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Neighborhood resources, racial segregation, and economic mobility: Results from the Gautreaux program ☆

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Abstract

This study uses the unique design of the Gautreaux residential mobility program to estimate the long-run impacts of placement neighborhood conditions on the AFDC receipt ($N = 793$) and employment levels ($N = 1258$) of low-income Black women. We find that women initially placed in neighborhoods with few Black residents and moderate to high neighborhood resources experienced significantly more time employed when compared with women placed in neighborhoods with higher concentrations of Blacks and a low level of resources. Women placed in neighborhoods with high levels of resources and low Black populations also spent significantly less time on welfare than women placed in highly Black segregated areas with low levels of resources.

Keywords: Neighborhood effects; Employment; Welfare; Racial segregation

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1. Introduction

Over the last three decades, housing policy discussions have become increasingly focused on the way neighborhood conditions affect the economic opportunities of low-income families. With the demolition of public housing in Chicago and other cities, policy makers struggle with how best to invest housing resources to improve the life chances of both children and adults (Epp, 1996; Orlebeke, 2000; Popkin et al., 2004; Schill and Wachter, 2001; Schwartz and Tajbakhsh, 1997; Venkatesh et al., 2004). Should investments be directed toward building up low-income communities with initiatives like enterprise and empowerment zones (Malpezzi, 2003)? Or should money be directed toward creating mixed-income housing, or to dispersal strategies like the Housing Choice Voucher program, which has enabled around two million low-income families to obtain affordable housing in neighborhoods they choose (Sard and Fischer, 2004)?

For the most part, the Housing Choice Voucher program and its predecessor Section-8 program have enjoyed bipartisan support, with many policymakers believing it is an effective way to help low-income families obtain affordable housing (Center on Budget and Policy Priorities, 2000; The U.S. House of Representatives Committee on Appropriations, 2004). Our current article addresses the question of whether housing mobility programs can also affect the adults' economic independence, i.e., employment and welfare receipt (Center on Budget and Policy Priorities, 2000; Miller, 1998; Sard, 2001; Schwartz and Tajbakhsh, 1997).

Our examination of the impact of housing voucher programs on participants' economic independence uses data from the Gautreaux residential mobility program. Unlike the MTO program, the Gautreaux program lacks a control group. However, its participating families were placed in a very diverse set of neighborhoods—suburban and urban, rich and poor, and integrated and segregated. The Gautreaux program's ability to move families to racially diverse neighborhoods allows it to systematically test disadvantages that may be associated with racial segregation. Furthermore, Gautreaux program housing counselors placed families into units in ways that were largely beyond their control. We use the resulting variation in placement neighborhood conditions to estimate linkages between neighborhood context and family employment and welfare receipt. Most existing studies of neighborhood effects have used observational data that provide little opportunity to adjust for the process by which families select themselves into different kinds of neighborhoods. The present study uses Gautreaux's quasi-experimental nature to estimate the effects of neighborhood conditions on economic outcomes measured 15 years, on average, after program placement.

2. Literature review and analytic framework

Research to date has suggested several processes through which neighborhoods may impact women's employment and welfare receipt. We use neighborhood characteristics as a proxy for resources (middle-class networks, availability of jobs,

and safety) and see how these resources interact with the racial composition of a community to support or hinder the participants' economic independence. Some work suggests the importance of the spatial mismatch between available jobs and the residences of low-income families (Ellwood, 1986; Holzer, 1991; Wilson, 1987). We use the level of male unemployment in a census tract (and city/suburban placement) to represent the availability of jobs for participants that may help to decrease their dependence on welfare. We also use the incidents of violent crime in a community as a proxy for the level of safety in a community. Unsafe communities may prevent their residents from working due to fear of harm to themselves or their children (Kling et al., 2005). Additionally, unsafe neighborhoods may prevent businesses from locating to the area (Wilson, 1987). Other work suggests that advantaged or disadvantaged neighbors affect chances for economic success (Holzer and Reaser, 2000; Pattillo-McCoy, 1999; Wilson, 1987). The census measures describing the income and education of residents in a tract serve as a proxy for the presence or absence of middle-class neighbors that may help participants secure employment.

Scholars have also demonstrated that residential segregation is independently linked to diminished life chances for Black families (Massey and Denton, 1993; Pattillo-McCoy, 1999; Yinger, 1995). Therefore, we do not conceptually think of the racial composition of a neighborhood in quite the same way as the other neighborhood measures. Instead, we believe that our measure of high concentrations of Black residents may capture disadvantages associated with their socio-political status. This view is reinforced by ecological theorists who argue that a critical aspect of understanding development requires placing individuals in historical context, which includes examining labor markets, housing segregation laws, and other social changes in institutions that affect their lives (Bronfenbrenner, 1995).

2.1. Spatial mismatch and unemployment

Wilson (1987) links historical events (e.g., structural changes of the postindustrial era) to changes in family and community life. He argues that the 1970s brought significant structural changes in the economy, such as (1) a shift from goods-producing to service-producing industries, (2) increased polarization of the labor market into low-wage and high-wage sectors, and (3) the relocation of manufacturing industries outside of the central cities to the suburbs, the South, and to other countries, creating a spatial mismatch between the location of jobs and the residence of workers. The spatial mismatch hypothesis is examined in detail in this paper because of its implications for employment opportunities based on city/suburban placement (for Gautreaux or other voucher programs) and other neighborhood conditions like safety.

Two reviews of neighborhood effects research conclude that the spatial dimensions of employment and residence do affect employment (Holzer, 1991; Ihlanfeldt and Sjoquist, 1998). The reviews primarily looked at male employment and paid little attention to the effect of economic restructuring on Black women, who traditionally work in low-wage service jobs. Research on Black women indicates that they are not affected as much by spatial mismatch as Black men; however, they do experience some decreased spatial access to jobs (McLaffety and Preston, 1992).

According to Ihlanfeldt and Sjoquist (1998), conceptualizing spatial mismatch as the geographical disconnect between employment opportunities available in the suburbs and the location of "inner-city" residents is no longer relevant because some suburban communities closer to the city may also lack the higher resources present in areas further away (DeLuca and Rosenbaum, 2003; Harris, 1999). To identify suburban communities that have resource limitations similar to central city neighborhoods, Harris (1999) developed a low, middle, and high typology of suburban socioeconomic status. Using this typology, DeLuca and Rosenbaum (2003) show that the majority of Gautreaux's suburban movers relocated to areas classified as high to middle status, with most values closer to the former.[1]

Another factor that cautions against a simple city/suburban dichotomy is the fact that many high resource neighborhoods are located outside of the "inner-city" but are still within city limits (Cutler and Glaeser, 1997; Ellwood, 1986; Mendenhall, 2004, unpublished dissertation). In our samples, about one-third of the high resource neighborhoods are on the north side of the city or near downtown. This suggests that the spatial aspect of employment opportunities may exist in areas outside of the suburbs but also outside the "inner-city." For these reasons, we choose to use multiple dimensions of neighborhood conditions, beyond the city/suburban location indicators.

2.2. Networks, residents' income, and educational levels

In addition to the location of jobs, the affluence and educational status of residents in a community can influence individual economic outcomes. Researchers have found that 40–50% of jobs are obtained through social networks (Mouw, 2002). This form of social capital often results in information about the position or concrete help during the hiring process (Holzer and Reaser, 2000). Areas with higher family incomes and greater levels of education may have more people working in living wage and middle-income jobs who can serve as employment resources. Therefore, neighborhoods with fewer educated and affluent residents may be associated with an increase in the likelihood of long-term welfare receipt and unemployment.[2]

Previous qualitative Gautreaux research indicates that neighbors, including those in the suburbs, provided participants with information about job openings (Rosenbaum et al., 2005; Mendenhall, 2004, unpublished dissertation). However, the majority of those positions were not skilled and included work at a convenience store, domestic work/cleaning homes, and telemarketing. Information about more skilled and permanent jobs usually resulted from relationships with individuals at work, school, or social service agencies (cf. Rosenbaum et al., 1999).

