of the [black] section by moving outside . . . traditional boundaries.” Similarly, describing conditions in Baltimore, Meyer (2001, p. 21) writes: “It is not hard to explain the city council’s willingness to enact a segregation ordinance. The growth of the black community and the economic progress of a small segment of the [black population] had rendered ineffective the customary restrictions on African American advancement. . . . The unrest caused by the movement of middle-class blacks into white districts forced the city take some action to restore stability.” Meyer (2001, pp. 18-27) also suggests that the experience of Baltimore is representative of broader historical patterns.

nineteenth century, segregation was maintained through private arrangements such as neighborhood associations and private vigilante activity. Only when it became costly to sustain these private arrangements during the early 1900s did whites turn to municipal governments for assistance. In support of this line of thought, we start out by reviewing the relevant historical evidence. We then formalize these ideas in a model, and subject them to formal hypothesis tests later in the paper.

Newspaper accounts suggest that before 1910, whites in Southern cities did not demand segregation ordinances because segregation was maintained through informal norms and private, extra-legal means. For example, the *Macon Daily Telegraph* wrote that: “ A social color line [is] imperative . . . in the matter of residence. The black man may have as fine a house as his money can buy . . . but his house must stand in a neighborhood occupied by his own race. This is the South’s unenacted but irrevocable law.” According to the paper, this “unwritten law of segregation” was in most places a “sufficient check” on any black migration into all-white neighborhoods. Highlighting the punishment that would be visited upon black families and real estate agents who dared violate this “unwritten law,” the *Daily Telegraph* discussed the stability of residential segregation in Charleston, South Carolina:

Social and business ostracism would be the portion of any real estate dealer in this typical old Southern city if he were to aid the negro [sic] to invade the residential sections occupied by whites, but the fact that the negro [sic] ‘knows his place,’ and realizes the wisdom of living in harmony with the white man, whose superiority he recognizes, makes it practically impossible that the issue [i.e., black migration into all white neighborhoods] should ever arise here.

The paper documented similar patterns for other Southern cities (*Macon Daily Telegraph*, Oct. 27, 1910, p. 4).

Sometime around 1910, however, the privately-sustained equilibrium described by the *Daily Telegraph* began to break down. And as a result, when blacks began moving into previously all white neighborhood, their movement was unaffected by the pleas and threats made by white organizations. For example, in 1907 in St. Louis, Missouri, three black families moved into homes on Finney Street in the city's West End. These families were promptly visited by members of the West End Protective Association, who "politely" explained to them why their new neighbors preferred that they sell their homes, or break their leases, and move elsewhere. At one point the spokesman for the association, a Catholic Priest named Father McDonald, asked a newly arrived black resident why he was refusing to entertain the association's "polite" requests that he move. The resident, L.T. Traddock, who worked as a post office clerk, replied: "I have never liked this house, and have been trying to ever since I moved here in February to find another. But since my neighbors are so anxious to be rid of me I shan't overwork myself from now on in seeking another residence. In fact, I guess I'll stay as long as my landlord will permit me (*St. Louis Post Dispatch*, July 13, 1907, p. 3)."

Similarly, when Father McDonald explained to Bertha Williams, a school teacher, that "from a Christian and moral point of view segregation was the best thing for both races," she could only ask: "will segregation be practiced in heaven?" When Father McDonald persisted, explaining that if Williams were willing to rent her home he could find her a white family willing to pay a handsome monthly fee, she "emphatically refused to consider the proposition."

Williams did, however, make a counter-offer, telling the representatives of the Protective Association that if they found a buyer for her home, she would consider offers that well exceeded her original purchase price. "I am open to proposition[s] to sell the property," she said. "I paid \$4,000 for it, and did not buy it on speculation. But if the control of it is so valuable to my neighbors, I will sell at a substantial increase on my purchase price (St. Louis *Post Dispatch*, July 13, 1907, p. 3)." What happened in St. Louis's West End was not unusual: the same story of blacks moving in and/or refusing to leave white neighborhoods even in the face of veiled and explicit threats of violence began to occur throughout the city. It was only when these private associations failed to sustain the equilibrium described by the *Macon Daily Telegraph* above that whites in St. Louis began lobbying local politicians for a municipal segregation ordinance.⁸

A few years after the West End Protective Association visited black families in St. Louis, the same series of events played themselves out in Atlanta, Georgia. In the city's fourth ward whites organized a committee of prominent citizen's to confront real estate agents and white homeowners who were offering housing to black renters and buyers. These same groups also visited black families bold enough to accept such offers (*Atlanta Constitution*, Oct. 9, 1915, p. 4). Although these committees and associations typically characterized themselves as polite and nonviolent, when they failed to deter black in-migration violence against the new black arrivals

⁸ See the following issues of the *St. Louis Post-Dispatch*: Feb. 16, 1916, p. 4; May 28, 1908, p. 7; Aug. 12, 1908, p. 4; Oct. 6, 1909, p. 6; Dec. 9, 1909, p. 4; Feb. 12, 1910, p. 12; May 19, 1911, p. 24; and May 29, 1907, p. 9.

often followed. For example, between 1917 and 1920, white vigilante groups in Chicago, detonated more than 50 bombs in the homes of blacks and black real estate agents (Chicago Commission on Race Relations, 1922, pp. 121-39), and at a smaller level in Dallas, the home of William Connor was bombed after he moved into a “restricted” whites-only area (*Lincoln Daily News*, Aug. 3, 1916, p. 1; see also, Martin 1934). Even in those cases where black in-migration was not met with such extreme violence, the black “pioneer in a new white section [was] generally subjected to a number of petty annoyances, such as broken windows, defaced woodwork, mud on the steps, and unpleasant epithets (*Macon Daily Telegraph*, Jan. 1, 1911, p. 3).”

When veiled threats by neighborhood groups and vigilante activity proved ineffective, whites turned to the political process. For example, in Atlanta’s fourth ward, the ward’s alderman, Claude Ashley, introduced and eventually passed the city’s first segregation ordinance in 1913.⁹ The same legislative patterns that were observed in Atlanta and St. Louis were also seen in other cities passing segregation ordinances (Meyer 2001, pp. 18-27). It is ironic that when associations of white homeowners lobbied for segregation ordinances they argued that such legislation would promote the peaceful coexistence of the races and protect blacks

⁹ For the origins of the Atlanta segregation ordinance and the role played by Alderman Ashley, see the following issues of the *Atlanta Constitution*: June 13, 1913, p. 5; June 16, 1913, p. 7; July 3, 1913, p. 12; and Jan. 10, 1914, p. 1. After the Georgia Supreme Court struck down his first ordinance, Ashley immediately began redrafting a second ordinance he hoped would pass judicial scrutiny. See *Atlanta Constitution*, Feb. 13, 1915, pp. 1 and 12. Bernstein (1990) quotes a passage from Booker T. Washington who argues that it was not unorganized white voters who pushed for segregation ordinances, but white politicians who whipped up voters and invented the problems that drove passage of segregation ordinances.

from violence and white vigilantism, despite the fact white homeowners were typically the ones perpetuating the violence. The Northside Improvement Association in Miami, Florida claimed that it “deplored” the violence that had driven several black families from their homes on Avenue I between Fifth and Sixth Street. To prevent such violence, the association advocated a municipal segregation ordinance that would clearly delineate white and black neighborhoods and forestall racial provocations (*Miami Herald*, August 18, 1915, p. 8).

