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ABSTRACT

In 1990 and 2000, residential segregation was associated with poor economic outcomes for African-Americans. Earlier in the century, the opposite was true. The economic deterioration of African-American enclaves has been attributed either to the departure of the black middle class or to the decline in centrally-located jobs. Postal employment -- well-paid work that has, for largely exogenous reasons, remained in central cities -- is a useful test case to distinguish between these explanations. Black postal employment is unrelated to segregation before 1960, when middle class role models, including a large contingent of postal employees, were close at hand. From 1960 onward, as other employment opportunities disappeared, blacks in segregated cities were more likely to work for the postal service (relative to whites in their area). This relationship is true only for postal clerks, many of whom work at centralized processing plants, not for mail carriers who work throughout the metropolitan area. We interpret this pattern as broadly consistent with the importance of job availability for the economic health of black neighborhoods.

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I. Introduction

In 1990 and 2000, residential segregation at the metropolitan area level was associated with an array of negative socioeconomic outcomes for African-Americans, including weak attachment to the labor force, low earnings, and a high probability of teenage pregnancy (Cutler and Glaeser, 1997; Ananat, 2007; Card and Rothstein, 2007). However, these relationships are of fairly recent vintage. In 1940 and 1950, African-Americans living in segregated cities enjoyed *better* economic outcomes than their counterparts in integrated areas (Collins and Margo, 2000).

Why have ghettos gone from "good" to "bad" in the period following World War Two? We aim to distinguish between two main hypotheses for ghetto decline. A peer effects-based explanation emphasizes the departure of the middle class from African-American residential enclaves, which left the remaining population bereft of positive role models and social networks (Wilson, 1987; Borjas, 1995). In contrast, a spatial mismatch explanation stresses the departure of manufacturing plants and other large employers from the city, which increased the physical distance between black neighborhoods and employment opportunities (Kain, 1968).

Because physical and social isolation rose in tandem, disentangling these two channels is an empirical challenge. Our strategy is to examine the relationship between a metropolitan area's level of segregation and the employment of its black residents in a well-paying job that, primarily for exogenous reasons, has remained in central cities. Working for the United States Postal Service (USPS), particularly as a sorting clerk, fits these criteria. First, mail sorting often takes place in downtown areas. Early in the twentieth century the postal service situated mail processing and distribution nodes near centrally-located rail depots. Rather surprisingly, the same activities remain mostly centralized today due to political, union, and regulatory pressure against relocation. Furthermore, black postal workers fall squarely into the middle class,

typically earning above the median non-black wage. There is considerable anecdotal evidence that social networks within the black community played an important role in enhancing access to these coveted jobs.

Historically, black enclaves developed near central business districts (Taeuber and Taeuber, 1965; Farley, 1968). Thus, as urban centers have changed, so too have the costs and benefits of segregation. By focusing on the postal service, we can hold fixed the (central) location of a desirable job while other aspects of the urban environment change over time. At mid-century, American cities were manufacturing hubs, providing their residents with an array of job opportunities. African-American enclaves in these cities were bustling neighborhoods, home to newly arrived sharecroppers and well-to-do black professionals alike. White households and firms began relocating to the suburban ring in the 1950s. With these departures, city fortunes diverged. Some cities eventually reinvented themselves as financial centers, while others became veritable ghost towns of shuttered factories and abandoned lots (Glaeser and Saiz, 2003). In either case, cities lost a large share of jobs in the middle of the skill distribution. After the passage of fair housing legislation in 1968, middle class black families began to follow their white counterparts to the suburbs. As a result, the traditional cross-class networks in black neighborhoods have attenuated.

Crucial for our analysis, then, is documenting how the relationship between segregation and the choice (for African-Americans) to work for the postal service has changed over time. If cross-class social networks were, at the margin, more important than job accessibility in generating access to middle class jobs, we would expect to find a positive relationship between residential segregation and black postal employment from 1940-1970, when these networks were still intact. This association should eventually disappear, perhaps as early as 1980.

If, instead, job accessibility was the key factor, we expect to find no relationship between segregation and postal employment in 1940 or 1950, when private sector jobs in a mid-skill range, such as those in manufacturing, were also concentrated in downtown areas. However, as firms leave central cities, a positive relationship between segregation and postal work should emerge. In particular, any such relationship should be especially strong in 1960 and 1970, a period in which firms had begun to suburbanize but black households had yet to follow.

Our empirical strategy takes the form of a "difference-in-differences" analysis. Specifically, we investigate whether postal employment is higher for African-Americans relative to whites in segregated versus integrated cities. In this setting, we treat whites as a control group to adjust for any feature of segregation that might increase postal employment for all residents (for example, segregation may lead to the inefficient duplication of public infrastructure).[1] Time adds a third dimension to the analysis. We follow changes in the differential probability of black postal employment in segregated cities between 1940 and 2000 and ask whether the timing is consistent with either the social networks or job accessibility view of ghetto decline.

Our findings suggest that job accessibility was a particularly important factor in the decline of "good" ghettos. Segregation is unrelated to the relative odds of black postal employment in 1940 or 1950, when most firms were located in the central city. A large positive correlation between segregation and black postal employment emerges in 1960 and 1970, as job decentralization accelerated and African-Americans continue to face housing constraints. After 1970, the correlation diminishes in magnitude, suggesting that job accessibility has become less

[1] Because we find that segregation increases the probability of black postal employment *relative* to local whites, we cannot definitively determine whether this relationship is driven by black or white preferences or a mixture of the two. One possibility is that centralized blacks in segregated areas are not able to or do not want to commute to suburban jobs. Alternatively, suburban whites might dislike centrally-located jobs – say, for fear of crime – leaving vacant postal positions to be filled by black employees.

important over time. However, the correlation never disappears, remaining positive and statistically significant in 2000.

We treat postal work as a prototypical example of a centrally-located job with modest skill requirements. However, the time pattern we observe could instead reflect a unique change in the postal service – for example, the introduction of postal unions in the early 1960s. Reassuringly, we find a similar relationship between segregation and black employment in other (non-postal) public sector occupations that exhibit high levels of employment centralization. Our results are also robust to using more direct measures of job access, for which segregation may be a proxy, such as the share of blacks in a metropolitan area who live in the center city relative to the share of employment that is centrally-located.

Our most important sensitivity analysis is a comparison between mail carriers and other postal employees, the majority of whom are clerks. Postal clerks – primarily those involved in processing and distribution – were (and are) disproportionately centralized, while mail carriers work throughout the metropolitan area. Underscoring our emphasis on job accessibility, we find that segregation increases the likelihood of black employment as a postal clerk, but not as a mail carrier. Contrasting occupations within the postal sector also helps us to rule out alternative explanations that are not clerk-specific. The concentration of African-Americans in postal employment could simply reflect a dearth of outside options if, for example, a city's level of segregation is correlated with unobserved measures of local racism. If discrimination in the private sector explained the relationship between segregation and black postal employment, we would expect to find its trace throughout the postal service -- rather than, as we do, in a subset of occupations that are disproportionately centralized.

II. Residential Segregation in Historical Context

Prevailing wisdom about the relationship between residential segregation and African-American economic outcomes has changed over time. In the early part of the century, scholars argued that the ghetto provided a protected market for African-American professionals and shop owners who served an overwhelmingly black clientele (W.E.B. Dubois, 1967 [1899]; E. Franklin Frazier, 1957; Abram Harris, 1936; Gunnar Myrdal, 1944; Carter Woodson, 1934). Wilson (1987) added that segregation during this period was beneficial for the poor who lived in close proximity to this nascent middle class. "The very presence" of an educated middle class, Wilson (p. 7) asserts "provided stability to inner-city neighborhoods and reinforced and perpetuated mainstream patterns of norms and behavior." As late as the 1960s, after a wave of urban riots, policymakers and community leaders actively debated whether segregation or integration would lead to black economic advancement (Downs, 1968; Kain and Persky, 1969; Levine, 1972). By contrast today, the isolation of majority-black neighborhoods – physically from job opportunities; culturally from dominant social norms; and politically from local public goods and amenities – is almost uniformly decried, and is frequently blamed for the persistence of black poverty (Massey and Denton, 1993).

This shift in scholarship mirrors the changing empirical association between residence in a segregated city and economic outcomes for African-Americans. Table 1 reports results from a series of regressions of annual earnings and employment at the individual level from 1940 to 2000. The variable of interest is the interaction between a metropolitan area's residential segregation and a race indicator equal to one for African-Americans.[2] In 1940, black men who lived in segregated areas earned more relative to local whites than did their counterparts in

[2] Regressions also include a set of individual characteristics and a vector of metropolitan area dummy variables. Segregation is measured using a dissimilarity index, which is described, along with the sample construction, in Section V.

integrated areas. This earnings premium declined steadily over the century, becoming a penalty by 1990. Moreover, by 1970, a negative relationship between segregation and black employment rates emerges.[3] To appreciate the magnitude of these relationships, consider a one standard deviation increase in our measure of segregation (0.12 over this period). In 1940, this increase would have been associated with a four percent earnings premium for black men, while, in 2000, it was associated with a 1.3 percent earnings penalty.