[1] We recreated these comparisons for our AFDC and employment samples in Appendix A and show that only a small percentage (4–15%) of Gautreaux movers in both samples relocated to low status suburban neighborhoods.

[2] Education quality and school segregation are associated with neighborhood resources; however, these factors relate more to the Gautreaux children's outcomes than their mothers.

2.3. Racial segregation and resources

In addition to the spatial availability of jobs and employment information provided by neighbors, neighborhoods may impact women's employment and welfare receipt through the diminished life chances associated with racial segregation. Racial segregation is correlated with the resources available for families, but it also may have an independent effect on economic outcomes (Massey and Denton, 1993; Pattillo-McCoy, 1999; Yinger, 1995).

Residential segregation negatively affects economic independence due to Blacks' isolation from key resources such as safety, wealth, and employment opportunities. According to Wilson (1987), affirmative action and fair housing laws allowed middle- and working-class Blacks in Chicago to relocate to the suburbs, resulting in a concentration of poor, unemployed families with more limited job networks and fewer viable institutions. As a result, violent crime increased in these high poverty areas and made it difficult for residents to attend school and work, since so much of their time was spent making sure their family was safe (Gmah-Brempong, 1997; Kling et al., 2005; Sampson, 2001).

Furthermore, we argue that the variable that measures the percent of Black residents in a census tract (i.e., racial segregation) may also be a proxy for the disadvantaged socio-political status of this group. Galster and Killen (1995) discuss how Blacks often face different constraints, or unequal treatment, within various elements of the opportunity structure, such as: markets (labor, mortgage, and housing), institutions (political organizations, banks, and associations), and service delivery systems (social welfare, criminal justice, and education). Blacks' socio-political status in the United States is often associated with poor outcomes, such as higher rates of chronic illnesses, decreased life expectancy, less family wealth via avenues like home ownership, and closer proximity to poor communities despite socioeconomic status (Gymah-Brempong, 1997; Harris, 1999; Massey and Denton, 1993; Pattillo-McCoy, 1999; Shapiro, 2004). These race effects are costly psychologically, politically, and economically (i.e., they may influence employment and welfare receipt of individuals in Black segregated areas), even after controlling for other neighborhood resources (see Dymski, 1997; Feagin and McKinney, 2003).

To tease apart possible race effects, we examine different levels of racial segregation in our regression models. In 2000, national measures of racial segregation, like the index of exposure (to other groups), showed that the average white person lived in a neighborhood where the percentage of Blacks in the community was 7% (Lewis Mumford Center, 2001). Nationally, the index score was slightly higher in central cities (10%) and slightly lower (5%) in the suburbs. For Chicago that same year, the index of exposure of Whites to Blacks was 8% (Population Studies Center, 2005). We attempt to capture any possible economic advantages associated with predominantly White neighborhoods by including a low Black (0–10%) variable in our regression models. Similarly, we attempt to capture economic limitations associated with extreme racial segregation by having a high Black (61–100%) variable as part of our analysis. Massey and Denton (1993) argue that extreme racial segregation is

present when the index of isolation (exposure of a group to itself) is over 60%.[3] Charles (2003) considers racial segregation as extreme when the index of isolation is 70% or higher. We also have a medium Black (11–60%) variable, which measure integrated neighborhoods. Included in this range is the percentage of Black residents (51% nationally) in a typical Black person's neighborhood.

The present study examines these neighborhood processes explicitly with the Gautreaux data and asks two main questions: first, is suburban placement the key to economic success or are the effects of placement neighborhood characteristics more subtle? Second, what is the impact of Gautreaux's emphasis on placing families in racially integrated neighborhoods, i.e., how does placement in communities with low, medium, or high levels of Black residents affect economic independence? These questions have policy significance because they provide insight into how various voucher dispersal strategies (race-based versus income-based) might impact economic independence. The Gautreaux program and other mobility initiatives are discussed in detail in the following section because they demonstrate what can happen when neighborhood conditions are manipulated among similarly low-income families.

2.4. The Gautreaux program

The Gautreaux program resulted from a 1976 Supreme Court authorization of an expansive desegregation housing remedy. The program started placing families in new neighborhoods in the late 1970s, under the administration of the Leadership Council for Metropolitan Open Communities in Chicago.[4] The goal of the Gautreaux program was to move families to census tracts with 30% or fewer Black residents; however, a significant number of participants moved to neighborhoods with high levels of Black residents, high crime rates, and low family income.[5] About one-half of the sample moved to the suburbs and the other half remained in the city. In addition to neighborhood variation, the placement of families in these communities was largely unrelated to their preferences or SES characteristics.[6]

For the most part, Gautreaux staff offered participants units based on their order of enrollment into the program. Popkin et al. (1993) report that 95% of participants

[3] When the index isolation score is 60, it means that the average Black person lives in a neighborhood that is 60% Black.

[4] In the early 1980s, increased interest in the Gautreaux program led staff to begin enrolling more eligible families than their annual allotment of vouchers and available units. Each year, an average of 325 families moved from an eligibility pool of 1700 participants (Rubinowitz and Rosenbaum, 2000). Unfortunately, limited programmatic information exists, making it difficult to determine why so many—a yearly average of 1375 of the eligible families—did not move each year. It is possible that the 20% "take-up" rate may be a result of an insufficient number of available units to meet the demand.

[5] A 1981 provision in the Gautreaux court ruling allowed the Leadership Council to place families in neighborhoods that had more than 30% Black residents as long as they could demonstrate that it was a revitalizing community (Rubinowitz and Rosenbaum, 2000). A neighborhood was considered revitalizing if there was enough development activity underway or planned so that economic integration was likely in the short run and racial integration might follow in the long run.

[6] Later in the paper, we discuss possible biases in the placement of families and how we try to control for them.

accepted the first apartment offered to them.[7] Around 1990, families experienced high levels of success in finding their own units, often with some help from counselors. These changes resulted in the elimination of the landlord outreach positions. Our sample consists of families who moved before these 1990 changes.

Although the Gautreaux program experienced changes in the demand for units and intake procedures, staff consistently used several selection criteria to identify good tenants and families that could find apartments with adequate space for large families. Gautreaux's selection criteria excluded families with: (1) more than four children because of the challenges in locating large apartments, (2) a history of late rent payments, and (3) poor housekeeping based on visits by staff. The screening process reduced the number of eligible families by close to 30%, producing a somewhat selective but hardly elite group (Rubinowitz and Rosenbaum, 2000). This point is reinforced by Popkin's (1988, unpublished dissertation) work comparing Gautreaux participants with a random sample of women on public assistance in Chicago.[8] Despite several similarities between Gautreaux participants and the women on public assistance, selectivity in the search for good tenants and the "take-up" rate limits the ability to make generalizations based on program data.[9] Our findings thus generalize most readily to families with good rental histories, and those who volunteer to participate in residential mobility programs.

Popkin et al. (1993) also analyzed 332 Gautreaux participants' experiences in suburban labor markets.[10] Their results showed that women in the suburbs were 25.3% more likely to be employed than women placed in the city. Among women without employment experience at baseline, employment rates were considerably higher among those placed in the suburbs (46.2%) than among those placed in the city (30.2%). Adding to the information on suburban residence and self-sufficiency, Rosenbaum and DeLuca (2000) analyzed participants' AFDC receipt in 1989 but did not find a significant relationship between welfare receipt and suburban placement. They did, however, find a significant relationship between AFDC receipt and census tract characteristics, particularly education, of the placement neighborhood. The more educated the residents in a placement tract, the lower the AFDC receipt.

[7] Regarding placement, Gautreaux staff reported that participants with cars were more likely to be placed in the suburbs. We found a small but significant correlation between suburban placement and mean family income in the origin neighborhood.