It is not surprising that the equilibrium described by the *Daily Telegraph* could break down over time. Imagine a city where all segregation was privately provided and there were no laws supporting private efforts to mandate residential segregation. Assume that through some sort of private coordination, the city was cordoned off into two areas, one relatively small area for blacks, and another larger area for whites. This informal arrangement would have been vulnerable to shocks that increased demand for housing among blacks, or conversely, undercut the ability of whites to organize and punish those who violated the established norms of segregation. Along these lines, in describing the breakdown of informal segregation in Baltimore, Maryland, the *Macon Daily Telegraph* (Oct. 27, 1910, p. 4) attributed that breakdown, and the subsequent passage of the city’s first segregation ordinance, to the misplaced “ambitions of prosperous [African]-Americans.”

As to the effects of demand shocks, suppose that black demand for housing rose either in response to growing income among blacks or because the number of blacks living in the city was growing over time. In either case, as blacks were forced to locate in the small area, housing prices in that area would have risen relative to those in the white area. Eventually, housing

prices in the black area would have exceeded those in the white area, and blacks would have paid more than whites for the same stream of housing. This, in turn, would have generated incentives for both black home buyers and white home sellers to deviate from established norms and begin making exchanges. Consistent with this line of thought, Cutler et al. (1999) present data showing that in 1940 blacks in segregated cities were paying more housing than were blacks in less segregated cities, and they hypothesize that these price differentials were the product of collective action on the part of whites to exclude blacks from white neighborhoods. Along the same lines, newspaper accounts suggest that price differential existed between black and white housing, and that blacks had to pay more for identical housing streams.¹⁰

By the same token, one can also imagine increases in the size and/or heterogeneity of the white population undermining the ability of whites to organize and punish those who deviated from established norms. As the quotations above imply, in the absence of state intervention, the threat of violence and retribution were essential to maintaining racially segregated neighborhoods. But for the whites who desired to maintain residential segregation, the central difficulty was that campaigns of violence and retribution were plagued by free rider problems. The individuals perpetuating such acts risked arrest, prosecution, and personal injury. Given

¹⁰ See *Columbia State*, December 7, 1922. This newspaper account argues that as of the early 1920s, housing prices in black and white neighborhoods were similar, but suggests that in the past there were differences. Along the same lines, one German homeowner in St. Louis explained to his angry white neighbors after selling his home to a black man: "We would rather sell to colored [sic] than to white folks because we can get more from the colored [sic] folks (*St. Louis Post Dispatch*, Sept. 4, 1901, p. 2)."

this, they would have under-provided (from the perspective of the whites concerned with black in-migration) violence and punishment against those who deviated from established practices.

One theme that repeats itself in the literature on the private-provision of public goods is that private provision is most likely to survive and function effectively in a world where communities are small and homogenous, while private provision is less likely to survive in communities where there is rapid population growth and increasing heterogeneity (Ledyard 1995; Olson 1965). The upshot of these observations is that a privately-sustained equilibrium of complete residential segregation would have been less likely to survive in settings where white communities were experiencing rapid population growth that undermined the cohesiveness and homogeneity of those communities.

Newspaper accounts from the era suggest that whites desired segregation not solely, or even primarily, because of their own individual preferences, but because integration was detrimental to property values. To this way of thinking, new black in-migration would cause other whites to flee, driving down property values and culminating in an all-black neighborhood where property values were significantly lower than in the original (pre-in-migration) equilibrium. As the *St. Louis Post-Dispatch* (Aug. 19, 1901, p. 1) explained: “The [white] property owners will carry on the fight, not because they dislike Negroes but because the advent of a Negro family will, they say, depreciate the value of their real estate. Newspaper accounts from other cities also emphasized how (in their view) it was not racism that drove the violence often directed toward newly arrived black families but the fact that “hard-working” laborers and middle class families stood to lose their life savings because a few “ambitious”

blacks could not respect established color lines (Macon *Daily Telegraph*, Aug. 14, 1913, p. 4; Gulfport *Daily Herald*, Dec. 23, 1910, p. 4).

4. The Political Economy of Segregation

In this section, we present a simple political economy framework to generate hypotheses regarding the mechanisms that drove the political demand for segregation ordinances.

Rationalizing many of the observations in the preceding historical narrative, this framework draws inspiration from two existing literatures in economics. The first is the literature surrounding the logic of collective action as first developed by Olson (1969). The second is the literature surrounding neighborhood tipping as formalized by Card et al. (2008). We begin with a model of segregated housing markets. In this setup, integration is temporary, and in the absence of formal legislation, segregation is maintained by private vigilante groups who punish defectors for violating established color lines. As explained below, we assume that because black housing supply is more inelastic than white housing supply and because blacks incur punishment costs for entering the white market, blacks (in equilibrium) can pay a premium for the same housing stream. However, when the financial premium African Americans pay for housing exceeds the punishment costs inflicted by white vigilante groups, there are incentives for blacks to enter the white market despite these costs. Black entry into the white market causes whites near the point of entry to flee and leads to a one time expansion in the stock of land and housing available to blacks, which in turn, results in a new segregated equilibrium. Because there are costs to whites associated with moving from one segregated equilibrium to

another, threats to any initial equilibrium generate political support for formal legislation mandating residential segregation.

More formally, consider a city with N^b (N^w) blacks (whites). Demand for housing is perfectly inelastic; everyone consumes one unit of housing no matter the price. As a result, market demand for both blacks and whites is simply the population of the respective group. Whites only purchase housing in the white housing market; black home-buyers decide whether to operate in the black or white market based on the relative prices of housing in both markets. In terms of supply, sellers in both the black and white markets act as perfect competitors but black housing supply is relatively inelastic. This structure suggests a setting where whites can always move outward from the city center and build more housing on land in outlying areas, while black families can only purchase housing on land already abandoned by whites. Because whites do not face a land constraint, the supply of white housing (S^w) is perfectly elastic and sold at a constant price, \bar{p}^w . In contrast, because housing providers in the black market face a land constraint (they can only operate in the areas whites are unwilling to occupy), the black housing supply curve (S^b) is upward sloping in the short run.

If blacks violate the norms dictating where they can purchase housing, and move into the white market, they incur some cost, C . This cost reflects the monetary value of the violence and property damage imposed on defecting blacks by white vigilante groups. Private vigilante activity promotes segregation by imposing a tax on any black family that might choose to migrate into a previously all-white neighborhood. This violence tax drives a wedge between housing prices in black and white communities, and creates a premium on the price blacks pay

in the exclusively black market. One might think of the private vigilante activity that whites use to generate C as a public good for white homeowners. Given this, in settings where white communities are (not) tightly knit and can (not) easily overcome the free-rider problems associated with the private provision of local public goods (such as policing the racial make-up of a given neighborhood), C would be relatively high (low).

In our setup, integration is temporary, and all equilibria are segregated. To maintain any initial segregated equilibrium, the price of housing in the black-only market (p^b) must be weakly less than the effective price of housing for blacks in the all-white neighborhood. The effective price for blacks in the all-white market includes both the financial price of the home and the violence tax imposed by private vigilante groups so that for any segregated equilibrium to survive it must be the case that $p^b \leq \bar{p}^w + C$. Violations of this inequality are temporary, inducing both black migration into the white market and white flight near the point of black entry. As whites abandon land and housing near the entry point, the short-run supply curve of black housing shifts out, reducing price pressures in the black housing market and returning the market to a new segregated equilibrium. As explained further below, this process generates a saw-tooth pattern in the long-run black supply curve for black housing, with a series of teeth rising from \bar{p}^w to $(\bar{p}^w + C)$.