The timing of this reversal broadly coincides with the departure from central cities of both the black middle class and many large employers. Before 1970, very few African-American households lived in the suburbs, even if they could afford to do so. Racially restrictive covenants, which prevented the transfer of property to African-Americans and members of other groups, were extensively used in the suburbs (Brooks, 2002). Even after the legal enforceability of such covenants was struck down by the Supreme Court in the late 1940s, black suburbanization was slowed by the intimidation and violence of white residents and by the discriminatory behavior of realtors and financial institutions (Sugrue, 1996; Ross and Yinger, 2002; Stuart, 2003). Early state-level fair-housing laws were largely ineffective in combating these tactics (Collins, 2004).

Blacks began to move to the suburbs in relatively large numbers after the passage of federal fair housing legislation in 1968. This suburbanization generated segregation by income within the black population. In 1960, blacks with at least a high school degree were just as likely as any other black metropolitan resident to live in a center city (85.2 percent versus 84.6 percent). By 1980, a decade after the passage of federal fair housing legislation, the share of

[3] Our estimates differ slightly from Collins and Margo (2000) for a few reasons. First, we include metropolitan area fixed effects, which absorb any local attribute that is correlated with segregation. In addition, our sample includes individuals aged 18-64, while Collins and Margo focus only on young adults (aged 20-30).

metropolitan blacks living in the center city fell to 68.1 percent overall and to 61.5 percent for those with at least a high school degree.

During the first half of the century, employment remained heavily concentrated in the central business district even as population began to disperse to early street car suburbs and, later, to bedroom communities accessible by car (Warner, 1978; Jackson, 1985). Although nationally representative data covering all sectors are not available for this period, evidence for particular cities suggests that firms started moving to the suburban ring by the early 1950s (Fogelson, 2001, pp. 381-394).

The Census Bureau began gathering data on work locations in 1960. The share of metropolitan area residents who worked in the center city fell perceptibly over the next decade from 59.3 percent in 1960 to 51.7 percent in 1970.[4] By 2000, only 42.3 percent of the metropolitan workforce remained in the center city. Low car ownership rates may have prevented some African-Americans from undertaking a city-to-suburb commute. In 1960, only 44.8 percent of blacks who lived in central cities commuted by car, compared to 64.5 percent of city whites. In a detailed study of one company's relocation from Detroit to suburban Dearborn, Zax and Kain (1996) report that black workers whose commutes lengthened as a result of the move were far more likely to quit than white workers in the same position.

Most previous work on the relationship between segregation and outcomes focuses on a single explanation – for example, spatial mismatch – rather than tests of competing explanations. In the spatial mismatch literature, studies most closely related to this paper compare black

[4] Further work is necessary to determine the exact scope of employment decentralization in the 1950s. Baum-Snow (2007) calculates that 64 percent of employment in manufacturing, retail and wholesale trade, and business/repair services was located in central cities in 1950. 61.8 percent of employees in these sectors worked in the central city in 1960, suggesting that decentralization was already underway in the 1950s. Moreover, central cities expanded over the decade through annexation. Thus, the measured decentralization in 1960 would likely have been *even larger* if the 1950 boundaries had remained in place.

employment rates across cities with different levels of centralization; these tend to find a positive relationship between black employment and the share of metropolitan employment located in the center city (Ihlanfeldt and Sjoquist, 1989; Weinberg, 2000; Weinberg, 2004).[5] In the labor economics literature, the various studies of "neighborhood effects" that rely on (quasi-)random assignment find little evidence of a causal relationship between a neighborhood's poverty level and the economic outcomes of its residents (Oreopolous, 2003; Jacob, 2004; Kling, Liebman, and Katz, 2007). Taken at face value, these results are not supportive of a social networks theory of ghetto decline.

To the best of our knowledge, there are only two papers that simultaneously consider social networks and job access as causes of ghetto decline, and these come to different conclusions. Weinberg (2000) shows that the share of blacks who live in the central city has a stronger negative effect on black employment rates than does neighborhood segregation *per se*. He interprets this as evidence in favor of spatial mismatch. On the other hand, Cutler and Glaeser (1997) argue that neither exposure to college graduates (peer effects) nor average commute lengths (spatial mismatch) can explain much of the negative relationship between segregation and earnings for African-Americans.

III. The Postal Service as a Bellwether of Urban Trends

Two features of the United States Postal Service make it a useful test case to distinguish between the spatial mismatch and social networks theories of ghetto decline. First, postal employment is a well-paying job held by a significant share of the African-American middle

[5]See also Ross (1998), who finds corroborating evidence on the relationship between job centralization and residential mobility. Studies that rely on variation in job access within cities arrive at more mixed results. Ellwood (1986) finds no relationship between job levels and teenage employment rates across neighborhoods in Chicago. In contrast, Rogers (1997) and Raphael (1998) demonstrate a strong positive relationship between job growth and local employment rates across neighborhoods in Pittsburgh and San Francisco.

class. In addition, many postal facilities, particularly those involved in processing the mail, are located in central cities near black neighborhoods.

A. The growth in postal employment over the twentieth century

At its peak in 1970, 1.2 percent of white men and 2.5 percent of black men in the labor force worked for the postal service. Figure 1 depicts the share of men employed by the postal service by race over the century. For comparison, we also show the share of men who worked in the one-digit industry "public administration" but who were not in the postal service.[6] Close to one percent of the white male labor force was employed by the postal service throughout the century. In contrast, black postal employment increased dramatically from one percent in 1940 to 2.5 percent in 1970, a rate faster than the general growth in public employment.

The odds of postal employment declined for all men from 1970 onward. This decline may have initially stemmed from the introduction of zip codes in 1963, which mechanized mail processing, allowing for the substitution of capital for labor. In more recent years, it could also reflect the growth of substitutes for the postal service in the private sector (for example, Federal Express and UPS) and the rise of various forms of electronic communication, such as email and cell phones.

Nationwide, blacks were twice as likely as whites to work for than postal service in 1970; in some cities, this disparity was two or three times greater. Figure 2 presents the share of black and whites in the full-time, full-year labor force who were employed at the USPS by

[6] This industry code does not capture all public employees, but rather those whose occupations were considered by the Census Bureau to be "intrinsic" to the public sector. Thus, for example, public school teachers are classified as working in educational services rather than public administration because teachers can work for either a public or a private school. From 1940 onward, the Census identified all public sector workers regardless of their specific occupation. Appendix Table 1 presents the number of men by race employed in the *entire* public sector from 1940-2000, along with the numbers underlying Figure 1. Intrinsic public employees make up around 40 percent of the total public sector, and their growth mirrors that of the sector as a whole.

metropolitan area in 1970. The white share fluctuates between one and two percent across the country. By contrast, in some cities – for example, San Francisco, Chicago, and Indianapolis – the share of blacks working for the post office was as high as 7.5 percent, an extraordinary large (and, to our knowledge, previously unnoticed) racial disparity.[7]

B. Postal work and the black middle class

The over-representation of African-Americans in postal employment may be explained by the fact that the postal sector, which had a fixed national wage scale, offered high salaries than other jobs that were open to African-Americans at the time. Gosnell (1935, p. 305) reported that, in the late 1920s, the salaries paid to black postal workers made them "among the best livers [on] Chicago's south side." This rosy picture is consistent with nationally representative Census data, which are available from 1940 onward. Table 2 indicates where the average weekly wage among black postal workers falls in the wage distributions of all blacks and all non-blacks in 1940, 1970 and 2000. In 1940, postal workers were in the top five percent of the black wage distribution and the 70th percentile of the non-black distribution. Approximately fourteen percent of all blacks who were in the middle class (defined as earning above the non-black median) worked for the postal service.[8] By 2000, the mean black postal worker remained in the top 25 percent of black earners and above the median for the nation as a whole.[9]

There is anecdotal evidence that social networks fostered black employment in the postal service. Black postal workers have historically been well-organized and socially connected

[7] Some of the excess variance in the black postal employment share in Figure 2 is due to the small sample sizes in the micro Census data by metropolitan area by race. For example, the 11 percent postal share in Huntington, WV was based on a sample of only 13 blacks.
[8] At this time, black postal workers had disproportionately high levels of education. 28.1 percent of black postal workers had at least some college education, compared to 4.9 percent of the black population as a whole.
[9] The method of pay setting in the postal sector changed from 1940 to 1970. At mid-century, wages in the postal service were set by Congressional legislation. In the early 1960s, all federal agencies were opened by executive order to unionization, at which point postal unions became official bargaining agents.