[8] Popkin (1988) found that the Gautreaux participants and the sample of AFDC (Aid to Families with Dependent Children) recipients were similar in the length of time (7 years on average) spent on AFDC; however, the welfare group had more women who were second-generation recipients. In terms of marital status, the groups were again similar: 45% never married and 10% were married at some point. The two groups also differed with respect to levels of education and age. Thirty-nine percent of the Gautreaux women dropped out of high school compared to 50% of the AFDC sample. The Gautreaux participants were slightly older (median age of 34 vs. 31).

[9] Another way that Gautreaux participants may differ from the general poor population is that the program's financial assistance rendered them more likely to maintain residence in communities that are not poor (Keels et al., 2005; Quillian, 2003).

[10] Popkin et al. (1993) surveyed a random sample of 332 participants and the response rate was 67%. They also conducted in-depth interviews with 95 additional participants in their homes.

Work by Keels et al. (2005) looks at neighborhood data on origin, initial destination, and recent location of Gautreaux participants 6–22 years after their original move. Two-thirds of suburban movers' most recent address indicates that they remained in the general area of their initial move. The racial composition of placement communities was important in predicting their current neighborhoods' level of racial segregation and safety. Families placed in areas with less than 30% Black residents currently live in less segregated areas (up to 26% less Blacks) compared to families placed in areas with 95% or more Black residents.

2.5. The Moving to Opportunity program

Findings from the Gautreaux program, with its focus on race-based dispersal strategies, spurred government investments in other mobility programs to examine the role of neighborhood conditions on economic outcomes, specifically the Moving to Opportunity (MTO) demonstration program in Baltimore, Boston, Chicago, Los Angeles, and New York. In contrast to Gautreaux's combination of neighborhood poverty and race for placement, MTO's placement criterion was based only on poverty.

In 1994, MTO began providing housing vouchers to families living in public housing and randomly assigning them to three groups: Experimental (families receiving vouchers to be used in low poverty census tracts), Section 8 (families receiving vouchers to use at their discretion), and a control group. A central question guiding MTO research is: How does the opportunity to move from high to low poverty areas affect the development of adults and children? When looking qualitatively at the effects of high poverty areas on Boston families, researchers found that the threat of random violence and concerns about keeping children safe dominated family routines, sometimes to the exclusion of human capital investments (Kling et al., 2005).

When MTO researchers examined state administrative earnings and welfare data across all five cites, 4–7 years after the program started, they did not find any neighborhood effects on the public assistance receipt or employment of participants (Kling et al., 2004, working paper; Orr et al., 2003).[11] Possible reasons given by the researchers for the lack of significant findings included increased employment levels of welfare recipients and the general population, the aging of children, more rapidly declining employment levels in the experimental movers neighborhoods, and a lack of substantial change in the movers' neighborhood labor market and access to employment (Kling et al., 2004, working paper). Another possible reason for MTO's lack of economic findings may be that the program design, which focused on deconcentrating poverty, could not capture key processes that may relate to Blacks' sociopolitical status. We discuss this in more detail later in the paper. Also, see DeLuca and Rosenbaum (2003) for a detailed discussion about racial composition of neighborhoods.

[11] After the first 3 years of the MTO program, the initial findings for welfare receipt showed that the treatment group spent less time on welfare (10 percentage points) than the control group (Goering et al., 2002). However, these findings were no longer evident by the interim evaluation.

2.6. The focus of the current study

Unlike MTO, the Gautreaux program does not employ a randomized design. However, its placement process generates considerable variation in placement neighborhood racial integration and resources—a fact that is key to our analysis strategy. In doing so, our Gautreaux-based research contributes to the literature in several important ways that the MTO data cannot.

First, this Gautreaux study compares the economic outcomes of participants moving to a wide variety of communities—heavily Black segregated, integrated, or mostly white neighborhoods. MTO's mobility conditions only required families to move to census tracts with less than 10% poverty; subsequently, most of the families, 60% of experimental movers, relocated to heavily minority areas (Kling et al., 2004, working paper; Orr et al., 2003). This racial versus resource distinction is important because of the possible effects that increased Black segregation may have on economic independence, even after controlling for measurable resources. Second, although MTO's randomized design is superior to the Gautreaux design, the MTO outcomes are taken only 4–7 years after the point of random assignment. The unique contribution of our Gautreaux outcome data is that they are taken 15 years, on average, after program placement.

Our current study also goes beyond previous Gautreaux research in several key ways. The Popkin et al. (1993) suburban labor market study analyzes the experiences of 332 Gautreaux participants using survey data. We take advantage of administrative data on welfare receipt and employment, which allows for more complete sample coverage by avoiding non-response issues. We also attempt to look at multiple dimensions of inner-city neighborhoods, such as low resources and high levels of Black segregation, and other communities with different levels of resources and integration (such as predominantly White with higher levels of safety and mean family income).

Previous Gautreaux work by both Popkin et al. (1993) and Rosenbaum and DeLuca (2000) used dichotomous measures of welfare receipt and employment. Another contribution of this study is that it provides a more detailed measure of the nature of welfare receipt and employment with respect to the total number of days moms were eligible for assistance, the specific length of spells, and employment data based on the number of quarters the women were living in Illinois. Last, the work of Rosenbaum and DeLuca (2000) does not include ecological risk factors such as crime rates in neighborhoods. The lack of attention to such factors could represent an omitted-context variables problem (Duncan and Raudenbush, 2001).

Moving away from research on mobility programs to a more general review of neighborhood effects research shows that racial composition and level of welfare receipt in a community are associated with the employment levels of males in the study (Briggs, 1997). On the other hand, Gephart's review (1997) suggests that community characteristics, such as male joblessness and poverty, in addition to welfare receipt, have a significant impact on economic outcomes. Median income is not significant in either of the reviews. However, Ellen and Turner (1997) and Crane (1991) argue that linear estimations of neighborhood characteristics, such as income, may overlook

critical thresholds that once exceeded may dramatically change social and economic outcomes.

The reviewed housing literature motivated us to focus our empirical work on what appears to be key neighborhood factors in facilitating or limiting the economic independence of low-income Black women: racial segregation, family income, violent crime, educational levels, and male unemployment. We rely on the considerable variability in these conditions in Gautreaux placement neighborhoods to provide us with estimates of neighborhood effects. We also include models that examine the possibility of critical threshold effects between neighborhoods that have inner-city characteristics and other communities. This analysis is possible due to the substantial number of participants placed in high Black areas with "inner-city" characteristics.

In this study, we predict that women placed in more racially segregated neighborhoods will encounter barriers that limited employment, as well as increased levels of AFDC receipt (Massey and Denton, 1993; Yinger, 1995). We also expect to find that women placed in communities with educated and higher income neighbors will experience greater economic independence through work because they are more likely to have access to information about jobs and other key resources.

3. Methods and procedures

3.1. AFDC and employment samples

The Leadership Council for Metropolitan Open Communities provided us with participant information from their Gautreaux program records. Due to research budget constraints, we selected a random half sample of all female-headed families who moved prior to 1990 ($n = 1506$).[12] The entire sample with moves prior to 1990, including male-headed families, totaled about 3400 participants (Rubinowitz and Rosenbaum, 2000). We confirmed information on participants' paper records before converting them to computer files.

For our analysis of AFDC receipt, we selected women who were demographically eligible for AFDC between 1990 and 1992 (i.e., according to program records, these women would have had children under the age of 18 during this time). We chose the early 1990s because our administrative information on welfare receipt begins in 1989. Focusing on welfare receipt in the early 1990s also allows us to retain the most women from the original sample before they became ineligible due to their youngest child turning 18 years of age. We also removed 147 cases with missing placement census information.[13] These two restrictions reduced the AFDC sample size to 793.

[12] James Rosenbaum oversaw the data gathering and cleaning of program records for the sample.

[13] We have placement addresses for all but 23 of the 1506 participants. However, for the majority of excluded cases we could not match the geocoded information to census data due to problems such as changes in tracts between the 1980 and 1990 census. The excluded group is almost identical to either the AFDC or employment sample in terms of age at time of move, age of youngest child in 1990, public housing status prior to moving, and AFDC receipt at the time of move.