Two types of shocks threaten any initial segregated equilibrium. First, because black housing supply is relatively inelastic, as black housing demand increases, so too does the premium blacks pay for housing in the exclusively black market. If black housing prices rise sufficiently, the premium surpasses the costs blacks incur from private vigilante groups

working to preserve the racial integrity of the white housing market, and blacks enter the white market despite C . Figure 2 shows how shocks to black housing demand can threaten any existing equilibrium at ε_0 by inducing white flight and movement to the new segregated equilibrium at ε_1 . (In the figure, we suppress the b superscript.) As demand shifts from D_0 toward D_1 , the price blacks pay for housing in the black market rises until the premium blacks pay for housing temporarily exceeds C (or more precisely, $p^b > \bar{p}^w + C$) this induces some blacks to enter the white market causing white flight and an outward shift in the short-run supply of black housing. In particular, when white families flee the area where black families enter, whites who abandon their residences make more land and housing available to blacks, and the black housing supply curve shifts from S_0 to S_1 . The new segregated equilibrium (ε_1) is obtained at the intersection of D_1 and S_1 . Discrete breaks in the short run supply curve for housing (identified by the vertical dotted lines) represent tipping points; at these points, blacks enter the white market and induce white flight near the entry point.

The second channel through which any segregated equilibrium is threatened involves reductions in the violence tax, C . Figure 3 illustrates. The initial equilibrium is at point ε_0 , with a violence tax C_0 and with N_0 blacks paying P_0 for housing. Assume there is some shock to the ability of whites to organize and punish blacks through private channels, and the violence tax falls from C_0 to C_1 . This would reduce the effective price of housing that blacks pay for housing in the white market, and in turn, induces some black families to enter the white market. Just as above, this entry results in some whites abandoning land and housing, which in turn makes more land and housing available for blacks and results in the black housing supply curve

shifting outward from S_0 to S_1 . Because more land and housing are available to the black population (N_0) at the new equilibrium ε_1 , the equilibrium price falls from p_0 to p_1 . Also, note that with the reduction in violence costs from C_0 to C_1 , tipping and flight now occur whenever $p^b > \bar{p}^w + C_1$ which is a lower threshold than $\bar{p}^w + C_0$.

Transitioning from one segregated equilibrium to another imposes movement costs (m) on whites. We allow movement costs to vary across families for two reasons. First, while we assume such actors are not politically relevant, the very first white family to sell to a black family would gain from entry as that family would be able to sell their home at a price above \bar{p}^w . Second, white homeowners located close to (far from) the black entry points where the most (least) likely to have had to move. We therefore expect those whites located closest to points of black incursion to have the largest movement costs (and the strongest demand for a formal law prohibiting black in-migration into their neighborhoods), while white homeowners located far from points of black entry would have no movement costs.¹¹ In this setting, movement costs are the proximate drivers of segregation laws, while increases in black housing demand and/or an erosion in the ability of whites to provide private vigilante activity are the ultimate causes.

Figure 4 accomplishes two ends. First, it highlights the spatial assumptions we make in our model; and second, it encapsulates our thinking on the role of proximity in driving the political demand for segregation ordinances. Figure 4 depicts a circular city. The borders of the

¹¹ In a world where land is scarce, it is possible that in those areas receiving new white homeowners (i.e., those fleeing), property values would rise and homeowners in those areas would actually benefit from white flight. We abstract away from this possibility by assuming land and city boundaries can expand infinitely.

city can expand indefinitely so that whites fleeing blacks can always find new housing and land at constant price. In the initial equilibrium, with $p^w < p^b < p^w + C$, blacks occupy the housing and land in the smaller, gray circle labeled A . Suppose a shock to black housing demand or a reduction in the violence tax drives up the price blacks pay for housing in area A relative to the effective housing price in the rest of the city so that p^b temporarily exceeds $(\bar{p}^w + C)$. This would induce some black families to enter the white housing market, causing whites in the proximity of this entry, denoted by the circle B , to abandon their housing and relocate into some other area of the city.

Whites in area B would be the most adversely affected by the breakdown in the initial equilibrium, and would incur the largest movement costs. One expects whites in areas most at risk for such black in-migration to have exhibited the strongest demand for segregation ordinances. That said, because land is unconstrained for whites, white flight away from entry points in area B causes the city boundaries and land supply to expand from C to D . As a result, the whites who flee can always find land and housing on the outskirts of the city at \bar{p}^w . The variable m captures whatever penalty they incur from movement. Below, we test the proposition that those white families in areas experiencing the greatest rates of black in-migration would have been the strongest supporters of a segregation ordinance with ward-level data from St. Louis.

4. Empirical Evidence

To test the central predictions of the model above, we begin by looking at the factors that predict whether a city passes segregation ordinances. Our theory suggests that the probability

of any given city passing a segregation ordinance is a positive function of black housing demand, and a negative function of the ability of whites to police and enforce existing norms governing segregation through private vigilante activity. Given this, we estimate probit models of the following general form:

$$\Pr(Y_i = 1 \mid \mathbf{X}) = \Phi(\mathbf{X}'\boldsymbol{\beta}),$$

where, Y_i equals one if city i passes a segregation sometime between 1909 and 1917, and zero otherwise; Φ is the standard normal distribution function; and \mathbf{X} is a vector regressors measuring the two channels that might drive demand for segregation ordinances (i.e., increased housing demand among African Americans; and reductions in white vigilante activity and the associated violence tax). A concern with our approach is the possibility that we might fail to control for some sort of unobserved heterogeneity. Although we cannot fully control for such concerns, we adopt some remedial strategies (described below) to test for and minimize biases that might result from unobserved correlates.

To capture the housing demand channel, we look at population levels and growth in the black community between 1910 and 1920. Presumably, the cities with the largest and fastest growing black populations would have experienced the sharpest increases in black housing demand and would have been the most likely to have passed segregation ordinances. To isolate the private-vigilante-activity channel, we look at number of variables. These include: the size and growth of the white population (which as explained elsewhere, would be negatively correlated with the ability to provide private vigilante activity); the vitality of local volunteer fire departments (an indirect indicator of the ability to provide local public goods through

private organizations); and lynching (a direct indicator of the intensity of private vigilante activity).

We begin by gathering data on urban places in the American South and in the border states with populations greater than 2,500 in 1910. We gather data on population levels and growth rates, lynching rates, and the size of volunteer fire departments. We also use the history above (particularly table 1) to identify which of these places passed segregation ordinances. The data on population are from the U.S. *Census* volumes, and the data on volunteer fire departments are from the *Fire and Marine Insurance Yearbook* (1905-06). The lynching data are from a widely used and cited map, available on-line through the Library of Congress.¹² Constructed by the Tuskegee Institute, this map records the number of lynchings by county, for every county in the United States, for the years 1900 through 1931.