(Rubio, 2006). Because they were not permitted to join white postal unions, black workers formed their own associations.[10] One such group, the Phalanx Forum in Chicago, met regularly at the Appomattox, a popular social club, and worked closely with local politicians (Spear 1967, p. 109). Postal workers often had inside knowledge about when a job might become available and encouraged others to apply (Gosnell 1928, p. 305). Patronage also played a role in accessing postal employment. Before the Postal Reorganization Act of 1970, postmasters were political appointees of the President, often chosen from a pool of local politicians (Tierney, 1981). Black applicants were not above asking their alderman or even a member of Congress to make a phone call to the local postmaster which (assuming the candidate had scored well enough on the civil service exam) could be an effective strategy.

C. Postal employment in the central city

Mail processing has remained, for the most part, in downtown areas, near black neighborhoods, even as similar warehousing and wholesale operations have moved to the suburbs. The centralization of mail processing dates from the early twentieth century when the bulk of intercity mail was transported by rail.[11] Main rail terminals were located in the heart of the central business district. Intercity mail was collected at a central facility, loaded on the train, and sorted en route (into cubbyholes) by highly trained railway mail clerks.

Railway mail peaked in the 1920s and thereafter fell into decline. Some of its demise can be attributed to advances in air transportation and trucking which ultimately proved a less expensive way of transporting the mail between cities, particularly after the completion of the

[10] Although postal unions were, officially at least, illegal until the early 1960s, they were tolerated and played an important role in lobbying Congress over pay and working conditions.
[11] Our discussion in this section of the history of mail processing and distribution is based on United States Postal Service (2003).

federal interstate highway system in the late 1950s. With the transition of firms and households to the suburban ring already underway, the average customer was closer to the highway system and to (most) airports than to the central city. Railway mail suffered accordingly, with the last route between New York City and Washington, DC ceasing operations in 1977.

Given that many mail recipients had moved to the suburbs and that the mail itself no longer traveled by rail, it would seem economically sensible that mail processing and distribution, too, would move out of the central city. However, the post office faces a number of impediments to the relocation of its main facilities. The National Environmental Protection Act (1969) requires that federal agencies prepare an environmental impact statement, including a consideration of local job loss, before undertaking a "major federal action" such as relocating a processing and distribution facility.[12] Local politicians and the postal unions routinely oppose site relocation for a variety of reasons.[13]

As a result, mail processing and distribution continues apace in central cities today. Table 3 provides evidence on the geographic location of postal jobs compared with other employment. The first panel of Table 3 uses place of work data from the 1970 Census to compare the job locations of postal employees with the rest of the workforce after two decades of employment decentralization. Between 53 and 56 percent of full-time non-postal workers in the private and public sectors respectively remained in the center city in that year. Mail carriers were similarly

[12]Although the specifics may vary from case to case, the precedent that relocating a processing and distribution center (P&DC) generally constitutes a "major federal action" was established in *City of Rochester v. U.S. Postal Service, 541 F.2d967*. In the early 1970s, the postal service planned to shut down its facility in downtown Rochester and open a new one in the suburbs. The city government sued, citing NEPA. The court found that closing the Rochester postal facility constituted a "major federal action," and further added that the "environmental impact" of an action would include any socioeconomic consequences – for example, job loss – that might ensue. Despite the findings in favor of the city, the court ruled against the city on technical grounds, and the mail processing and distribution center was relocated to the desired suburban location.

[13] Postal union contracts contains "no-job loss" provisions so the union opposition primarily stems for a desire on the part of workers to avoid moving to a different location or incur higher commuting costs. Local politicians object either because they are lobbied to do so by the postal unions or on the grounds that the relocation of any major employer (the typical P&DC in a large city employs around 2,000 workers) has negative externalities.

distributed between the city and the suburbs. By contrast, 70.9 percent of non-mail carriers in the postal sector worked in the city.[14] Indeed, nearly one in five such postal employees worked in the central business district, compared to one in twelve private sector employees.[15]

The Census does not separate workers at processing facilities from those at branch offices. To further document the location of mail processing activities, we mapped the (ca. 2000) street addresses of as many processing and distribution centers as we could find in the public record.[16] There are 318 of such centers nationwide, of which we have located exact street addresses for 145 to date.[17] The second panel of Table 3 displays characteristics of the neighborhoods in which these facilities are located. Eighty percent of the metropolitan centers are in the central city. On average, the black population share in a facility neighborhood is 37.8 percent, compared with 27.9 percent in the county in which the facility tract is located.[18] Even more striking is the fact that the typical facility is located in a neighborhood that is physically adjacent to at least one census tract that is majority black. For the average neighborhood containing a P&DC, the maximum black population share in an included census tract is 61.7 percent.

Job location is one important factor governing the decision to work for the postal service. The next section lays out a simple model characterizing an individual's choice of sector. The

[14] Over two-thirds of non-mail carrier postal employees are classified as "clerical, n.e.c."; these include workers whose job is in a processing and distribution facility. The other large occupation groups include postmasters, laborers, janitors, and truck drivers.
[15] This disparity in job locations was still present in 2000. 54.3 percent of other postal employees worked in the central city, compared to 37.6 percent of mail carriers and 41.6 percent of all private sector workers.
[16] The US Postal Service headquarters would not release a comprehensive list of processing centers to us. Instead, we found a partial list of addresses in documents from a variety of websites (details are available from the authors on request). The facility neighborhood is defined as its own Census tract and all adjacent tracts. Addresses were mapped using www.socialexplorer.com.
[17] In addition to the 318 processing and distribution facilities, the postal service has 78 Air Mail Centers, 21 Bulk Mail Centers, 12 Processing centers for priority mail, and 37,159 Destination Delivery Units, many of which are retail post offices.
[18] These means are weighted by the black population share in the county.

framework helps to illustrate the conditions under which we would expect the probability of postal employment to increase with residential segregation for black workers.

IV. Choosing to Work for the Post Office: A Theoretical Framework

Acquiring a position with the postal service differs in important ways from searching for a job in the private sector. To be considered for employment, one must first sit for an exam.[19] Because wages are set at the federal level, they do not adjust to clear the market in any particular metropolitan area. Rather, test-takers are put into a queue until a job becomes available.[20] As with all federal civil service positions, open slots in the postal service are allocated by the "Rule of Three." Hiring officials select at will from among the top three scorers in the queue, subject to certain restrictions (for example, they may not pass over a veteran for an individual with a lower score).

Building on these features, we consider a worker who, for an application fee F, can put her name in the postal queue.[21] Until her name is called, she can continue to work for the private sector. Test-takers face a probability $p(s)$ of being offered a postal position. We model the probability as a function of an individual's skill level. Higher skill levels are associated with higher scores on the exam, which increases the likelihood of placement in the postal sector. Once offered a job, workers can remain in the postal sector for the rest of their career. Those who secure a postal job will earn a common wage w_p. In contrast, the private sector pays $w(s)$, which is increasing in skill.

[19] Current versions of the exam can be found at: http://www.usps.com/employment/maildeliveryjobs.htm. Copies of exams given ca. 1940 can be found in O'Brien and Marenberg (1940). The pre-war exams emphasize accuracy in reading, spelling, sorting and simple arithmetic.

[20] We abstract from the fact that individuals are typically hired into substitute carrier or clerical positions. They then work in these positions until they called for regular employment, unless their position is clearly temporary (for example, during Christmas).

[21] While sitting for the exam is free in monetary terms, individuals still incur the time cost of practicing for and taking the test.

An individual's choice of sector is readily understood in a two period model. Let the worker has a discount rate $\beta<1$ and define g as the net wage gain associated with the postal sector ($g = w_p - [w(s) - c]$). c is the relative per-period commuting cost associated with working in the private sector. c will be positive if the modal private sector job requires a longer commute than the modal postal job. Workers will take the postal exam if:

$$p(g + \beta g) + (1-p)p(\beta g) > F \quad \textbf{(1)}$$

A worker who enters the queue faces three possible outcomes. With probability p, he receives a postal job in the first period and reaps the postal wage premium for two periods (term one). Of the $(1-p)$ individuals not called in the first period, p are called in the second period for a gain of βg (term two). The remaining proportion, $(1-p)^2$, are not called in either period, and receive no gain. The left-hand side of equation one represents the expected present discounted value of entering the pool. Workers will enter only if this total is equal to or greater than the fixed cost of taking the exam.

The predictions that arise from this framework are intuitive. Workers are more likely to join the postal queue as either the probability of being offered a job or the postal wage premium increase. The postal wage premium will increase as the postal pay scale (w_p) is revised upward, the private sector wage distribution [w(.)] is shifted to the left, or the relative commuting cost (c) increases. An increase in worker skill (s) has an ambiguous effect on the decision to join the postal queue. Skill increases the probability of securing a postal job but decreases the gain to postal work relative to the private sector. Workers with a sufficiently high level of skill will not join the queue because their net private sector wage will always be higher than the common postal wage. Neither will workers with a sufficiently low level of skill because their small

probability of being hired does not justify the application fee. The queue will be composed of workers in an intermediate skill range.