We drew employment data for as recent a period as possible, 1995–1999. The sample in this case includes all of the women with known Illinois addresses at some point between 1995 and 1999 because that is the time period and geographic location that our employment administrative information covers. For the employment sample, we again excluded cases (248 this time) with missing placement census information, which brought the final employment sample size to 1258.

3.1.1. Historical context of the 1990s

Both the employment and welfare outcomes may have been influenced by economic and social changes that occurred during the 1990s, both nationally and in Chicago.[14] In the early 1990s, the economy was in a recession and unemployment rates were increasing in the six-county Chicago metropolitan area, 6.1% in 1990, 7.0% in 1991, and 7.4% in 1992. By the mid 1990s unemployment declined considerably and in the last year of our employment analyses the rate was 4.1%. During this economic boom of the mid-1990s, significant social changes were taking place. Data from the National Crime Victimization Survey indicates that violent crime levels started declining around 1993. In 1996, policy makers dismantled AFDC, replaced it with Temporary Assistance for Needy Family (TANF), and ushered in time-limits. These social and economic conditions in the mid to late 1990s may have made finding work easier but getting assistance more difficult.

3.2. Data sources

The baseline family information obtained at program intake includes the following: number of children, use of welfare before moving, age of youngest child at the time of the move, year of move, and public housing status. To determine the social and economic conditions in participants' origin and placement communities, we first geocoded their addresses into census tracts. We then matched the census tracts to data from both the 1980 and 1990 US Census files, interpolating for year of location.

Chicago crime data come from the Chicago Police Department's yearly reports and include the total number of murders, aggravated assaults, and criminal sexual assaults/rapes reported in each year per 1000 individuals for each of 25 city police districts. Crime data for areas of Illinois outside of Chicago come from the FBI's Uniform Crime Report (UCR) records. UCR data are organized by reporting agencies, which roughly correspond to towns and cities. From program records, we identified the names of the towns and cities in which participants were placed from program records.

Our welfare receipt data come from the Illinois Department of Human Services (IDHS), which provided information on the number and length of AFDC spells between 1990 and 1992. Staff at Chapin Hall Center for Children, a research and development center, at the University of Chicago matched the data with information on Gautreaux participants, with a 99% success rate. Chapin Hall also provided information on participants' earnings using a similar procedure. They matched participants'

[14] The data in this analysis refer only to neighborhoods in the six-county Chicago metropolitan area.

information to social security records on quarterly earnings obtained from the State of Illinois unemployment insurance (UI) system between 1995 and 1999.

3.3. Dependent variables

3.3.1. Percent time on AFDC

We developed our dependent variable of percent time on AFDC by dividing the total number of days receiving AFDC by the total number of days demographically eligible between January 1, 1990 and December 31, 1992. We determined eligibility by looking at the period in which the youngest child was less than 18 years of age. Although the welfare outcome data in this study are gathered 4–6 years before the 1996 welfare reform, information on which neighborhood conditions are associated with an increased use of welfare is needed by policy makers and agency staff providing housing assistance to families relocating to various communities as a result of the current public housing transformation.

3.3.2. Percent time with earnings

When developing our second dependent variable, percent time with earnings, we looked at the number of quarters between 1995 and 1999 that the women were employed and resided in Illinois (based on our credit service records). We then divided it by the number of quarters the women were in Illinois during that time.

3.4. Independent variables

When analyzing these dependent variables, we relate them to the following placement neighborhood characteristics: education, income, safety, and jobs. We also control for family characteristics because of some systematic differences in our samples between suburban placement and mean family income in premove census tracts. In addition to controlling for families' characteristics, we include proxies for unobserved neighborhood preferences (see Votruba and Kling, 2004, working paper). We use census tract data from the participants' origin neighborhoods (racial composition, mean family income, and levels of violent crime) to explain some of the variance in outcomes. In our findings, several placement coefficients remain significant with both the family and origin neighborhood controls in the models. Therefore, we argue that selection bias may only play a minor role, if any, in the employment and welfare results. This finding makes the validity of our results worth considering because it appears that Gautreaux placements were arbitrary enough and the control variables were sufficient enough to capture some level of unobserved traits so as to make the placement neighborhoods fairly exogenous.

When conducting the analyses, we estimated the AFDC models using two-limit Tobit[15] regressions because 374 participants did not receive any welfare during

[15] Tobit distributional assumptions are normal with a mean of zero and a standard deviation of one. Having large numbers of the observations at either extreme is offset by the several hundred uncensored observations, which represent almost a fourth of the data.

1990 and 1992 and 151 of them received welfare the entire period. The employment models also have two limits due to 452 participants with no reported work during 1995 and 1999, and 249 participants who worked during every quarter in the same period. Since Tobit coefficients cannot be interpreted directly, we calculated marginal effects when independent variables are set to their means (Wooldridge, 2000). Several women lived in the same census tracts before moving and may have shared some similarities. Therefore, in all of the Tobit models, we adjusted for possible spatial autocorrelation by obtaining Huber–White standard errors based on origin tract clustering.

3.4.1. Neighborhood characteristics

To measure the neighborhood characteristics of the placement communities, we use city vs. suburban placement, racial composition, mean family income, levels of violent crime, male unemployment rates in a tract,[16] and percent of individuals with four or more years of college The "neighborhood resource" index is a series of dummy variables that attempt to capture the effects on families being placed in census tracts with assets (education, income, safety, and jobs) that may facilitate work and decrease AFDC receipt. We created the variable by subtracting standardized measures of crime level and male unemployment from mean family income and the percent of individuals with a college degree or more in a tract. We then took the average of the composite value.

Our preliminary work on this sample indicated possible non-linear effects of neighborhood racial composition. We therefore created high, medium, and low percent Black categories[17] and a neighborhood resource variable that was also divided into high, medium, and low categories.[18] Interactions between race and resources were explored with a five-category variable: low (0–10%) Black and medium resources, low Black and high resources, medium (11–60%) Black and medium resources, medium Black and high resources, and high (61–100%) Black and low resources as the reference group. One limitation of our data is that we do not have enough participants either in areas with the combination of a high fraction of Black residents and a high level of resources or the combination of low Black and low resources.

[16] We used the male unemployment rate in a census tract because we believe it is a more direct measure of the presence of jobs (Wilson, 1987). The female unemployment rate may be more likely to reflect a preference for working, particularly in middle-class communities, for several reasons. First, women with high-earning partners do not have to work to make ends meet. Second, Jalilvand's (2000) research shows that religious values are more important for non-working women than working women, which may demonstrate different preferences for working. Other differences in values were noted between working and non-working women. Also, see Mendenhall (2004, unpublished dissertation) for a discussion about the Gautreaux women placed in more affluent neighborhoods appearing to report more stay-at-home wives with working husbands.

[17] Fifty-five percent of our sample was placed in low (0–10%) Black areas, 22% was placed in medium (11–60%) Black areas, and 24% was placed in high Black areas.

[18] This breakdown of the data allows us to examine possible threshold effects between neighborhoods. The resource index was also divided into quintiles (20% of 793 for the AFDC sample and 20% of 1258 for the employment sample). The highest quintile represents communities with the most "resources."

3.4.2. Baseline family characteristics

In an attempt to avoid biased estimates of neighborhood effects due to selection issues, we include family-level variables in our models. These variables include aspects of family structure, as well as economic and developmental resources at the time of enrollment in the Gautreaux program: number of children, receipt of AFDC at time of move,[19] and youngest child's age projected to 1990. We also measured length of time since the initial move (using 1990 as the reference year) as a proxy for the length of time exposed to a new neighborhood. The last control included whether the participant lived in public housing just before moving (see Newman and Harkness, 2002).