The resulting sample includes all cities for which data are available and contains 558 observations. Figure 5 provides a sense of the geographic distribution of our sample. Each triangle indicates a city or town that did not pass a segregation ordinance, while the stars indicate the location of a city that did pass a segregation ordinance between 1900 and 1917. The map highlights the fact that, though few in number, segregation ordinances were passed in cities throughout the South and various border states. That said, segregation ordinances were particularly common in North Carolina and Virginia. To control for the clumping of segregation ordinances in particular states, we include state fixed effects in some specifications.

¹² The map can be downloaded at: <http://www.loc.gov/item/2006636636/>.

Table 2 provides summary statistics for the key variables in our sample; the table also shows how these variables differ across cities depending on passage of a segregation ordinance. It is clear that cities passing segregation ordinances are much larger than cities that did not, with white population levels in 1910 roughly 12 times in greater in the former. While black population shares in 1910 are not radically different across the subsamples, black population are roughly 8 times greater in cities that passed segregation ordinances than in those that did not. Population growth between 1910 and 1920 for both blacks and whites are also greater in cities passing segregation ordinances. Similar patterns emerge if we look at the data in logs.

The final two variables in Table 2 will be used to look at how the private provision of public goods and private vigilante activity vary across cities. The first of these variables captures the development of volunteer fire departments, an indirect indicator of how tightly knit communities are and how willing local populations are to contribute to local public goods. In cities without segregation ordinances, volunteer fire departments are roughly 5 times larger. Similarly, lynching rates in the surrounding county are 10 times greater in cities without segregation ordinances than in cities with such ordinances. The lynching rate is measured as lynchings per 10,000 African Americans and is based on the number of lynchings in the county in which a city is located.

The results of the probit analysis are reported in tables 3 and 4. Table 3 uses the data in levels; Table 4 uses logs. To the extent that increased demand for housing in black neighborhoods drove the passage of segregation ordinances, we would expect cities with the largest and fastest growing African American populations to have been the most likely to have

passed segregation ordinances. The results provide only mixed support for this prediction. In table 3, which uses levels and tests for evidence that proportional growth in the black population matters, only regressions (1) and (5) yield evidence consistent with the demand channel (see the coefficient on Pctblack in 1910). In table 4, the log of the black population enters all five regression specifications at reasonable levels of significance, but the change in the log of the black population between 1920 and 1910 is insignificant in all specifications. Also, when state fixed effects are included in the regressions, there is little evidence that black population levels and growth are important predictors of passage of segregation ordinances.

We find stronger econometric evidence for the second channel. In particular, the second channel suggests that in cities where whites had a relatively strong capacity to provide public goods privately, particularly those related to inter-racial violence, passage of municipal segregation ordinances would have been delayed relative to places where whites did not have such capacity. To explore this channel, we first look at how white population levels and growth affect the likelihood of passing a segregation ordinance. In contrast to black population levels and growth, white population pressures are strong and consistent positive predictors of passage: cities with large and fast growing white populations were the most likely to pass segregation ordinances. That white population pressure is a positive predictor of segregation ordinances is consistent with the idea that white population growth undermined the ability of whites to organize and coordinate the private vigilante activity necessary to deter black immigration, which in turn, fostered demand for formal segregation ordinances. The evidence that population pressures on the white community are important drivers of segregation

ordinances is strongest in the regression models that include state fixed effects. (See tables 3 and 4, regression models 2 and 5).

One might ask why if increases in the white population undermined the ability of whites to organize private vigilante groups, why did those same pressures not also undermine the ability of whites to lobby for segregation ordinances? There are at least two possible answers. First, it is entirely possible that white political pressure for segregation ordinances was mostly disorganized, and driven by the intensity of the preferences of the median white voter. Consistent with this observation, many of the qualitative sources we consulted suggest that pressure among (unorganized) white voters drove passage of segregation ordinances (e.g., *Atlanta Constitution*, Oct. 6, 1915, p. 1; Boger 2009; Meyers 2001, pp. 18-27; Powers 1983).

Second, white population pressures might well have reduced the ability to organize political pressure groups, but as long as the costs of organizing politically were less affected by population growth than the costs of organizing private vigilante groups the results above would be sensible. Along the same lines, to be effective private action required sustained and repeated efforts, but white vigilante activity often dissipated quickly—even the Klan, probably the best organized and persistent white racist vigilante group saw waves of participation and inaction (Fryer and Levitt 2012). By contrast, once it was passed, a segregation law was durable and required little in the way of repeat organizational activity to sustain it. As one black community leader described the situation, after a black family moved in, there would be some violence, but “after a short time the excitement wore off” and whites would either move or resign themselves to their fate (Meyer 2001, p. 17).

A more general objection to our interpretation of the positive coefficients on white population levels and growth is that these are only indirect measures of the impact of the vigilantism/public-goods-channel. Accordingly, we gather data on the size of volunteer fire departments in American cities. To the extent that a large volunteer fire department in a city reflects the ability of whites to organize and provide public goods through private mechanisms (such as vigilante activity), we expect fewer segregation ordinances passed in cities with relatively large volunteer fire departments. The results in table 3 are consistent with this prediction: cities with active volunteer fire departments were less likely to pass segregation ordinances than those with moribund departments. One concern with this test is that residential segregation might have some sort of correlation with demand for fire protection. The data, however, do not bear out this hypothesis: according to the results in table 3, the size of the public fire departments is uncorrelated with the probability of passing a segregation ordinance.

Unobservable factors correlated with demographic change in cities might bias our analysis and so it is important to identify, and confront, plausible relationships on this margin. Probably the most likely hypothesis in this regard would suggest that white segregation ordinances reflect nothing more than the intensity of racial preferences among whites so that cities where whites held the strongest anti-black preferences were the most likely to pass segregation ordinances. Blacks would have been reluctant to migrate into such places, which

would suggest a negative coefficient on black population growth.¹³ Moreover, if most whites preferred living around whites who held intense anti-black preferences, cities with the strongest anti-black preferences would have experienced the most rapid population growth among whites, which could account for the strong positive correlation between white population growth and passage of segregation ordinances. This line of thinking suggests we include some sort of control that captures the intensity of white animosity toward African Americans.

Another possible objection to our interpretation of the empirical results above is that we do not have a direct measure of the informal organizations and arrangements that whites used to exclude blacks from white neighborhoods. All we can do is say the negative coefficient on white population growth is consistent with an erosion of such informal institutions. In an ideal world we would have measures on the extent and efficacy of such things as neighborhood associations and private vigilante activity taken in relation to black violations of established racial housing norms. If segregation ordinances emerged only because those informal institutions were breaking down (and segregation ordinances were in effect a substitute for these private, informal institutions) one would expect these measures to be negatively correlated with the passage of segregation ordinances.

To address both of these concerns, we add a measure of the lynching rate in the county in which the city is located to the regressions. To the extent that those cities with the strongest and most virulent anti-black attitudes had the highest rates of lynching, lynching will

¹³ We note, however, that in the raw data, black population growth is much faster in cities passing segregation ordinances than in those without such ordinances. See table 2.

capture the intensity of white animosity toward blacks. And if it is the intensity of white preferences that drove passage of segregation ordinances, one expects that the lynching measure would enter the regressions positively and that its inclusion would greatly reduce the size and significance of the coefficients on the white (total) population level and growth rate. Alternatively, if municipal segregation ordinances were passed because the ability of whites to organize and punish blacks through private means was breaking down, one expects the coefficient on the lynching rate to be negative and significant. In this way, the lynching rate is ideal metric for distinguishing a preference-based explanation for municipal segregation ordinances from our argument that segregation ordinances were substitutes for privately-organized vigilante activity.