The social networks and spatial mismatch hypotheses can both be expressed in terms of the model. We illustrate these two scenarios in Figure 3. The social networks hypothesis posits that the probability of being selected for a postal job may be a function not only of individual skill but also of the strength of one's network – $p(s, n)$. At mid-century, blacks in segregated cities could avail themselves of tight-knit, cross-class networks, thus boosting their chance of finding work with the postal service. As these networks break down, beginning in 1970, the advantage of living in a black enclave declines. Figure 3 depicts the probability of black postal employment in integrated cities as a constant baseline over the period. Under the social networks scenario, blacks living in segregated cities start out with an advantage relative to their counterparts in integrated cities (depicted as Gap 1), which then dissipates over time.

The spatial mismatch hypothesis operates instead through the relative commuting cost (c). As private sector jobs leave the city, some blacks will join the postal queue rather than face the reverse commute. This option is more likely to occur in segregated cities, where a greater share of the black population is "stuck" in the central city. The evolution of black postal employment under this scenario is represented by the dashed line in Figure 3. The probability of black postal employment starts out at parity in all cities in 1940 when employment is centralized. In the 1950s, as jobs move to the suburbs, more blacks join the postal queue in segregated cities (Gap 2). Eventually, as the suburbs open to black residents, this gap may dissipate. Thus, we might expect the largest gap between segregated and integrated cities between 1960 and 1970 when jobs are leaving cities but black households have yet to follow.

V. Using Postal Employment to Test Theories of Ghetto Decline

A. Estimation Strategy

Over the postwar period, the postal sector has become increasingly exceptional for offering well-paid positions with modest skill and educational requirements in the central city. As a result, differential changes in the share of blacks that work for the postal service can reveal much about the economic health of segregated versus integrated cities. We explore the relationship between segregation and postal employment from 1940 to 2000 by estimating the following equation in each Census year:

$$Postal_{ij} = \alpha + \beta(Black)_{ij} + \gamma(Black_{ij} \cdot Segregation_j) + \delta(Black_{ij} \cdot \%black_j) + \Pi_j + \Omega X_{ij} + \varepsilon_{ij} \quad \textbf{(2)}$$

where *i* and *j* index individuals and metropolitan areas, respectively. $Postal_{ij}$ is an indicator equal to one for postal employees. β, the coefficient on the black dummy, captures the fact that, nationwide, African-Americans are more likely to work for the postal service (Figure 1).[22] A metropolitan area-specific intercept (Π_j) allows the probability of engaging in postal work to vary by place – for example, due to differences in mail volume in small and large cities. The metropolitan area dummies also absorb any effect of segregation on postal employment that is common to all area residents. Standard errors are clustered to allow for correlated errors at the metropolitan area level.

The coefficient of interest (γ) is the interaction between a metropolitan area's level of segregation and the individual race dummy. γ is identified by variation in segregation levels

[22] In addition to the race dummy, the full vector of individual controls (X_{ij}) contains a fourth degree polynomial in age, and a series of dummies equal to one if the individual is female, married, a veteran or foreign born. Educational attainment is measured as highest grade completed; in 1990 and 2000, we use the IPUMS education recode. We include dummies for the following categories of completed schooling: 0-8, 9-11, 12, 13-15, and 16 or more years. All personal characteristics are interacted with the race dummy. The 1950 regression includes only sample line individuals.

across metropolitan areas, rather than by comparing residents of ghetto and non-ghetto neighborhoods.[23] If γ is positive, blacks in segregated areas are more likely to work for the post office, relative to their white counterparts. Under the social networks hypothesis, we expect this relationship to be positive during the period of "good ghettos" from 1940-1970 and then to diminish over time. If the spatial mismatch hypothesis better fits the data, we expect γ to be positive from 1960 onward, as other employment leaves the city.

The micro-Census data are taken from the Integrated Public Use Microdata Series (IPUMS) (Ruggles, et al., 2004). We construct a sample of men and women between the ages of 18-64 who worked full time for the full year in the non-farm economy.[24] Later, we demonstrate that the results are robust to including part-time workers or the unemployed in the sample.

We measure residential segregation using a dissimilarity index, which is defined as:

$$\tfrac{1}{2} \Sigma_t \, | \, [(\text{black}_t / \text{black}_{total}) - (\text{non-black}_t / \text{non-black}_{total})] \, | \, . \qquad \textbf{(3)}$$

Black_{total} is the count of black residents in the entire metropolitan area, while black_t counts the number of black residents in a given Census tract. The index takes on a value of zero when each neighborhood mirrors the racial composition of the area as a whole and a value of one in a perfectly segregated city.[25] Because the dissimilarity index is mechanically related to an area's black population share, we include the interaction between the black population share and an individual's race in our main specification (Duncan and Duncan, 1955).

[23] While blacks who live outside the ghetto may be less likely to work for the post office, the causal direction of this relationship is unclear. As the spatial mismatch hypothesis predicts, one might find a private sector job near one's residence after leaving the ghetto. Alternatively, one might choose to leave the ghetto and live in the suburbs *because* one works for a suburban firm.

[24] Full-time, full-year workers are individuals who work both 40 hours a week and 40 weeks during the year. We exclude those who are currently enrolled in school, living in group quarters, or in the armed services.

[25] In 1940 and 1950, the index reflects segregation within the central city, while the indices for 1960-2000 are calculated at the metropolitan area level. These two concepts are strongly correlated (corr. = 0.817) in the years in which both are available (Cutler, Glaeser, Vigdor, 1999). For consistency, our sample includes all metropolitan residents, rather than central city residents alone, in all years.

The number of metropolitan areas that can be identified in the micro data and for which the data exist to calculate a segregation index varies from 45 in 1940 to 243 in 2000. We present our main results for a complete set of metropolitan areas, as well as for the 45 areas that can be identified in every year. The one exception is 1960, in which an individual's metropolitan area of residence cannot be identified in the micro data. For this year, we run state-level regressions, with a state's segregation index defined as the population-weighted dissimilarity indices of cities in that state. Summary statistics for the individual and metropolitan area level variables included in the analysis are presented in Appendix Table 2.

B. The Relationship between Segregation and Postal Employment

Table 4 reports estimates of γ, the differential effect of living in a segregated area on the probability of working for the postal service for African-Americans. The regressions underlying Panel A include all available metropolitan areas in a given year. We find no relationship between segregation and the relative probability of black postal employment in 1940 or 1950 (columns 1 and 2). If anything, blacks were *less* likely to serve as postal workers in segregated cities in these years. Black enclaves were still integrated by income during this period, and the postal service employed one in every seven members of the black middle class (Table 2). The null result in 1940 and 1950 is not consistent with the importance of middle class networks in the health of black enclaves.

In contrast, by 1960, living in a segregated area was positively associated with black postal employment (columns 3 and 4). A one standard deviation increase in the metropolitan dissimilarity index is associated with a 1.4 percentage point increase in the probability of working for the postal service (compared to a mean of 3.4 percent). From 1980-2000, the

magnitude of this relationship falls by half, but remains statistically and economically significant (columns 5-7). A one standard deviation increase in segregation is associated with a 0.5 percentage point increase in the probability of working for the postal service in these years.

The association between segregation and black postal employment is strongest in 1960 and 1970, years in which firms had started to decentralize but black households were prevented from moving out to the suburban ring. The timing of the relationship is most consistent with the spatial mismatch hypothesis. As employers left the city, residents of centrally-located black enclaves faced the prospect of longer commutes. These commuting costs may have prompted some workers to search for a new job or to withdraw from the labor force altogether. The next section confirms that this pattern is robust to adjusting aspects of the sample or specification.

C. Robustness Checks

The number of metropolitan areas that qualify for inclusion in the analysis increased more than four-fold from 1940 to 2000. The regressions underlying the first panel of Table 4 contain all available metropolitan areas in a given Census year. Panel B conducts a parallel analysis for the 45 metropolitan areas that can be consistently identified in each decade. While the coefficients are around 15 percent smaller in the consistent sample, they remain statistically significant (with the exception of 1980).

One might still be concerned that the absence of an association in 1940 and 1950 is due to the small, and perhaps selected, set of metropolitan areas available in those years. We attempt to increase the sample size in two ways. First, we use a dissimilarity index calculated on the basis of ward-level, rather than tract-level, segregation in 1940 (available for 66 areas). We continue to find no relationship between segregation and postal work with this new geography

(coeff. = -0.003; s.e. = 0.010; compare to column 1 in Panel A). Secondly, we estimate the relationship between the segregation levels in 1940 and 1970 for the 45 cities where this information in known, and we use this estimate to "predict" what 1940 segregation would have been in the remaining 29 areas. In this case, the relationship between segregation and black postal employment becomes more negative and remains statistically insignificant (coeff. = -0.026; s.e. = 0.020; compare to column 1 in Panel A).