Table 1 presents means and standard deviations of all variables used in this analysis. Before moving, 38% of both samples lived in public housing. The average age of suburban and city movers for the AFDC sample was 27 years. On average, they had two children. The average age of suburban and city movers for the employment sample was 31 years with two children each. As indicated by intake records, in 1990 the age of the youngest child in the home was ten for the AFDC sample and thirteen for the employment sample. On average, 74 and 69% of the AFDC and employment sample received AFDC prior to moving, respectively.

On average, the women in both the AFDC and employment samples moved in 1984. The majority of suburban movers (about 87%) in both samples moved to neighborhoods with 10% or less Black residents. Only 1% of suburban placement communities were in the southern suburbs with high Black (over 61%) populations. Forty percent of city movers were placed in high Black (61–100%) neighborhoods. While the remaining sixty percent moved to low Black (10% or less) or integrated areas (11–60% Black) areas. The next section of the paper discusses the AFDC findings and then the employment results. These discussions are followed by an examination of quarterly earnings that we used to confirm the robustness of our AFDC and employment findings.

4. Results

4.1. Percent of time received AFDC (1990–1992)

Many placement characteristics were highly correlated, some as high as .84 (Tables 2 and 3), which precluded attempts to estimate models that contain more than two placement variables at the same time. We first included each of the variables in separate regressions, controlling for family and origin neighborhood measures, but not for other placement neighborhood measures. We label these models "bivariate" and summarize the Tobit results for them in Tables 4. (Appendix B has OLS estimates for the same models.) When predicting the percentage of time

[19] In addition to having baseline information on AFDC receipt, it is also ideal to have employment data. Unfortunately, we do not have adequate employment information to include in our models.

Table 1
Mean and standard deviations for AFDC and employment sample city and suburban move sample

Variable	Data source	AFDC sample ($N = 793$)				Employment sample ($N = 1258$)			
		All $N = 793$	City $N = 432$	Suburban $N = 361$	p level of city/ suburban differences	All $N = 1258$	City $N = 696$	Suburban $N = 562$	p level of city/ suburban differences
Program demographic measures									
Number of children	Program intake records	2.02	1.98	2.06	.319	1.79	1.71	1.90	.005
		(1.11)	(1.07)	(1.15)		(1.20)	(1.17)	(1.22)	
On AFDC at time of move	Program intake records	.74	.74	.74	.911	.69	.68	.70	.391
		(.44)	(.44)	(.44)		(.46)	(.47)	(.46)	
Placed in city	Program intake records	.54	1.00	0.00	na	.55	1.00	0.00	na
		(.50)	(0.0)	(0.0)		(.50)	(0.0)	(0.0)	
In 1990, years since move	Program intake records	5.64	5.97	5.26	.000	6.48	6.62	6.32	.093
		(2.79)	(2.65)	(2.91)		(3.09)	(2.80)	(3.40)	
Youngest child's age in 1990	Program intake records	10.12	10.42	9.76	.017	12.68	12.97	12.33	.109
		(3.87)	(3.68)	(4.07)		(6.36)	(6.22)	(6.52)	
Origin address in public housing	Program intake records	.38	.41	.35	.060	.38	.41	.35	.025
		(.49)	(.49)	(.48)		(.49)	(.49)	(.48)	
Premove neighborhood measures									
Mean family income/1000 in origin tract	1980/1990 census	27.29	26.5	28.21	.057	29.05	27.78	30.64	.000
		(12.42)	(12.1)	(12.78)		(13.02)	(12.33)	(13.67)	

Percent non-Latino Black in origin tract	1980/1990 census	84.99	85.61	84.24	.445	83.28	84.66	81.56	.039
		(25.24)	(24.74)	(25.84)		(26.46)	(25.76)	(27.24)	
Level of violent crime per 1000 individuals	Annual uniform city crime reports	24.62	23.47	25.99	.021	22.58	21.99	23.32	.110
		(15.31)	(14.26)	(16.39)		(14.62)	(13.44)	(15.93)	
Placement neighborhood measures									
Mean family income/1000 in placement tract	1980/1990 census	52.22	40.59	66.14	.000	52.03	41.54	65.01	.000
		(20.80)	(16.74)	(16.11)		(20.23)	(17.39)	(15.40)	
Percent non-Latino Black in placement tract	1980/1990 census	29.98	49.18	6.99	.000	29.80	48.23	6.98	.000
		(38.36)	(40.67)	(16.88)		(37.93)	(40.38)	(16.15)	
Level of violent crime per 1000	Annual uniform crime reports	17.37	20.82	13.23	.000	16.35	19.03	13.02	.000
		(13.24)	(14.93)	(9.35)		(12.36)	(13.87)	(9.15)	
Male unemployment rates in placement tract	1980/1990 census	10.04	14.37	4.85	.000	9.70	13.67	4.79	.000
		(8.14)	(8.42)	(3.34)		(7.76)	(8.10)	(3.14)	
Percent with four or more years of college	1980/1990 census	21.69	18.74	25.22	.000	21.63	19.38	24.41	.000
		(15.92)	(16.14)	(14.92)		(15.65)	(16.24)	(14.43)	
Neighborhood resource index	Composite of sample data	.33	−.05	.79	.000	.34	.00	.78	.000
		(.83)	(.81)	(.60)		(.82)	(.82)	(.60)	
Dependent variable									
Percent time receiving AFDC 1990–1992	Illinois client database	35.64	35.42	35.90	.873	na	na	na	na
		(42.37)	(42.79)	(41.92)					
Percent time employed 1995–1999	Social security earnings	na	na	na	na	43.27	42.49	44.23	.466
					(41.98)	(42.33)	(41.57)		

Table 2
Zero-order correlations among AFDC outcomes and neighborhood measures

	Percent time on AFDC 1990–1992	Placed in Chicago	Level of violent crime per 1000	Rate of male unemployment	Percent with 16+ years of education	Mean income in placement tract	Percent Black in placement tract	Neighborhood resource
Percent time on AFDC 1990–1992	1.00							
Placed in Chicago	−.006	1.00						
Level of violent crime per 1000	.160***	.286***	1.00					
Rate of male unemployment	.061	.583***	.643***	1.00				
Percent with 16+ years of education	.004	−.203***	−.380***	−.600***	1.00			
Mean family income/1000 in placement tract	.043	−.612***	−.409***	−.744***	.776***	1.00		
Percent non-Latino Black	.054	.548***	.600***	.844***	−.464***	−.617***	1.00	
Neighborhood resource index	−.052	−.505***	.730***	−.896***	.827***	.879***	−.758***	1.00

Sample size = 793.
*** $p < .001$.

Table 3
Zero-order correlations among earnings outcomes and neighborhood measures

	Percent time with earnings 1995–1999	Placed in Chicago	Level of violent crime per 1000	Rate of male unemployment	Percent with 16+ years of education	Mean income in placement tract	Percent Black in placement tract	Neighborhood resource index
Percent time with earnings, 1995–1999	1.00							
Placed in Chicago	−.021	1.00						
Level of violent crime per 1000	−.006	.242**	1.00					
Rate of male unemployment	−.019	.569**	.599**	1.00				
Percent with 16+ years of education	.002	−.160**	−.346**	−.583**	1.00			
Mean family income/1000 in placement tract	.006	−.577**	−.371**	−.734**	.771**	1.00		
Percent non-Latino Black	−.058*	.541**	.542**	.821**	−.449**	−.602**	1.00	
Neighborhood resource index	.005	−.471**	.704**	−.887**	.827**	.875**	−.735**	1.00

Sample size = 1258.
* $p < .05$.
** $p < .001$.