The results are reported in tables 3 and 4, regressions 5 and 6. In table 3, the lynching rate comes in highly significant, whether or not one includes state fixed effects. Moreover the lynching rate is negative, which means that places that with lots of private vigilante activity were less likely to pass segregation ordinances. This is consistent with the predictions of our model and suggests that private vigilante activity and segregation ordinances were substitutes, and not merely reflections of the intensity of anti-black preferences. In table 4, because we are using logs and already controlling for population size, we do not use the lynching rate variable, but instead simply include a count of lynchings in the county surrounding the city in question. In regression 5, lynchings again enter with a negative sign and at a high level of significance. In regression 6, the negative sign survives the inclusion of state fixed effects but the coefficient is now only significant at the .106 level.

7. Voting Patterns in St. Louis

Our final source of systematic empirical evidence comes from St. Louis. In early 1916, the St. Louis held a city-wide referendum on a segregation ordinance. If the majority of voters in the city voted yes on the referendum, the segregation ordinance would become law. The referendum passed with roughly two-thirds of the city voting in favor of the law: of the 70,000 ballots cast, more than 50,000 voted in favor of passage of the segregation ordinance. (Note also that St. Louis is distinguished from most other cities in our sample in that blacks in border states like Missouri could still vote, while those in the deeper South were fully disenfranchised by this point in time.) We use this referendum vote to explore how variation in black housing demand and white vigilante activity across wards predicts the proportion of voters casting ballots in favor of the referendum. Regressing the ward-level votes and vote shares against population levels and growth rates, the equations we estimate allow us to measure the correlates of support for this law. Table 9 provides descriptive statistics of the ward level data.

In the first specification, we regress the number of yes votes in 1916 and against the size of the black and white population in 1920, and the absolute change in the black and white population between 1910 and 1920. See Table 6 for results. Assuming that most whites (blacks) vote yes (no), the population levels in 1920 reflect the simple idea that wards with large white (black) populations would have more yes (no) votes. The changes in the black and white population are of primary interest because these two measures are the most likely to capture the dynamics of housing market. Consistent with the predictions of our model, controlling for population size, the number of yes votes was largest in wards experiencing rapid growth in the

black and white population between 1910 and 1920. As in the prior section, we are assuming that growth in the black population is an indirect indicator of increases in black housing demand, and that growth in the white population is an indirect and inverse measure of the ability to organize privately to deter black in-migration into the ward.¹⁴

The final two columns of table 6 use a different dependent variable: yes votes as a proportion of total votes cast. In these specifications, the proportion yes is lowest in wards with high black population shares and in those experiencing rapid growth in the white population (measured as the percentage change in the white population between 1910 and 1920). Also, excluding the ninth ward (an outlier in terms of black population growth) from the regression yields evidence that wards experiencing rapid growth in the black population (measured as the percentage change in the black population between 1910 and 1920) had a higher proportion of yes votes. Overall, these results provide mixed support for the black housing demand channel increasing political support for the St. Louis segregation ordinance, and consistent support for the vigilante activity channel.

7. Concluding Remarks

The existing literature on the origins of municipal segregation ordinances argues that segregation ordinances were passed largely because of rapidly growing black populations in urban areas and variation in the intensity anti-black preferences across cities. Our results

¹⁴ The logic of collective action suggests the ability to provide segregation through private vigilante activity would have been lowest in those wards experiencing the most rapid growth in the white population. This, in turn, would have generated demand for a formal segregation ordinance in those same wards.

suggest the existing literature needs to be revised. While there is evidence that growing black populations might have played a role in the propagation of segregation ordinances, the results here suggest that a decline in the ability of whites to provide a local public good (i.e. segregation) through private vigilante activity was especially important. In particular, the negative coefficient on lynching and the positive coefficients on white population growth are consistent with the hypothesis that segregation ordinances were passed in those cities where it was becoming increasingly difficult for whites to organize and punish blacks for violating established color lines in residential housing markets.

More generally, the model developed and tested here has broad implications for our understanding of residential segregation the processes that give rise to it. Of particular interest is the exploration of how market processes such as tipping interact with institutional change. While prior research has tended to treat market-related processes such as tipping independently from institutions, both formal and informal, the framework here integrates them. In the process, it can help us understand political institutions and market processes work together to drive segregation and make it persistent.

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Table 1. Cities Passing Municipal Segregation Ordinances Between 1910 and 1917

City	State	Year passed
Baltimore	Maryland	1910
Greenville	South Carolina	1912
Winston-Salem	North Carolina	1912
Mooresville	North Carolina	1912
Madisonville	Kentucky	1913
Roanoke	Virginia	1913
Atlanta	Georgia	1913
Birmingham	Alabama	1913
Norfolk	Virginia	1913
Ashland	Virginia	1913
Danville	Virginia	1913
Richmond	Virginia	1913
Anderson	South Carolina	1913
Greensboro	North Carolina	1914
Louisville	Kentucky	1914
Hyattsville	Maryland	1914
Miami	Florida	1915
Spartanburg	South Carolina	1915
Dallas	Texas	1916
Colwyn	Pennsylvania	1916
Oklahoma City	Oklahoma	1916
St. Louis	Missouri	1916
Clifton Forge	Virginia	1917

Source: The *Crisis* (various years, various issues); *Historical Newspapers* database search; *Lexis-Nexis* database search; Rice (1968); Stephenson (1912); and Martin (1934).

Table 2. Summary Statistics

Variable	No segregation ordinance ($y = 0$)		Passed segregation ordinance ($y = 1$)	
	mean	std. dev.	mean	std. dev.
Black population, 1910	2,628.78	5,944.79	21,051.15	23,871.61
Percent Black, 1910	0.27	0.18	0.29	0.11
Black population, 1920	2,934.10	6,927.91	27,712.50	30,778.62
% Δ BlackPop, 1910-1920	0.10	0.55	0.37	0.73
White Population, 1910	7,117.77	16,896.06	92,115.90	168,206.90
% Δ WhitePop, 1910-1920	0.31	0.43	0.64	1.13
Log(Black Population in 1910)	6.92	1.63	9.18	1.43
LogBlackPop1920 – LogBlackPop1910	0.03	0.39	0.24	0.37
Log(White Population in 1910)	8.33	0.83	10.18	1.64
LogWhitePop1920 – LogWhitePop1910	0.24	0.24	0.39	0.38
Volunteer Firemen per 10,000 Persons	76.01	180.07	16.86	25.06
Lynchings per 10,000 African Americans	2.57	5.27	0.26	0.54
Number of observations	529		20	

Source: United States Census (various years, various volumes); data on fire departments are from the *Insurance Year Book, 1905-1906 [Fire and Marine]*, New York: The Spectator Company, 1905. For data on lynching, see the map at: <http://www.loc.gov/item/2006636636/>.