Given the similarity of the coefficients in the full sample and the sample of 45 consistently-available cities, one may be concerned that the relationship between segregation and postal work is being driven by a few outliers. Figure 4 represents the 1970 relationship in a scatter plot with a metropolitan area's dissimilarity index on the x-axis and the differential probability of postal employment (black versus white) on the y-axis. The postal probabilities are regression-adjusted for the full set of individual characteristics. The figure suggests that the positive relationship between segregation and black postal employment is a general phenomenon, rather than being driven by a single city like Chicago that is both highly segregated and whose black residents are disproportionately likely to work for the postal service.

In addition to changing the set of metropolitan areas under consideration, we also experimented with aspects of the individual sample. The main results are estimated for full-time, full-year employees. The relationship between segregation and black postal employment is likely to be attenuated in a full adult sample that includes part-time workers and the unemployed. The postal share in the full sample is {pr(employed) · pr(postal | employed)}. As we showed in Table 1, segregation is associated with low black employment rates, which will decrease the first term in the postal share and potentially obscure the relationship of interest. Appendix Table 3 demonstrates that the relationship between segregation and postal employment is robust to this

concern. The regressions in the first row contain all adults in 1970 and 1990. The coefficients are 25 percent smaller than for the full-time, full-year employed, but remain significant and large. Reading down the rows, the table adds incremental employment restrictions to the sample. The relationship between segregation and postal employment slowly grows to match the preferred sample in the last row.

Some work has suggested that the low earnings of African-Americans in segregated areas in 1990 and 2000 are, in part, due to self-selection (Vigdor, 2002; Ananat, 2007). If skilled blacks prefer to live in integrated areas, those remaining in segregated cities could be less productive. If the decline in skill in segregated cities becomes sufficiently large, blacks would not score high enough on the civil service exam to secure employment with the post service. Selective out-migration could explain the declining relationship between segregation and postal employment from 1960-2000.

To address this possibility, we repeat the main regressions in Table 4 for a sample of young adults (age 18-30), whose location is most likely to be exogenously determined by their city of birth. Although the magnitudes are somewhat different, we find the same general time series pattern of coefficients: no relationship between segregation and postal employment in 1940 or 1950 and a positive and significant relationship thereafter. The major difference between the two samples occurs in 1970, when the coefficient for the younger age group is only half as large as for the full sample. Therefore, in the younger group, there is no statistically discernable decline in the relationship between segregation and postal employment over time, which is consistent with the possibility that the attenuation in the full sample is due to sorting.

We conducted a number of other robustness checks (not shown). Because the regressions in Table 4 are run at the individual level, they are, in effect, weighted by the population size of

each metropolitan area. Results are qualitatively similar if we instead weight each metropolitan area equally. Likewise, excluding the interaction between race and the black population share has no effect on the coefficients from 1960-2000. In 1940 and 1950, the relationship between segregation and postal employment tips slightly positive when this covariate is excluded, but is neither large nor statistically significant.

D. Direct Measures of Job Access

Thus far, we have interpreted the positive relationship between segregation and black postal work from 1960-2000 as an indication that, as in the spatial mismatch hypothesis, residents of centrally-located black enclaves are deterred from suburban employment by long commutes. However, a larger value of the dissimilarity index does not *necessarily* imply that black residents are concentrated in the central city. In theory, a city could be divided down the middle, with blacks living on one side of the central business district and whites living on the other. While this scenario is highly at odds with the history of American urban development, it is valuable to confirm that black postal employment is related to more direct measures of job access.

Table 5 depicts the relationship between various measures of black centralization and the relative probability of black postal employment. Panel A uses the centralization index for 1990, which compares the cumulative proportion of blacks relative to whites who live within concentric bands around the central business district.[26] The more tightly concentrated is the black community around the central business district, the more likely are its members to work for the

[26] The index was calculated for 1990 by Cutler, Glaeser and Vigdor (1999). See Galster (1984) for a comparison of this index to other measures of centralization.

postal service. Relative centralization and dissimilarity are highly correlated; when we include both measures in the third column, the coefficient on the centralization index falls considerably.

The centralization index is based solely on residential location. Another approach is to compare the distribution of black residence to the distribution of employment. We choose to do so in 1980, the year that has the most complete place of work and residence data in the IPUMS. The more concentrated is black residence in the central city relative to area employment, the more likely are blacks to work for the postal service (Panel B). If we examine each component of this differential separately, the centralization of the black population increases the probability of black postal employment while the availability of other centrally-located jobs decreases it (column 2).

It is not surprising to find that our measure of residential segregation is highly correlated with black centralization. In segregated cities, blacks live closer to the central business district and further from employment opportunities. We suspect that this distance from private sector jobs explains the relationship between segregation and black employment in the centralized postal sector.

E. Mail Carriers v. Non-Carriers

Our final sensitivity analysis examines whether the association between segregation and postal employment holds for all postal workers or just for a subset of occupations. We divide the postal sector into mail carriers, whose work is distributed throughout the metropolitan area, and other postal employees, who tend to work in the central city (Table 3). We also study the relationship between segregation and black employment in other public sector occupations that, according to census data, were concentrated in central cities. We divide occupations into those

that are above and below the (public employee-weighted) median central city share. Bus drivers and subway conductors are the most centralized occupations, while teachers are among the most decentralized.[27]

Table 6 presents results from seemingly unrelated regressions in which the dependent variables are indicators for working as a mail carrier, as another type of postal employee, or as a public employee in an occupation whose members are more/less likely to work in the central city. We present the main coefficient of interest (the interaction between segregation and a race dummy) for three decades that span the period. In 1940, living in a segregated city does not increase the probability of a black resident working for the postal service in any capacity. In contrast, by 1970, segregation becomes positively associated with postal work, but *only* for the non-carriers, who tend to work in the central city. The probability of working as a mail carrier, a job that is evenly distributed between city and suburb, has no economically (or statistically) significant relationship with segregation in any year. Other public occupations follow a similar pattern. Segregation increases the share of African-Americans that work in centralized public occupations, while *decreasing* the share who work in decentralized ones.

The fact that the relationship between segregation and black postal employment does not hold for mail carriers rules out alternative explanations that are based on features common to all forms of postal employment. Consider, for example, an explanation that attributes the time series pattern to changes in USPS employment policies. For example, suppose that black social networks were generally effective at securing employment for their members in, say, 1950, but that their efforts were thwarted at the Post Office by racist hiring officials.[28] Such discrimination

[27] In 1970, 62 percent of employees in above-median public occupations worked in the central city. This share is somewhat lower than postal clerks (71 percent) but forms a reasonable comparison group.

[28] Starting in 1917, applicants for all federal positions, including the postal service, were required to provide a photograph, ensuring that the candidate's race was known to hiring officers (Myrdal, 1944, p. 327). The photograph

may have diminished in the 1960s, however, as a result of the Civil Rights Movement and ensuing federal action, thus boosting the effectiveness of black social networks in the postal sector.[29] However, there is no reason to believe that any change in postal employment behavior should have differentiated between carriers and non-carriers – on paper, the government policies in question applied to all types of employment.

The distinction between carriers and non-carriers also mitigates against explanations based on private sector racism. Suppose that a city's level of residential segregation were correlated with the propensity of its employers to discriminate on the basis of race. In this case, employers in segregated cities may underpay their black workers, either to serve their own tastes or those of their customers (Becker, 1971). If the correlation between segregation and local racism is a long-standing one, this story would not be consistent with the fact that blacks earned *more* in segregated cities in 1940 and 1950. One could imagine, however, that, while racism was widespread at mid-century, it has been slowest to decline in segregated areas. While the precise dating of the relationship between segregation and racist attitudes – if, indeed, one exists – is unknown, 1970 may have been a turning point, after which less racist areas acquiesced to federal anti-discrimination regulations. However, if the unobserved racism hypothesis were true, we would expect to see a positive relationship between segregation and all forms of postal employment – indeed, all forms of public employment. We do not. Instead, only those forms of public employment that are centralized are correlated with segregation.

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policy was discontinued in 1939. The 1939 policy change was followed closely by Roosevelt's 1941 executive order, which forbade "discrimination in the employment of workers in defense industries or government because of race, creed, color, or national origin"; see Collins (2001) for a discussion of the order's enforcement. Black postal workers were themselves instrumental in lobbying for these policy changes (Rubio, 2006).

[29] The relevant actions by the federal government include executive orders issued by Kennedy early in his presidency that established collective bargaining rights for federal employees as well as reiterating a federal commitment to non-discrimination in its hiring policies. However, these executive orders clearly cannot account for the emergence of a segregation effect in the 1960 Census.