Table 4
Tobit regressions of placement neighborhood measures on afdc receipt & earnings

	Percent time on AFDC			Percent time with earnings		
	"Bivariate" models	Additive model	Interaction model	"Bivariate" models	Additive model	Interaction model
Neighborhood level						
Placement neighborhood measures						
Placed in Chicago	4.12			−.98		
	(2.79)			(2.24)		
Level of violent crime per 1000	.25**			−.13		
	(.11)			(.09)		
Rate of male unemployment	.32**			−.19		
	(.15)			(.14)		
Percent with 16+ years of education	−.07			−.01		
	(.09)			(.07)		
Mean family income/1000	−.04			−.01		
	(.07)			(.05)		
Percent non-Latino Black						
Low (0–10%) Black	−7.16**	−6.33		5.90**	7.45*	
	(3.44)	(5.88)		(2.85)	(4.04)	
Medium (11–60%) Black	−5.91	−5.59		7.63**	7.57*	
	(4.12)	(5.53)		(3.58)	(4.48)	
High (61–100%) Black	Omitted	Omitted		Omitted	Omitted	
"Neighborhood resource" index						
Quintile 1 (0–20%)	Omitted	Omitted		Omitted	Omitted	
Quintile 2 (21–40%)	−5.58	−1.65		6.09*	1.85	
	(4.19)	(5.43)		(3.35)	(3.90)	
Quintile 3 (41–60%)	−5.02	.37		8.72**	2.94	
	(4.23)	(6.32)		(3.73)	(4.52)	
Quintile 4 (61–80%)	−7.18*	−1.58		3.88	−2.19	
	(3.99)	(6.25)		(3.53)	(4.44)	
Quintile 5 (81–100%)	−5.47	.30		1.57	−4.42	
	(4.05)	(6.68)		(3.54)	(4.62)	
Low (0–10%) Black and medium resource			−6.79			6.17*
			(4.39)			(3.65)
Low (0–10%) Black and high resource			−7.13**			5.87*
			(3.62)			(3.13)
Medium (11–60%) Black and medium resource			−3.99			5.98
			(4.97)			(4.59)
Medium (11–60%) Black and high resource			−7.96			9.35**
			(5.01)			(4.28)
High (61–100%) Black and low resource			Omitted			Omitted
Origin neighborhood measures						
Percent non-Latino Black		−.07	−.07		.02	.02
		(.06)	(.06)		(.06)	(.06)
Mean family income		−.03	−.06		.03	.03
		(.17)	(.17)		(.14)	(.14)
Level of violent crime per 1000		.14	.14		.11	.10
		(.10)	(.10)		(.09)	(.09)

Table 4 (*continued*)

	Percent time on AFDC			Percent time with earnings		
	"Bivariate" models	Additive model	Interaction model	"Bivariate" models	Additive model	Interaction model
Family level						
Number of children		−.46	−.57		1.31	1.46*
		(1.37)	(1.34)		(.96)	(.97)
On AFDC at time of move		23.34***	23.52***		−9.15***	−8.83***
		(2.91)	(2.58)		(2.52)	(2.51)
Youngest child's age in 1990		−1.28***	1 .29***		−1.08***	−1.05***
		(.41)	(.41)		(.25)	(.25)
In 1990, number of years since moved		−3.41***	−3.50***		−.57	−.54
		(.67)	(.63)		(.49)	(.50)
Public housing before move						
Not living in public housing		Omitted	Omitted		Omitted	Omitted
Living in public housing		−.24	−.19		3.75	3.85
		(4.03)	(4.01)		(3.11)	(3.13)
Not sure if living in public housing		−.26	−.11		6.84	6.31
		(5.23)	(5.26)		(4.21)	(4.21)

AFDC sample size = 793; Employment sample size = 1258.

Note. "Bivariate" models include the above baseline family-level and origin neighborhood controls and the given placement variable. The placement variables in the resource index (crime, income, education, and unemployment) are only in the interaction model once.

Note. All models include robust variance analyses.

* $p < .10$.

** $p < .05$.

*** $p < .01$ (two-tailed).

on AFDC between 1990 and 1992, placement neighborhood level of crime per 1000 individuals, the male unemployment rate, and the low percent Black dummy variable have significant associations. Comparing participants placed in highly Black segregated areas as the reference group, women in areas with a low level of Blacks spend 7% less time (or 77 days less) on assistance. The insignificant variables in this "bivariate" analysis are placement in the city, mean family income, percent of individuals with four or more years of college in a census tract, and medium levels of Blacks in a tract.

In the face of multicollinearity among our placement neighborhood characteristics, we combined several of them into the "neighborhood resource" index discussed earlier. The "bivariate" results for this new measure are also in column 1 of Table 4. Using the lowest level of resources as the reference, the results show that the remaining four levels of resources have similar coefficients on percent time on AFDC. However, the fourth quintile is the only one that is significantly different from the omitted first quintile.

We next included both the level of racial integration and resources in the placement neighborhood in an additive model (see column 2 of Table 4). None of the racial or resource categories differ significantly from the reference groups. We then interacted race and resources in five categories: low (0–10%) Black and medium

resources, low Black and high resources, medium (11–60%) Black and medium resources, medium Black and high resources, and high (61–100%) Black and low resources[20] (see column 3 of Table 3). When using participants in tracts with the highest level of Black residents and the lowest level of resources as the reference group, significant differences in AFDC receipt appear for participants placed in census tracts with low Black (0–10%) populations and high levels of resources. The women in mostly white and more affluent areas spent 7% less time on AFDC. This suggests a threshold effect, which we discuss further in the conclusion.

Of the remaining variables, three baseline family characteristics are consistently significant: on AFDC at the time of move, the number of years since moving, and the youngest child's age in 1990 (see Table 4). A participant receiving AFDC prior to moving is associated with an increase in the percentage of time she spends on AFDC by about 23% or 252 days. This may indicate the difficult of women on AFDC to obtain the skills that allow them to secure employment that pays enough to leave public assistance. Nevertheless, we do see positive effects on welfare receipt as a result of what appears to be the length of time participants are exposed to the new resources in their communities. For each year since program entry, welfare receipt decreases by about 3% (33 days). This could indicate that the type of jobs some of the women (on and off welfare) secure in their new community may pay a wage that allows them to leave public assistance. The last significant baseline characteristic is associated with the age of the youngest child. Each additional year in the age of the youngest child in 1990 is associated with a 1% decrease in AFDC receipt. This finding may reflect that as the children grow older and more independent, their mothers can seek employment with fewer constraints.

4.2. Percent of time employed with earnings (1995–1999)

When predicting the percentage of quarters with earnings between 1995 and 1999, several placement neighborhood characteristics had significant "bivariate" associations: low and medium percent Black and the second and third quintiles of the "neighborhood resource" index (see column 4 of Table 4). The insignificant "bivariate" measures are placement in Chicago, level of violent crime, male unemployment rate, percent of individuals with four or more years of college, mean family income, and the fourth and fifth quintiles of the "resource index." The insignificance of city vs. suburban placement is at odds with previous Gautreaux research (Popkin et al., 1993). We return to this issue in the conclusion.

In contrast to the AFDC models, the employment models produced significant coefficients for the additive regression including race and resources. Controlling for resources in a tract, fewer Blacks (0–10% and 11–60%) in a census tract is associated with almost an eight-percentage point increase in time with earnings, when compared to tracts with high (61–100%) levels of Blacks.

[20] As stated earlier, one limitation of our data is that none of the placement neighborhoods had both high fractions of Black residents and a high level of resources nor did any of the low Black neighborhoods have low resources. Accordingly, we could not estimate differences associated with these placement conditions.

The interactive model of race and resources was more revealing. We again used five categorical variables (see column 6 of Table 4). When using participants in tracts with the lowest level of resources and high levels of Blacks as the reference group, significant findings (6–9% more time with earnings) appear for participants in virtually all other types of communities. The exception is communities with a medium level of Blacks and medium resources, where the coefficient was almost as large but not statistically significant.

In the employment models, the two baseline family characteristics that are consistently significant include: on AFDC at the time of move and the youngest child's age in 1990. Participants' earlier receipt of assistance reduces their time spent employed, between 1995 and 1999, by 9%. An additional year in the age of their youngest child in 1990 is associated with a 1% decrease in time with earnings. In the interaction model, each additional child a participant has is associated with a 1% increase in time employed. At this time, we do not have an explanation for this finding.