Table 3. Predicting Passage of Municipal Segregation Ordinances

Variables	Dep. Var. = 1 if segregation ordinance passed					
	(1)	(2)	(3)	(4)	(5)	(6)
Whitepop1910	0.134*** (0.042)	0.611*** (0.121)	0.116*** (0.041)	0.109*** (0.039)	0.122*** (0.043)	5.716*** (1.177)
Pctblack, 1910	0.836* (0.47)	-0.591 (1.539)	0.769 (0.515)	0.849 (0.528)	1.520*** (0.513)	-0.583 (1.542)
Whitegrowth	0.371** (0.145)	0.935*** (0.288)	0.278* (0.149)	0.250* (0.149)	0.343** (0.151)	0.857*** (0.281)
Blackgrowth	0.0357 (0.154)	-0.337 (0.379)	0.171 (0.193)	0.192 (0.193)	0.0499 (0.156)	-0.302 (0.369)
Volpercapita			-45.95** (19.78)	-44.75** (18.94)		
Paidpercapita				-2.466 (31.59)		
Lynchrateown					-0.242*** (.091)	-0.212** (0.0904)
Constant	-2.464*** (0.211)	-3.502*** (0.774)	-2.168*** (0.243)	-2.192*** (0.251)	-2.419*** (0.211)	-3.065*** (0.797)
State dummies	no	yes	no	no	no	yes
Observations	549	419	481	480	548	419

Notes: All models estimated with robust standard errors. To avoid scientific notation, white population in 1910 is divided by 10,000, and Lynchrate is the number of lynchings in the county per 10,000 African Americans.

Source: see text.

Table 4. Predicting Passage of Municipal Segregation Ordinances: Log Models

Variable	Dep var: = 1 if segregation ordinance passed					
	(1)	(2)	(3)	(4)	(5)	(6)
Logblackpop1910	0.283*** (0.105)	0.0510 (0.222)	0.271** (0.109)	0.259** (0.115)	0.431*** (0.134)	0.0866 (0.226)
Logwhitepop1910	0.347*** (0.103)	0.880*** (0.302)	0.336*** (0.0997)	0.249** (0.114)	0.256** (0.120)	0.869*** (0.306)
Changeblacklog	0.0500 (0.385)	-0.358 (0.239)	0.261 (0.430)	0.146 (0.435)	0.0354 (0.404)	-0.368 (0.241)
Changewhitelog	0.763* (0.449)	1.682*** (0.572)	0.639 (0.426)	0.789* (0.415)	0.789* (0.445)	1.526*** (0.509)
Log(volunteer)			0.000335 (0.00106)	0.000718 (0.000877)		
Log(paid)				0.00292 (0.00225)		
Log(lynchings)					-0.521*** (0.195)	-0.386 (0.241)
Constant	-7.380*** (0.911)	-10.87*** (1.710)	-7.143*** (0.939)	-6.384*** (1.079)	-7.490*** (0.917)	-10.39*** (1.696)
State dummies	no	yes	no	no	no	yes
Observations	543	415	476	476	542	415

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: All models estimated with robust standard errors.

Source: see text.

Table 5. Summary Statistics for St. Louis Wards

Variables	N	mean	sd	nin	max
Blackpop: black population in 1920	28	2,495	3,342	25.42	13,412
Whitepop: white population in 1920	28	25,098	10,743	9,241	49,697
Pctblack: (Blackpop)/(Total population in 1920)	28	0.107	0.149	0.00125	0.531
Yes votes: total yes votes cast	28	1,862	927.9	516	4,133
PctYes: (Yes votes)/(Total votes)	28	0.717	0.149	0.369	0.891
Change in black population (1910-1920)	28	911.1	1,626	-338.2	6,531
Change in white population (1910-1920)	28	2,247	7,666	-12,041	19,527
%Δblack: % change in blackpop, 1910-1920	28	0.578	1.102	-0.678	4.972
%Δwhite: % change in white pop, 1910-1920	28	0.0717	0.293	-0.331	0.771

Sources: population data are from the 1910 and 1920 *Census* volumes; voting data are from St. Louis *Post-Dispatch* and St. Louis *Globe-Democrat*.

Table 6. Correlates of Ward Level Votes and Vote Shares for St. Louis Segregation Ordinance

VARIABLES	(1) Yesvotes	(2) Pctyes	(3) Pctyes
BlackPop	-0.100** (0.0442)	—	—
WhitePop	0.0304* (0.0165)	—	—
ChangeBlackPop	0.231*** (0.0674)	—	—
ChangeWhitePop	0.0646*** (0.0210)	—	—
PctBlack		-0.593*** (0.105)	-0.697*** (0.104)
PctChangeBlack		0.0107 (0.0203)	0.0602** (0.0229)
PctChangeWhite		0.190*** (0.0639)	0.181*** (0.0565)
Constant	992.5** (422.6)	0.760*** (0.0226)	0.757*** (0.0202)
Sample restriction	no	no	exclude 9 th ward
Observations	28	28	27
R-squared	0.798	0.723	0.796

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

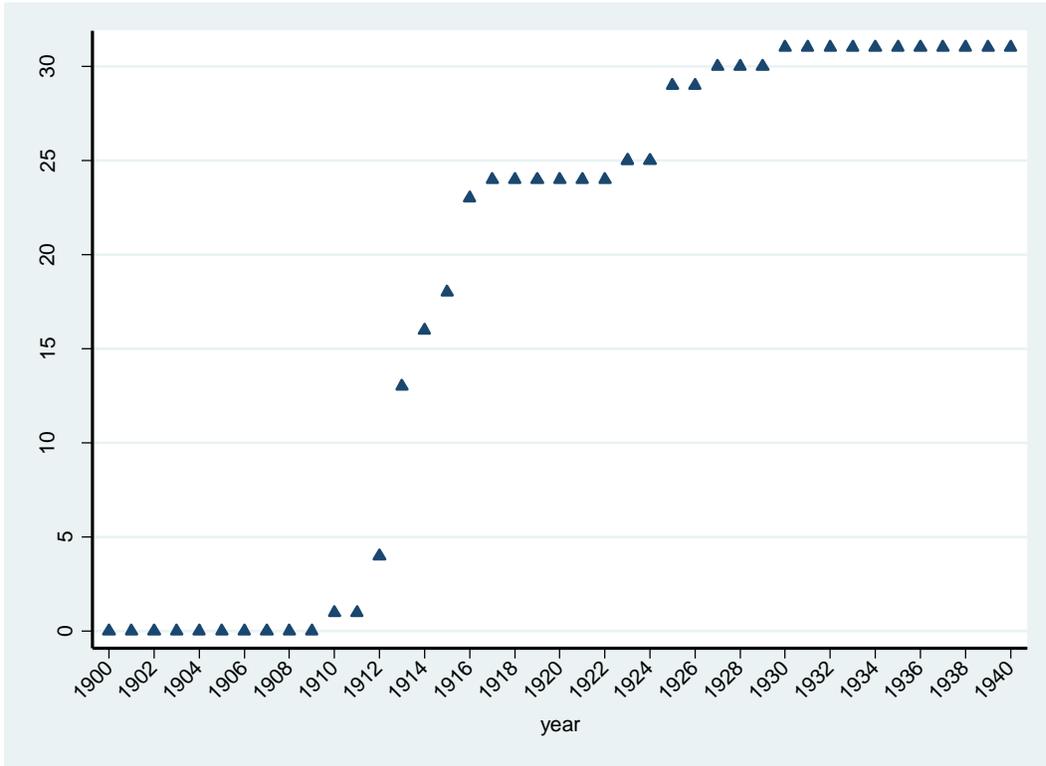


Figure 1. Cumulative Number of Cities Passing Segregation Ordinances

Sources: see text.