VI. Concluding Remarks

In 1940 and 1950, residential segregation was associated with higher earnings for African-Americans but, by 1970, black ghettos had turned "bad" in socio-economic terms. Previous work has not resolved whether the economic isolation of black neighborhoods can be attributed mainly to social isolation – that is, the absence of positive economic role models – or to physical isolation from job opportunities.

In this paper, we focus on a particular employer, the U.S. Postal Service. A significant fraction of postal employment was historically located in central cities during the age of railroad mail delivery and remains so today largely because of obstacles the Postal Service has faced in attempting to move its facilities. Using census data, we examine the relationship between a metropolitan area's level of residential segregation and black employment in the postal service. Relative to whites, black postal employment is an increasing function of segregation, but only from 1960 onward. In addition, this pattern is observed only for postal clerical workers, who tend to work in downtown areas, not for letter carriers. This timing suggests that spatial mismatch is the relatively more important explanation for the origins of bad ghettos. Black employment shifted towards the post office precisely at the time when other "good jobs," such as those in manufacturing, were leaving central cities, but before fair housing laws and subsequent legislation opened up the suburbs to middle class black residents.

This paper has concentrated on the employment outcomes of individuals, as they vary with the degree of segregation. It would also be of interest to determine if the continued presence of processing and distribution centers in the vicinity of black neighborhoods has spillover effects on other types of employment, or perhaps keep (some) African-Americans, who otherwise would have moved to the suburbs, in downtown areas. We have also presumed in this paper that the

centralized nature of mail processing and distribution is largely exogenous (in the sense of being pre-determined by the prior history of railway mail) but it is clear that political economy considerations play an important role in keeping facilities centralized. Analysis of the political economy of these location decisions may shed further light on the perceived benefits (and costs) to African-American enclaves.

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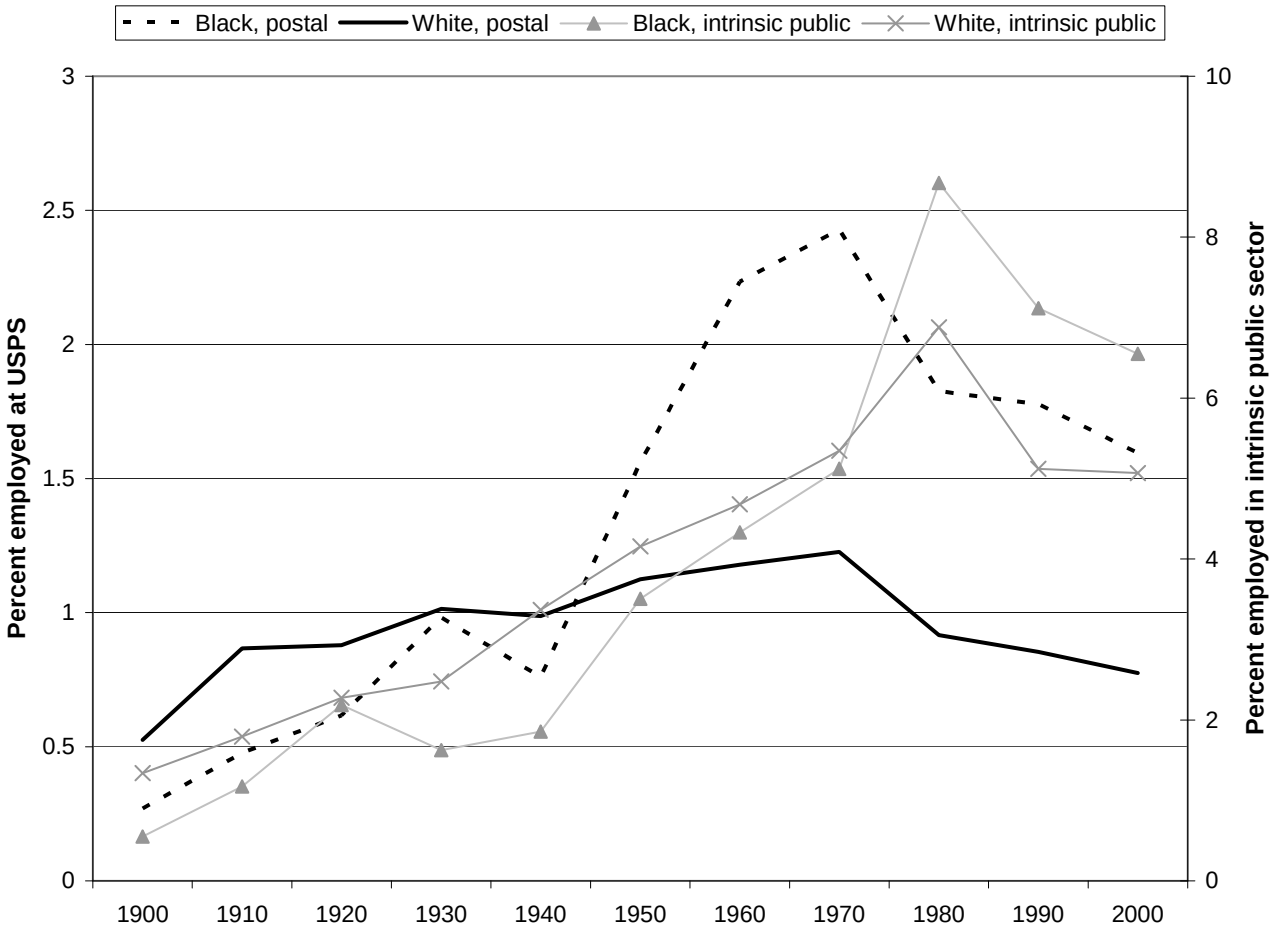
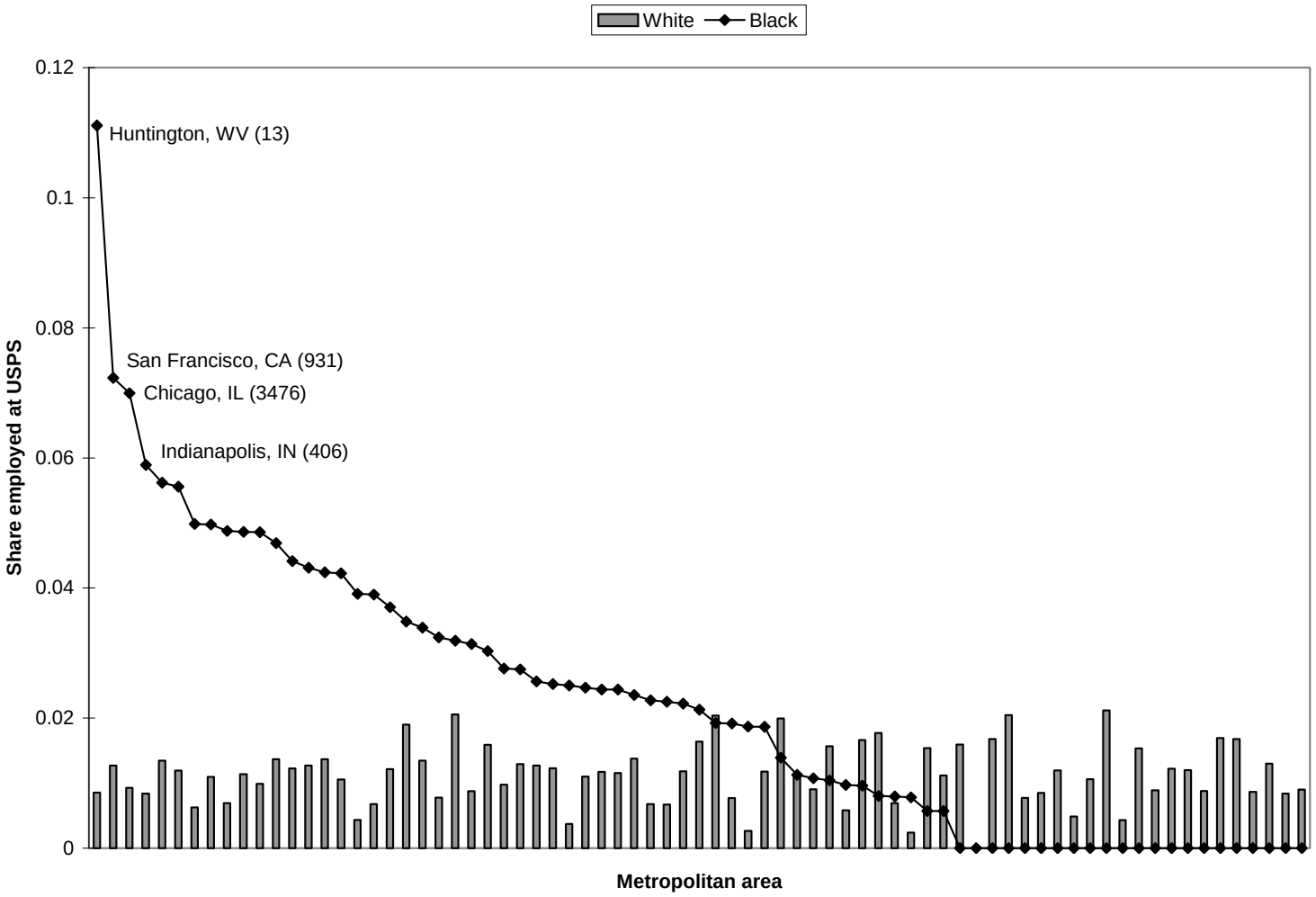
Figure 1: The growth in postal and other public employment by race, 1900-2000