After obtaining the marginal effects we just discussed, we used Tobit decomposition techniques to estimate changes in the probability that participants will spend some time employed based on neighborhood conditions. Tobit decomposition techniques allow us to better understand how changes in the level of race and resources in a community affect the total change in employment broken down into marginal changes in values above zero and the probability of being employed at some point between 1995 and 1999. In our employment sample, 64% of the women spent some time employed between 1995 and 1999. When evaluating the data at this point, 65% of the total change in percent time that participants spent employed is due to the direct impact that changing the independent variables (race, resources, and control variables) in the additive and interaction models has on the positive values for time spent employed. The remaining 35% of the change is due to the impact that changing independent variables have on the probability of whether a participant will work. Therefore, the majority of the total change is due to varying amounts of time employed for values above zero. The remaining 35% of the total change in employment comes from the probability of participants actually spending time employed.

To check the robustness of our employment results, we also estimated one-limit Tobit regression models using average quarterly earnings as the dependent variable and controlling for family and origin neighborhoods characteristics. The average quarterly earning results are consistent with the findings previously discussed. As the level of Black segregation decreases and the amount of resources in a neighborhood increases, the participants make an additional $602 to $728 per quarter (see Appendix C).

5. Conclusion

The goal of this paper was to exploit the unique design of the Gautreaux housing mobility program, which assigned participants to a range of communities, to examine how neighborhood conditions affect the economic independence of low-income Black women. The unique design of the Gautreaux program allows us to

systematically examine the role of racial segregation and racial resources, an analysis that cannot be conducted using MTO data. Our findings have notable validity due to our innovative data and analyses: ''quasi-random'' assignment to neighborhoods, a multidimensional approach to resources and racial segregation, detailed specification of the dependent variables, and the inclusion of ecological risk factors and other measures to diminish omitted variable problems.

Our most interesting finding is that it is the combination of neighborhood racial composition and resources that produces significant effects on the women's welfare receipt and employment, even after controlling for family characteristics and some aspects of unobserved neighborhood preferences. This helps to answer our two main analytical questions concerning the importance of suburban placement versus a more subtle breakdown of community characteristics and the consequences of living in highly segregated Black communities.

It appears to be that city or suburban placement is not as important for employment outcomes as avoiding neighborhoods with a high degree of racial segregation and few resources. City/suburban placement was an insignificant predictor of employment, post Gautreaux placement. However, when participants were placed in communities with high levels of Black segregation and low resources, they spent 6–9% less time employed than did participants placed in almost any other type of community. Furthermore, when comparing the earnings of participants living in ''inner-city'' neighborhoods to women placed elsewhere, the former group almost consistently earned much less on the job. This supports the earlier neighborhood effects research that suggests impacts may not always be linear, and that we should look at possible critical thresholds (Crane, 1991; Ellen and Turner, 1997). Either through job networks, proximity to jobs or other mechanisms, resources in communities outside the inner city are associated with greater economic mobility.

Public assistance receipt is also affected by neighborhood conditions but only at the extremes. If we use women placed in neighborhoods with high levels of Black segregation and low resources as the reference group, it is only the women in predominantly White and high resource areas that spend significantly less time on welfare.

The answer to the second research question about racial segregation and economic mobility seems to be that lower levels of Black concentration, coupled with medium to high resources, offer distinct employment advantages. The AFDC interaction model also suggests that there are advantages associated with areas with low levels of Black residents (and high resources). Qualitative Gautreaux research suggests that these neighborhoods may have greater employment and educational opportunities.[21]

These results appear to represent a critical threshold effect because only after the neighborhood conditions reach the highest level of resources and lowest levels of Black segregation, do we see a decrease in welfare receipt. Due to the small number of Black communities with high resources in our sample, we could not directly test

[21] See Mendenhall (2004, unpublished dissertation) and Rosenbaum et al. (2005) for more information about ecological processes in neighborhoods that affect the life chances of low-income Black women and their families.

Wilson's (1987) point that the presence of Black neighbors with resources provides job networks and other employment assistance to lower-skilled residents.

It appears that the Gautreaux story is more dependent on specific neighborhood conditions than simply city versus suburban placement. Our welfare and employment results are consistent with previous findings that neighborhood conditions, specifically race and resources, are key factors to consider when developing policies to improve the economic outcomes of low-income Black women (Dymski, 1997; Feagin and McKinney, 2003; Gymah-Brempong, 1997; Harris, 1999; Massey and Denton, 1993; Pattillo-McCoy, 1999; Shapiro, 2004). The final section of this paper outlines the policy implications of our findings. Our policy implications focus on vouchers and housing mobility because that is what our conceptual design, regression models, and empirical contributions bring together.

6. Policy implications

When thinking about policies that best serve the housing needs of low-income families of color, a two-pronged paradigm is necessary. Barriers to residential mobility should be dismantled, at the same time that resources already existing in low-income communities are significantly strengthened. We support housing vouchers as economic mobility strategies; however, we are also aware of the concerns associated with this policy. Some scholars argue that mixed-income and dispersal strategies may benefit families in the best circumstances and not work as well for families with significant challenges (Popkin et al., 2000). Other scholars point out that a dearth of information exists about how to create mixed-income communities, citing unanswered questions about costs, benefits, and the preconditions for success (Schwartz and Tajbakhsh, 1997). The final policy challenge associated with large-scale mobility programs includes entrenched racial segregation and (to a lesser degree) income segregation.

According to Hughes (1995), for Blacks to achieve their 27% representation in the Chicago consolidated metropolitan statistical area (CMSA) in the suburbs, their numbers in the suburbs would have to increase fourfold to one million. The 1990 census indicated that the Black suburban population was only 250,000, which meant that 750,000 Blacks would have to relocate from the city. Similarly, 300,000 additional low-income movers would need to relocate to the suburbs to achieve proportional representation. Similar barriers associated with racial segregation and resources are also evident in the January 2003 lawsuit against the Chicago Housing Authority. The lawyers at the Business and Professional People for the Public Interest (BPI) argue that the majority of public housing families using vouchers to relocate to new communities are moving to areas similar to their public housing neighborhoods, i.e., low levels of resources and high levels of Black segregation (Venkatesh et al., 2004).

These critiques and challenges associated with dispersal strategies do not mean that mobility programs are not a viable policy tool to improve the life chances of

low-income families.[22] As a result of pressure from the BPI lawyers, CHA has agreed to decrease the number of families that they move to racially segregated and poor areas. CHA also has taken steps to improve to the counseling services that families receive based on feedback from a report evaluating their programs for movers (Popkin and Cunningham, 2001, 2002). In 2002, CHA contracted with new service providers to ensure that all residents receive the following mobility counseling: information about "opportunity areas" (census tracts with less than 23.49% poverty and 30% Black residents) and taking residents to see at least one apartment in an opportunity area. Lower caseloads for counselors and financial incentives if contract agencies place residents in low-poverty areas are also included to help implement the effective use of these vouchers (Popkin and Cunningham, 2002).

Efforts by CHA to increase the number of families moving to integrated areas with greater resources indicate that voucher programs are a viable housing policy solution to improve the economic independence of families in Chicago. This also appears to be the case on the national level because the voucher program had bipartisan support in Congress and it withstood attempts to massively cut its 2005 budget (Center on Budget and Policy Priorities, 2000; The U.S. House of Representatives Committee on Appropriations, 2004). Although the positive effects of more integrated and higher resource neighborhoods on the Gautreaux volunteers may be limited when generalizing to current public housing residents facing mandatory relocation, issues concerning racial segregation, neighborhood resources, and equal opportunities remain keenly relevant.

Appendix A

Selected suburban neighborhood (tract) characteristics of initial placement compared with the Harris typology

	Initial placement [suburb (1980 census)]		Harris typology (1980 census)		
	AFDC sample	Employment sample	Low	Middle	High
Percent in poverty	5.07	5.14	15.37	7.42	3.63
Percent of adults with college degrees	25.22	24.41	8.73	15.31	33.99
Mean family income[a]	$66,139	$65,005	$42,018	$54,073	$83,775
Female-headed families	11.64	11.46	20.03	13.48	9.17
Percent Black	6.99	6.98			

[a] All numbers are in 1999 dollars based on the Inflation Calculator in U.S. Bureau of Labor Statistics.