Figure 2. How Increased Housing Demand in the Black Market Might Alter Equilibrium Outcomes

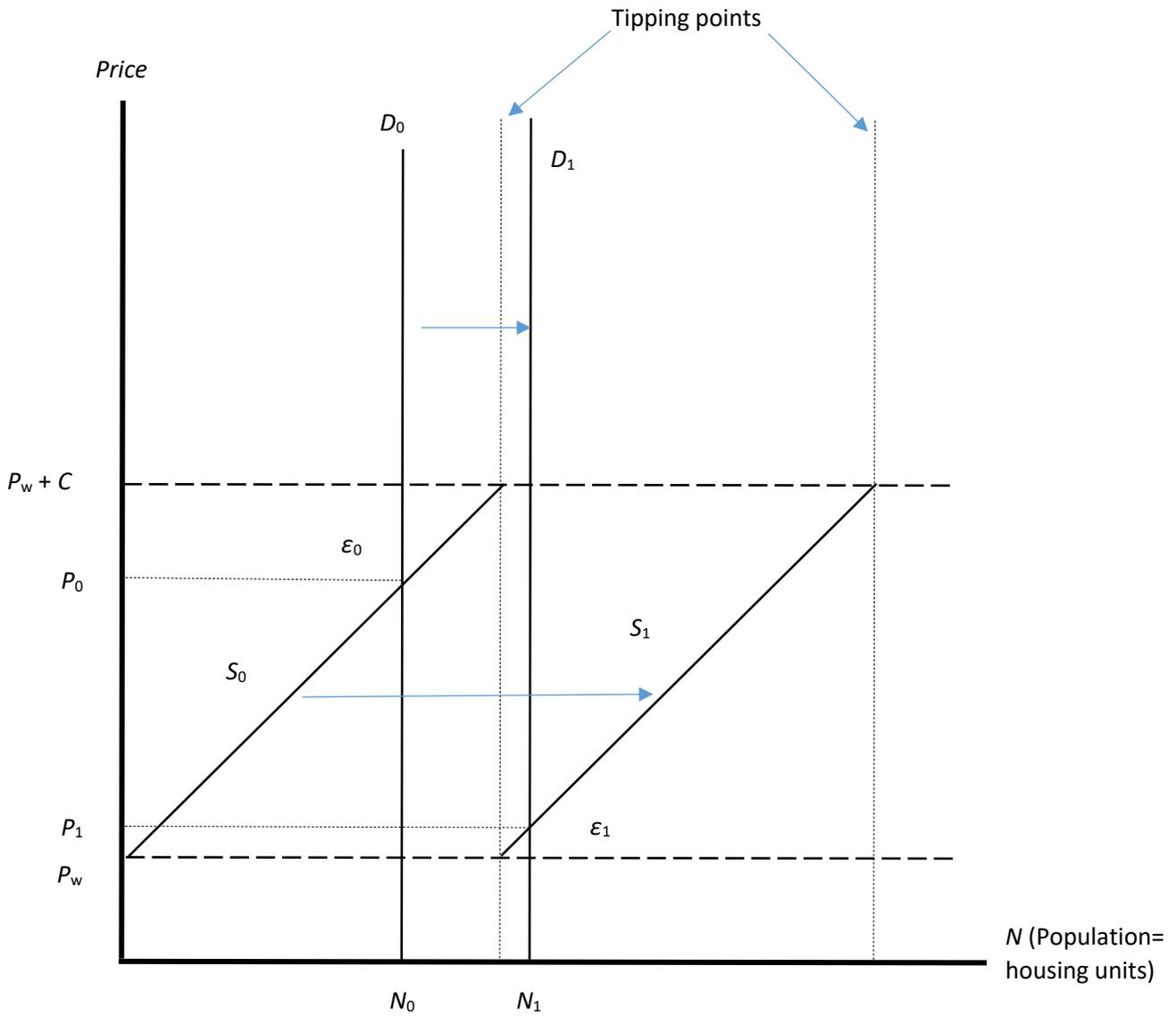


Figure 3. How Reductions in the Violence Tax Might Alter Equilibrium Outcomes