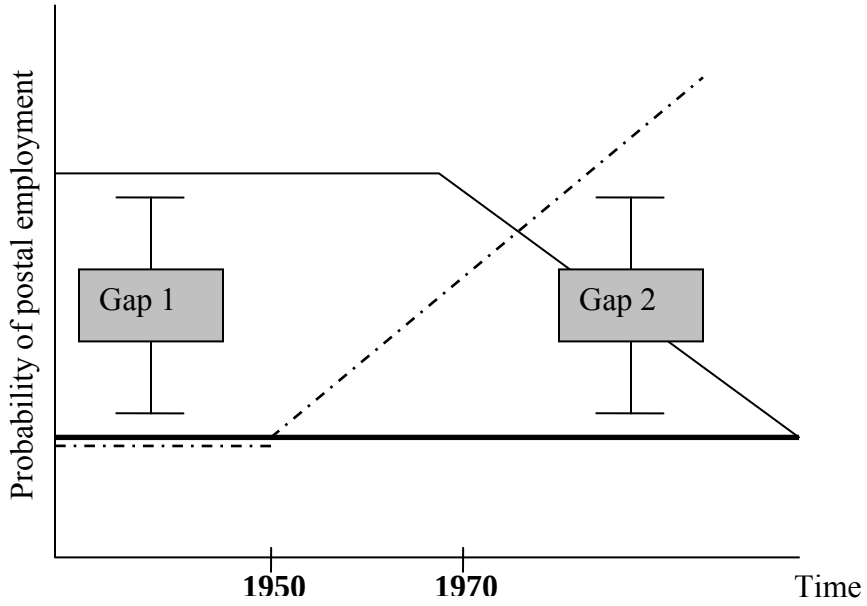
Notes: The data underlying this figure is presented in Appendix Table 1 and is described in its notes.

Figure 2: Variation in the share of the labor force employed by the postal service by metropolitan area and race, 1970



Notes: The figure contains the 74 metropolitan areas that can be identified in the 1970 IPUMS data and that have available information on segregation in that year. Metropolitan areas are arrayed from highest black postal share to lowest. The postal shares are calculated from the Census micro data for a sample of full-time, full-year employees.

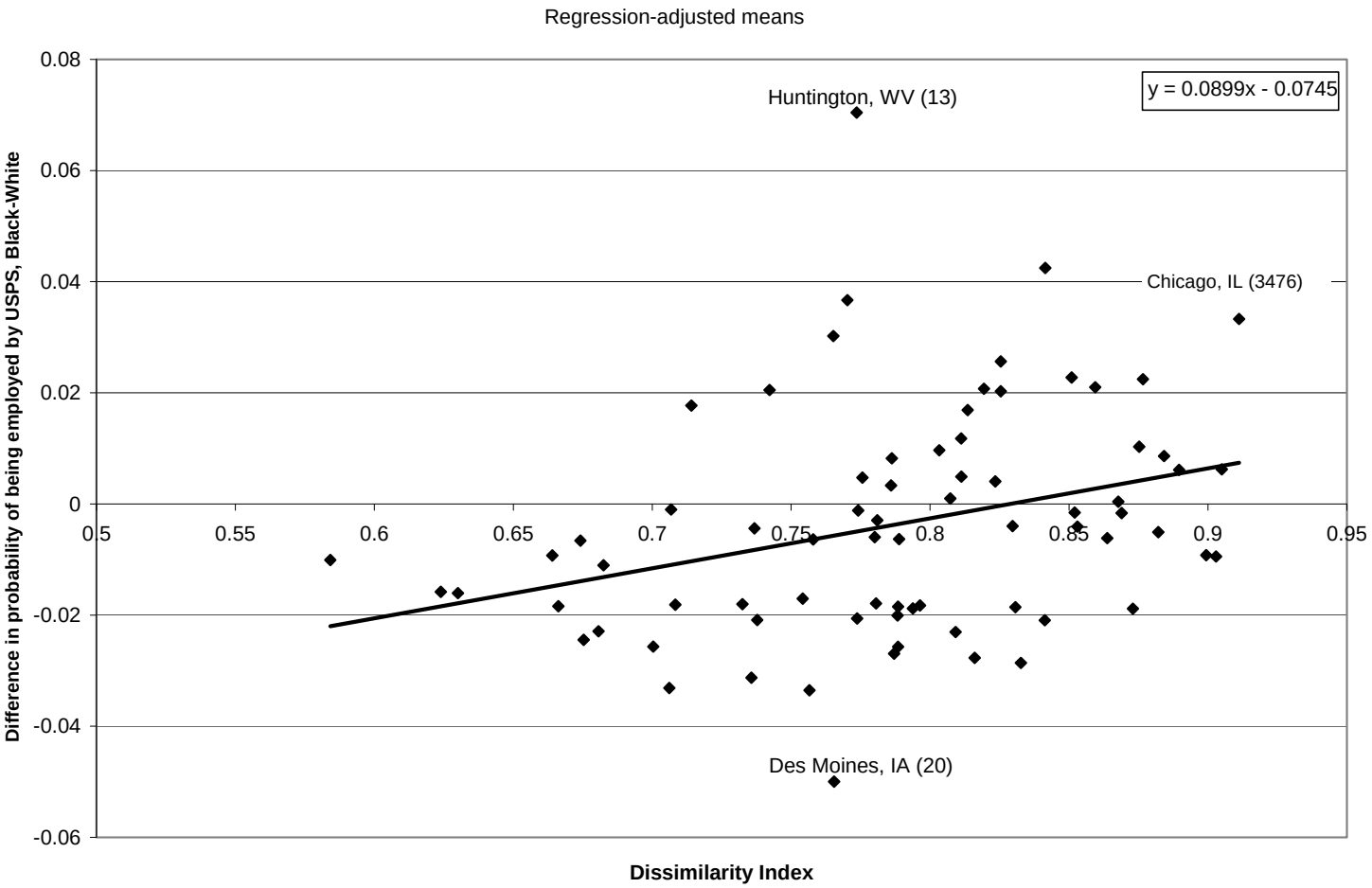
Figure 3: Predictions for the relationship between black postal employment and segregation under different hypotheses



Key

Integrated cities
Segregated cities if networks matter
Segregated cities if job access matters

Figure 4: The relationship between racial segregation and the differential probability of being employed in the postal service, 1970



Notes: The regression on which this figure is based is described in the notes to Table 4.

Table 1: The relationship between residential segregation and economic outcomes, Men, 1940-2000

Coefficients are from the interaction of black · segregation index

Dependent variable	1940	1950	1970	1980	1990	2000
ln(weekly wage)	0.355	0.311	0.197	0.082	-0.085	-0.112
	(0.144)	(0.116)	(0.151)	(0.038)	(0.045)	(0.058)
=1 if employed or in school	-0.007	-0.057	-0.079	-0.115	-0.077	-0.068
	(0.024)	(0.051)	(0.032)	(0.037)	(0.015)	(0.028)
N (SMSA)	47	50	75	239	250	93

Notes: Standard errors are reported in parentheses and are clustered by metropolitan area. The weekly wage regressions include only employed men. Other sample restrictions are listed in the notes to Table 2. Regressions include a vector of metropolitan area dummy variables, a fourth-order polynomial in age, and dummies equal to one if the individual is married, a veteran or foreign born. Educational attainment is measured as highest grade completed in all years, using the IPUMS education recode in 1990 and 2000. The regression includes dummies for the following categories of completed schooling: 0-8, 9-11, 12, 13-15, and 16. All personal characteristics are interacted with the variable "black." The 1950 regression includes only sample line individuals.

Table 2: Black postal workers and the earnings distribution, 1940-2000

	Mean weekly wage, black postal workers (in $1999)	Share of middle class blacks who work for USPS	Where does mean black postal worker fall in wage distribution of…	
			All blacks	Non-blacks
1940	388.38	13.88	96.7	69.3
1970	641.62	4.78	74.3	46.0
2000	735.10	2.83	75.5	58.5

Notes: Black postal workers are compared to all full-time, full-year employees who are between the ages of 18-64 and are not currently enrolled in school, living in group quarters, in the armed services or in the agricultural industry. Full-time, full-year is defined as working at least 40 hours a week and 40 weeks a year. These sample restrictions underlie the remaining tables in the paper. The black middle class is defined as blacks who earn above the non-black median wage.