[22] A case similar to the Gautreaux program is currently pending in Baltimore city, where the provision of vouchers to be used in "target" areas is being considered as a partial remedy to the historical segregation of Baltimore city public housing residents (Thompson vs. HUD, 2005).

Percentage of selected suburban neighborhood (tract) characteristics of initial Gautreaux placement in the low and high ranges of the Harris typology

	Percent in poverty	Percent of adults with college degrees	Mean family income	Female-headed families
Gautreaux initial placement [suburbs (1980 census)]				
AFDC				
Low suburbs	5.82	15.24	3.60	7.48
High suburbs	51.80	24.38	20.22	39.06
Employment				
Low suburbs	4.98	15.30	3.74	6.41
High suburbs	51.25	21.89	16.90	39.86

Appendix B

OLS regressions of placement neighborhood measures on AFDC receipt and earnings

	Percent time on AFDC			Percent time with earnings		
	"Bivariate" models	Additive model	Interaction model	"Bivariate" models	Additive model	Interaction model
Neighborhood level						
Placement neighborhood measures						
Placed in Chicago	3.05			−1.49		
	(2.78)			(2.28)		
Level of violent crime per 1000	.26**			−.16		
	(.11)			(.10)		
Rate of male unemployment	.29*			−.18		
	(.16)			(.15)		
Percent with 16+ years of education	−.08			−.01		
	(.09)			(.08)		
Mean family income/1000	−.03			−.02		
	(.07)			(.05)		
Percent non-Latino Black						
Low (0–10%) Black	−6.93**	−7.97		6.15**	8.30*	
	(3.39)	(5.56)		(2.86)	(4.34)	
Medium (11–60%) Black	−7.38*	−7.85		7.95**	8.27*	
	(4.24)	(5.42)		(3.61)	(4.30)	
High (61–100%) Black	Omitted	Omitted		Omitted	Omitted	
"Neighborhood resource" index						
Quintile 1 (0–20%)	Omitted	Omitted		Omitted	Omitted	
Quintile 2 (21–40%)	−6.96*	−2.00		5.66	1.09	
	(4.19)	(5.43)		(3.48)	(4.31)	
Quintile 3 (41–60%)	−4.77	1.85		9.10**	2.82	
	(4.33)	(6.20)		(3.82)	(4.83)	
Quintile 4 (61–80%)	−6.22	.60		3.48	−3.25	
	(4.36)	(6.37)		(3.56)	(5.05)	
Quintile 5 (81–100%)	−5.45	1.35		1.29	−5.39	
	(4.19)	(6.47)		(3.64)	(5.11)	

(*continued on next page*)

Appendix B (*continued*)

	Percent time on AFDC			Percent time with earnings		
	"Bivariate" models	Additive model	Interaction model	"Bivariate" models	Additive model	Interaction model
Low (0–10%) Black and medium resource			−7.42			5.97
			(4.77)			(4.06)
Low (0–10%) Black and high resource			−6.90*			6.22**
			(3.55)			(3.05)
Medium (11–60%) Black and medium resource			−6.44			7.02*
			(5.01)			(4.23)
Medium (11–60%) Black and high resource			−7.89			8.92**
			(5.14)			(4.29)
High (61–100%) Black and low resource			Omitted			Omitted
Origin neighborhood measures						
Percent non-Latino Black		−.05	−.49		.03	.03
		(.06)	(.06)		(.05)	(.05)
Mean family income		−.09	−.08		.03	.03
		(.16)	(.16)		(.12)	(.12)
Level of violent crime per 1000		.13	.13		.08	.08
		(.11)	(.11)		(.10)	(.10)
Family level						
Number of children		−.69	−.81		.81	.81
		(1.28)	(1.28)		(1.00)	(1.00)
On AFDC at time of move		26.23***	26.18***		−9.66***	−9.37***
		(3.15)	(3.15)		(2.54)	(2.55)
Youngest child's age in 1990		−1.29***	−1.29***		−.96***	−.93***
		(.42)	(.44)		(.23)	(.23)
In 1990, number of years since moved		−3.15***	−3.16***		−.47	−.45
		(.69)	(.68)		(.49)	(.49)
Public housing before move						
Not living in public housing		Omitted	Omitted		Omitted	Omitted
Living in public housing		−.79	−.83		4.37	4.50
		(3.91)	(3.90)		(3.15)	(3.16)
Not sure if living in public housing		1.46	1.48		5.91	5.48
		(4.87)	(4.86)		(4.27)	(4.28)
R^2		[.19]	[.19]		[.04]	[.04]

AFDC sample size = 793; Employment sample size = 1258.

Note. "Bivariate" models include the above baseline family-level and origin neighborhood controls and the given placement variable. The placement variables in the resource index (crime, income, education, and unemployment) are only in the interaction models once.

Note. All models include robust variance analyses.

* $p < .10$.

** $p < .05$.

*** $p < .01$ (two-tailed).

Appendix C

Tobit regressions of placement neighborhood measures on amount of earnings

	Average quarterly earnings (in 1999 dollars)		
	"Bivariate" models	Additive model	Interaction model
Neighborhood level			
Placement neighborhood measures			
Placed in Chicago	−207.61		
	(177.71)		
Level of violent crime per 1000	9.47		
	(6.52)		
Rate of male unemployment	−19.13*		
	(10.35)		
Percent with 16+ years of education	5.77		
	(5.91)		
Mean family income/1000	2.89		
	(4.11)		
Percent non-Latino Black			
Low (0–10%) Black	540.68**	571.17**	
	(215.59)	(341.71)	
Medium (11–60%) Black	689.63**	670.07**	
	(298.50)	(385.47)	
High (61–100%) Black	Omitted	Omitted	
"Neighborhood resource" index			
Quintile 1 (0–20%)	Omitted	Omitted	
Quintile 2 (21–40%)	457.05	118.50	
	(286.33)	(310.64)	
Quintile 3 (41–60%)	582.23**	118.92	
	(289.03)	(364.25)	
Quintile 4(61–80%)	391.68	−74.03	
	(289.32)	(380.16)	
Quintile 5 (81–100%)	373.18	86.04	
	(268.43)	(374.75)	
Low (0–10%) Black and medium resource			412.55
			(316.38)
Low (0–10%) Black and high resource			601.69**
			(243.41)
Medium (11–60%) Black and medium resource			674.78**
			(392.43)
Medium (11–60%) Black and high resource			728.45**
			(375.97)
High (61–100%) Black and low resource			Omitted
Origin neighborhood measures			
Percent non-Latino Black		.80	1.02
		(4.76)	(4.76)
Mean family income		4.72	4.99
		(10.73)	(10.76)
Level of violent crime per 1000		5.90	5.99
		(6.41)	(6.42)

(*continued on next page*)

Appendix C (*continued*)

	Average quarterly earnings (in 1999 dollars)		
	"Bivariate" models	Additive model	Interaction model
Family level			
Number of children			
On AFDC at time of move		1,070.56***	−1,099.91***
		(238.44)	(237.92)
Youngest child's age in 1990		−83.57***	−80.97***
		(20.18)	(20.48)
In 1990, number of years since moved		43.68	45.45
		(44.56)	(45.08)
Public housing before move			
Not living in public housing		Omitted	Omitted
Living in public housing		72.08	77.49
		(251.79)	(253.59)
Not sure if living in public housing		687.10**	691.90**
		(353.92)	(356.68)

AFDC sample size = 793; Employment sample size = 1258.

Note. "Bivariate" models include the above baseline family-level and origin neighborhood controls and the given placement variable. The placement variables in the resource index (crime, income, education, and unemployment) are only in the interaction models once.

Note. All models include robust variance analyses.

* $p < .10$.

** $p < .05$.

*** $p < .01$ (two-tailed).

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