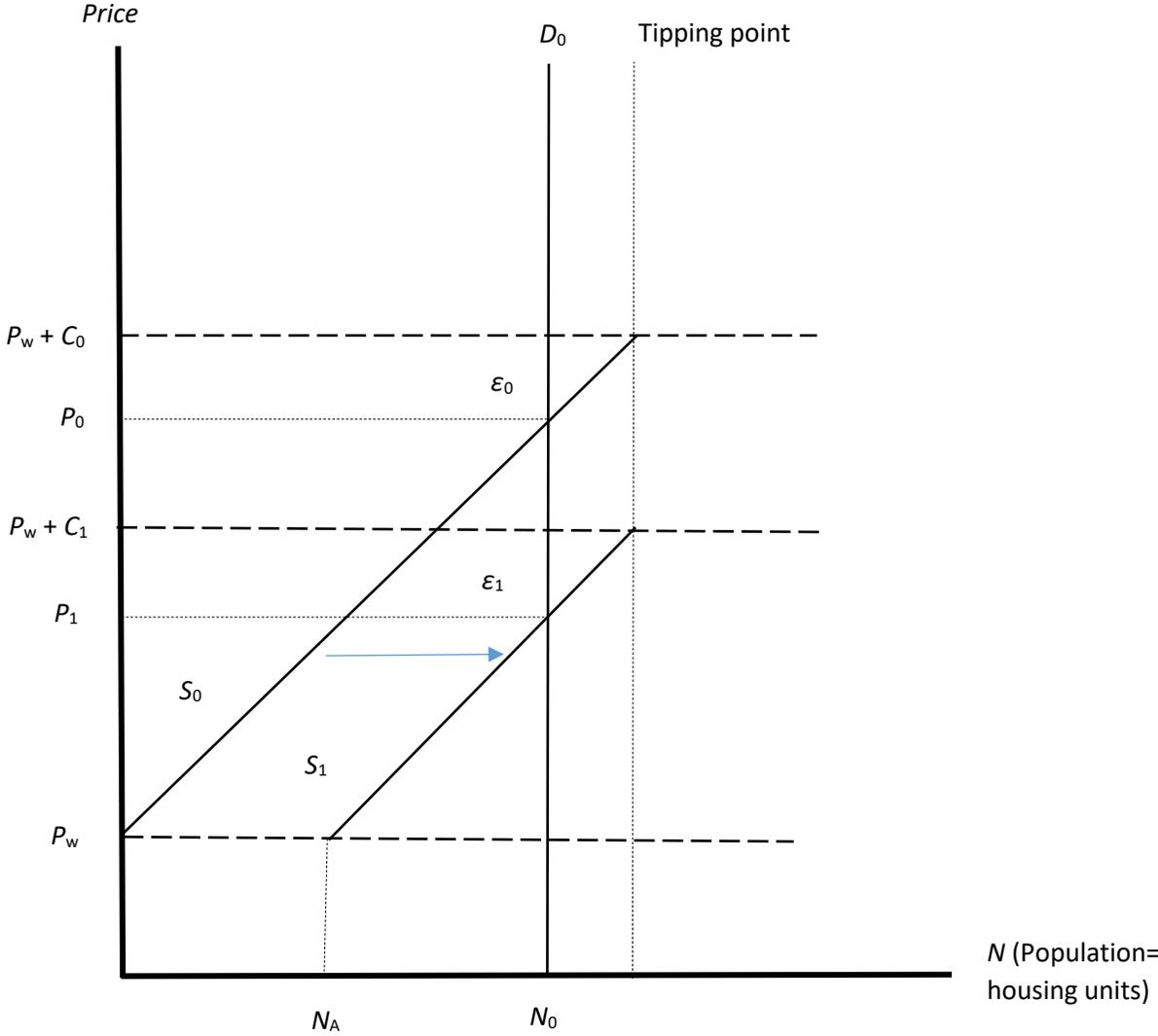
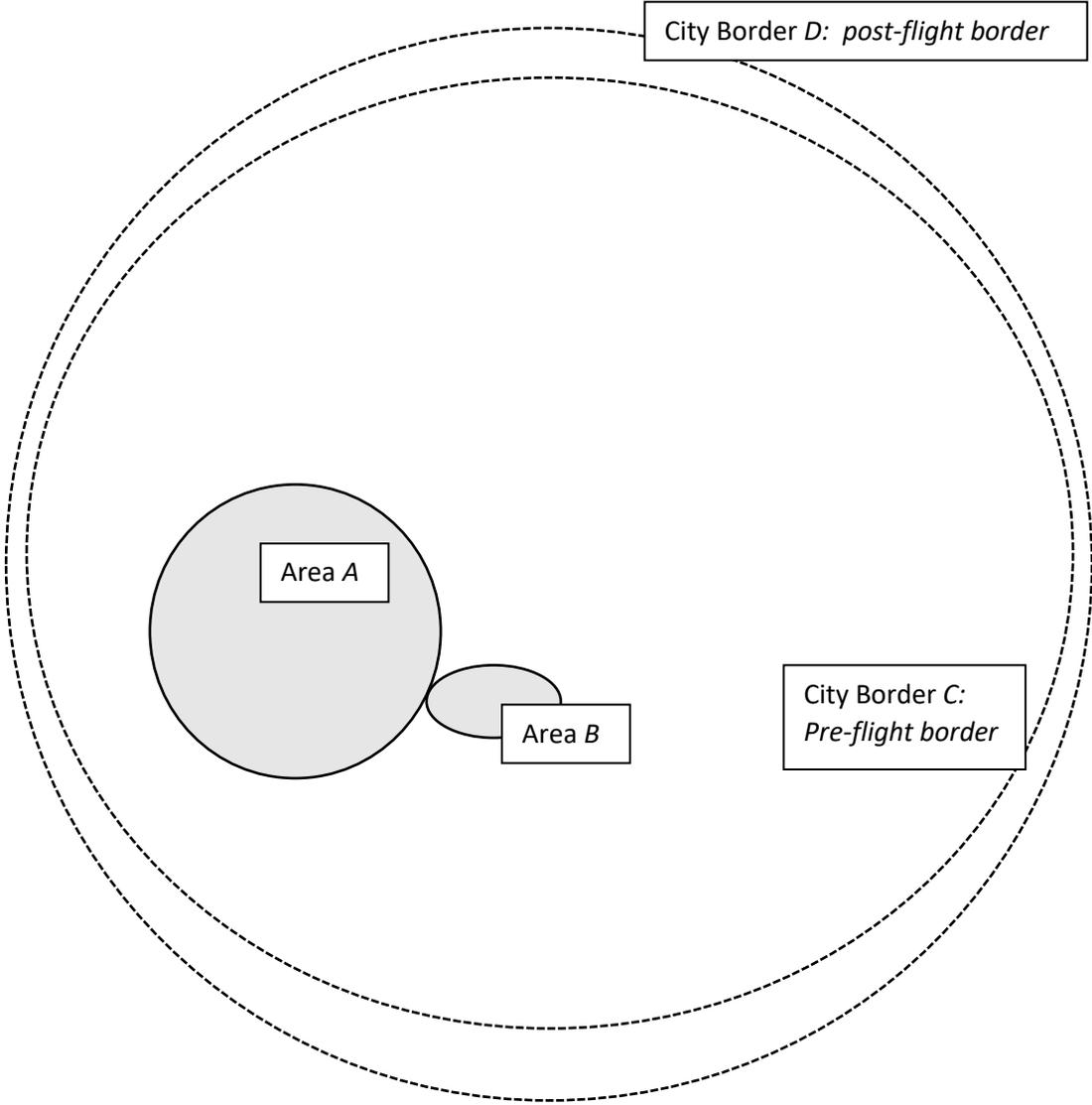


Figure 4. A Hypothetical City



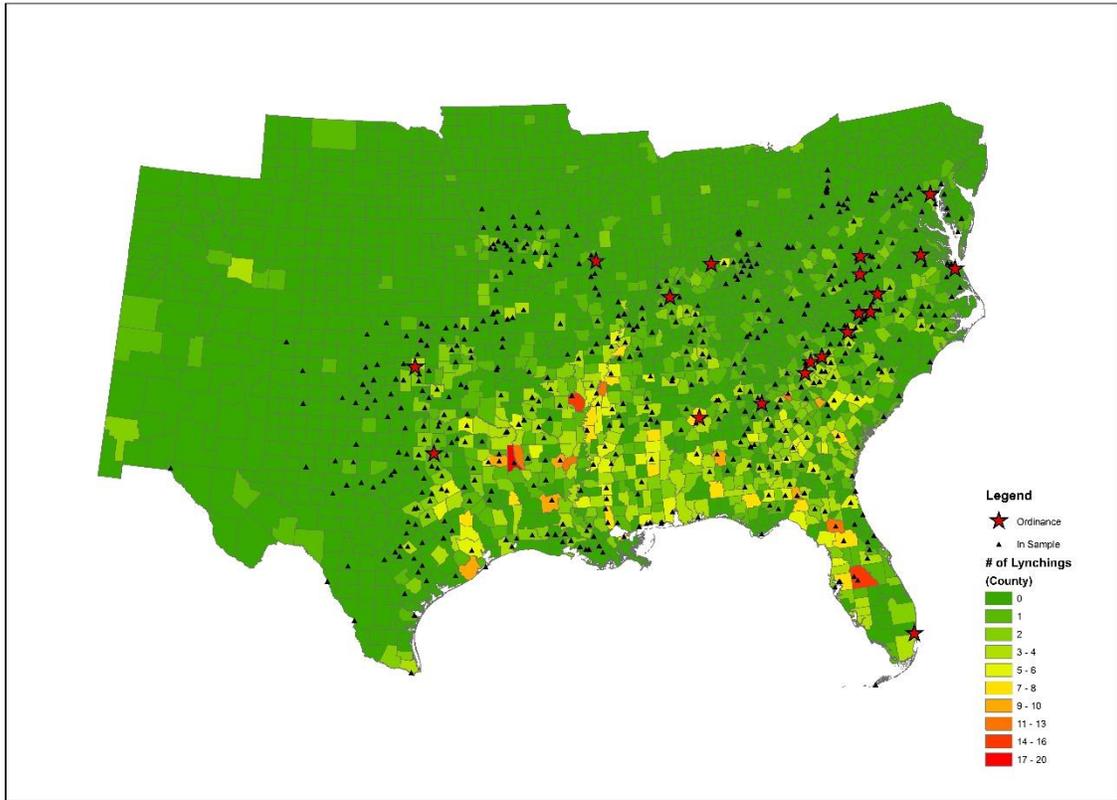


Figure 5. Map of Sample Cities With Number of Lynchings By County

Source: see text.