Table 3: The location of the typical postal job, 1970 and 2000

A. Place of work, 1970 Census		**B. P&DC location, 2000**	
Occupation	% in center city		
Postal work, non-carrier	70.87	Share in center city	80.00
		Average % black in neighborhood	37.83
Mail carrier	55.56	(County, % black)	(27.85)
		Highest % black in neighborhood	61.74
Other, public sector	56.23		
Private sector	53.34		

Panel A: Means are calculated for all metropolitan areas identified in the 1970 IPUMS. Mail carriers are classified using the 1950 occupation codes (=335). Public sector employees are identified using the class of worker variable. Panel B: The figures are based on 145 processing and distribution centers (P&DC) whose current addresses were located from a variety of government sources. The facility's neighborhood includes its own Census tract and all adjacent tracts. Means are weighted by the black population share in the county.

Table 4: The relationship between racial segregation and the differential probability of being employed in the postal service, 1940-2000

Dependent variable = 1 if employed at USPS
Coefficients are from the interaction of black · metropolitan area characteristic

Sample	1940	1950	1960*	1970	1980	1990	2000
All available							
Segregation	-0.014	-0.001	0.117	0.116	0.057	0.043	0.038
	(0.015)	(0.028)	(0.035)	(0.034)	(0.026)	(0.012)	(0.012)
% black	-0.041	-0.040	0.000	0.018	0.013	0.021	0.007
	(0.017)	(0.033)	(0.000)	(0.009)	(0.009)	(0.014)	(0.008)
N (individuals)	97,131	40,593	299,012	188,067	347,817	375,870	2,249,487
N (SMSA)	45	46	40	74	229	238	243
Consistent							
Segregation	-0.014	-0.007	---	0.100	0.039	0.043	0.033
	(0.015)	(0.029)		(0.042)	(0.043)	(0.021)	(0.022)
% black	-0.041	-0.038	---	0.013	-0.001	0.027	0.005
	(0.017)	(0.033)		(0.009)	(0.014)	(0.021)	(0.012)
N (individuals)	97,131	39,809	---	165,295	208,421	206,465	1,235,641
N (SMSA)	45	43§	---	45	45	45	45

Notes: Standard errors are in parentheses and are clustered by metropolitan area. Sample restrictions are described in the notes to Table 2. Additional control variables are listed in the notes to Table 1.
*: The 1960 regression is conducted at the state level. The segregation and %black measures are population-weighted averages of the metropolitan areas in the state. Comparable state-level regression in 1970 yields very similar coefficients to those reported from the metropolitan area-level regression above.
§: Two of the metropolitan areas in the 1940 sample are not available in 1950. These are Augusta, GA and Des Moines, IA. At the same time, the 1950 sample adds four metropolitan areas that are not available in 1940. These are: Chattanooga, TN; Omaha, NE; Springfield, MA; and Wichita, KS.

Table 5: The relationship between job access and the differential probability of being employed in the postal service, 1980-1990

Dependent variable =1 if employed at USPS
Coefficients are from the interaction of black · metropolitan area characteristic

	(1)	(2)	(3)
Panel A; 1990 (N = 238)			
Centralization index	0.022		0.006
	(0.006)		(0.008)
Segregation index			0.040
			(0.015)
Panel B: 1980 (N = 128)			
% blacks live in city - % employment in city	0.023		0.002
	(0.010)		(0.007)
% blacks live in city		0.027	
		(0.012)	
% employment in city		-0.069	
		(0.037)	
Segregation index			0.053
			(0.032)

Notes: Standard errors are in parentheses and are clustered by metropolitan area. Sample restrictions are described in the notes to Table 2. Regressions include all control variables listed in the notes to Table 1. The centralization index was calculated by Cutler, Glaeser and Vigdor (1999). The shares of population and employment that are located in the center city are calculated from the 'metro' and 'place of work' variables in the 1980 IPUMS. Central city status is not reported in small metropolitan areas.

Table 6: The relationship between racial segregation and public employment by job location, Seemingly unrelated regressions, 1940-2000

Coefficients are from the interaction of black · segregation index

Dependent variables	1940	1970	1990
Center city			
Postal, non-carrier	-0.012	0.101	0.050
	(0.015)	(0.010)	(0.005)
Other public, above median	---	0.100	0.079
		(0.027)	(0.015)
Suburbs			
Postal, mail carrier	-0.001	0.012	-0.003
	(0.011)	(0.007)	(0.004)
Other public, below median	---	-0.095	-0.066
		(0.025)	(0.015)

Notes: Standard errors are in parentheses. Sample restrictions are described in the notes to Table 2. Regressions include all control variables listed in the notes to Table 1. Public sector occupations are classified according to the share of their members who work in a central city. The national public-employee-weighted median share who work in the center city is 37.8 in 1970 and 33.6 in 1990. The "other public" results are not available in 1940 because place of work information is not available in the 1940 Census.

Appendix Table 1: The growth in postal and other public employment by race, 1900-2000

	Black			White		
	All public	Intrinsic public	Postal	All public	Intrinsic public	Postal
1900		5.83	2.70		14.22	5.26
1910		12.15	4.78		18.85	8.66
1920		21.87	6.17		22.76	8.79
1930		16.95	9.83		25.94	10.14
1940	177.39	18.56	7.60	140.43	33.68	9.87
1950	106.63	35.05	15.60	96.44	41.55	11.24
1960	139.61	43.31	22.34	113.03	46.79	11.78
1970	190.24	51.21	24.29	138.49	53.46	12.27
1980	232.56	86.73	18.26	148.52	68.80	9.16
1990	200.02	71.18	17.78	127.26	51.22	8.54
2000	175.46	65.50	15.95	118.16	50.67	7.75

Notes: The sample includes individuals between the ages of 18-64 who are not currently enrolled in school, living in group quarters, in the armed services or in the agricultural industry. Individuals must also be in the labor force. Between 1900-30, labor force participation is determined by holding a gainful occupation. Between 1940-2000, labor force participation is determined by employment status (at work or looking for work) during the census week. 'All public' includes anyone who is classified as working for the government in the 'class of worker' variable; this designation is available from 1940-2000. The intrinsic public sector includes only those workers whose industry is reported as: 906 (postal), 916 (federal, non-postal), 926 (state), 936 (local). In some years, SIC code 946 (level of government not identified) is reported, and is included in total intrinsic figure.

Appendix Table 2: Summary statistics for representative years

Means and standard deviations (in parentheses)

Variable	1940	1970	1990
Segregation index	0.741	0.788	0.570
	(0.093)	(0.072)	(0.124)
Black population share	0.126	0.151	0.111
	(0.117)	(0.140)	(0.096)
Centralization index			0.761
			(0.222)
% postal	0.012	0.013	0.010
	(0.005)	(0.004)	(0.005)
% mail carrier	0.005	0.005	0.004
	(0.002)	(0.002)	(0.003)
% postal, non-carrier	0.007	0.008	0.006
	(0.004)	(0.004)	(0.004)
% public, all	0.100	0.154	0.176
	(0.043)	(0.068)	(0.077)
Weekly wages, men only, $2000	396.91	845.15	834.14
	(60.36)	(78.16)	(142.58)
=1 if idle, men only	0.056	0.042	0.061
	(0.017)	(0.012)	(0.017)
	1980		
% blacks live in city	0.624		
	(0.292)		
% whites live in city	0.324		
	(0.202)		
% employment in city	0.253		
	(0.073)		

Notes: The figures reported for weekly wages and idleness are means of metropolitan area-level averages.

Appendix Table 3: The relationship between racial segregation and the differential probability of being employed in the postal service in different samples

Coefficients are from the interaction of black · segregation index

	1970		1990	
	Segregation	% black	Segregation	% black
1. All adults	0.088	0.014	0.038	0.013
	(0.034)	(0.008)	(0.010)	(0.010)
1a. Men only	0.075	0.026	0.030	0.033
	(0.032)	(0.009)	(0.010)	(0.013)
2. + in labor force	0.089	0.015	0.038	0.018
	(0.034)	(0.008)	(0.010)	(0.011)
3. + work during year	0.096	0.015	0.037	0.019
	(0.033)	(0.008)	(0.010)	(0.011)
4. + work full year	0.103	0.015	0.038	0.017
	(0.035)	(0.008)	(0.010)	(0.012)
5. + work full year	0.113	0.018	0.043	0.021
	(0.035)	(0.008)	(0.012)	(0.014)

Notes: Standard errors are in parentheses and are clustered by metropolitan area. Regressions include all control variables listed in the notes to Table 1. All rows include only individuals between the ages of 18-64 who are not currently enrolled in school, living in group quarters, in the armed services or in the agricultural industry. The additional sample restrictions are described in the first column and are cumulative. Full-time is defined as working at least 40 hours a week and full year is defined as working at least 40 weeks a year.