# The Effect of Housing Choice Voucher Households on Neighborhood Crime: Longitudinal Evidence from Dallas

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Sustainable Housing Research Unit (SHRU) Working Paper 09-01
College of Architecture
Texas A&M University
January 2009

**Acknowledgements**

This research was supported by the Inclusive Communities Project in Dallas, Texas. The views expressed are those of the authors and do not necessarily reflect those of the organizations represented. The authors wish to thank the staff at Daniel & Beshara, P.C., for data preparation, as well as Texas A&M graduate student Susan White for assistance with data assurance and processing.

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## Abstract

Tenant-based housing assistance is designed to provide access for low-income households to a wider range of housing options, de-concentrating poverty and reducing the exposure of these households to negative conditions. Yet an observed coincidence of crime and subsidized households indicates that something is going wrong. Either households are constrained in their choices and are settling in high-crime neighborhoods, or these households bring crime with them, using vouchers to penetrate otherwise low-crime neighborhoods.

We use longitudinal data from Dallas to assess whether changes in the number of HCV households are related to changes in crime, not just whether HCV households are present in high-crime neighborhoods. The evidence supports the hypothesis that observed relationships between crime and HCV households results from a lack of units that accept vouchers in areas that have lower levels of crime. The hypothesis that voucher holders are the cause of increases in neighborhood crime is not supported.



Keywords: Crime, Vouchers, Housing, Mobility


## Preface and introduction

In the summer of 2008, journalist Hannah Rosin published an article in *Atlantic Monthly* that chronicled the coincidence of high crime rates and clusters of Housing Choice Voucher (HCV) recipients in Memphis, Tennessee (Rosin 2008). Using data uncovered by the criminologist-sociologist husband-wife team of Richard Janikowski and Phyllis Betts, Rosin argued that the observed patterns of clustering could only mean that subsidized households included criminals that were penetrating once-safe suburban neighborhoods. She extended her conclusions to the rest of the United States, and condemned a range of federal housing programs, including HCVs, HOPE VI, and the Move to Opportunity (MTO) program, all of which use vouchers to provide mobility to households. Her explicit contention was that our nation's housing policies were failing, putting hard-working (i.e., non-subsidized) families at risk.

The ensuing reaction to the article by housing researchers and advocates was swift[1]. The gist of their reaction was that correlation does not equal causation; in other words, the observed association between crime rates and the presence of subsidized households does not necessarily indicate that subsidized households caused increases in crime, as the article had strongly suggested (Briggs and Drier 2008). They criticized the journalist's methods as unsound social science, finding fault with her failure to establish the basic conditions for causal attribution, which include establishing that the hypothesized cause preceded the observed effect as well as controlling for alternative explanations (Briggs and Drier 2008). Critics also noted that Rosin generalized the implications of her findings to the whole nation, without evidence that similar conditions were found outside of the perhaps atypical Memphis case. Finally, many advocates felt that Rosin had conflated different housing programs in her article, condemning all housing programs rather than seeking potential explanations for the observed relationship that might provide more productive approaches to tweaking the HCV program to improve outcomes for both households and their host neighborhoods (Briggs and Drier 2008)[2].

Although Rosin's article was fairly criticized, her findings are still troubling. The concurrence of crime and subsidized households means something is going wrong. Either subsidized households are constrained in their choices, limiting them to unsafe neighborhoods, or recipients of housing vouchers are not being properly screened or managed. In either case, it would appear that a policy shortcoming of some sort is taking place. Who is being failed and how is still an open question, however, as is the question of whether this is a problem with the program itself or its particular implementation in Memphis.

While we cannot address all of the lingering questions, a unique dataset from Dallas, Texas allows us to add to the evidence and address some of the weaknesses in Rosin's methods. In this study, we use monthly data on area crime counts from the Dallas Police Department and combine it with data from the Dallas Housing Authority on

[1] An article authored by Xavier de Souza Briggs and Peter Dreier titled "Memphis Murder Mystery? No, Just Mistaken Identity" appeared in the September 2008 issue of *Shelterforce* Magazine, and was signed by 28 leading scholars and experts on housing and urban policy.

[2] While HCVs, HOPE VI, and MTO all use vouchers to provide resident mobility, they do so under differing circumstances, with different levels and types of assistance (such as mobility counseling).

the changes in the numbers of HCV households in apartment complexes with high numbers of HCV households during 2002-2006. The longitudinal data permits the assessment of both levels of crime and changes in crime. These analyses are an important improvement over previous research, because they permit the determination of whether changes in the number of HCV households are related to changes in crime, not just whether HCV households are present in high-crime neighborhoods. The evidence supports the hypothesis that observed relationships between crime and HCV households are due to a lack of units that accept vouchers in areas that have lower levels of crime. The hypothesis that voucher holders are the cause of increases in neighborhood crime is not supported by these data.

**Housing choice vouchers and tenant mobility**

The Housing Choice Voucher program, more often called Section 8, offers tenant-based housing assistance to low-income households, supplementing what low-income households can afford to pay for rent on the private housing market. The shift from the project-based assistance to tenant-based vouchers was intended to reduce costs by transferring the production of units to the private sector (HUD 2000). But perhaps more importantly, it was also expected to provide better access for households to a wider range of housing options and neighborhoods (Schwartz 2006; Turner 2003).

Moving out of high-poverty neighborhoods can yield important outcomes for assisted families. Although generally subordinate to personal and family characteristics, high-poverty neighborhoods do have an independent effect on social and economic outcomes of individuals, including impacts on teen sexual activity, criminal behavior, educational attainment and employment (Ellen and Turner 1997; Jencks and Mayer 1990). For families living in poor neighborhoods, these impacts may be particularly salient (Quercia and Galster 1997). Carefully-controlled and monitored programs designed to help assisted households escape concentrated disadvantage, such as Gautreaux in Chicago and the Move To Opportunity (MTO) demonstration program, have produced limited but significant improvements in neighborhood conditions and associated outcomes for these families, especially for those who were able to penetrate suburban areas with better access to jobs, schools, and other services (Mendenhall, et al. 2006; Rosenbaum and DeLuca 2000; Popkin et al. 1993; Rosenbaum 1991; 1995).

The successes of Gautreaux and MTO indicate the potential of more widespread housing mobility strategies. The first Section 8 program served households with incomes up to 80 percent of the area median by offering them rental certificates to cover the difference between 25 percent (later 30 percent) of the adjusted family income and Fair Market Rent (FMR) (Schwartz 2006). In the early 1980s, a freestanding voucher program was introduced that established the use of a payment standard that specified the maximum allowable rent, and also allowed households to spend more or less than 30 percent of their income on rent if they so desired (Schwartz 2006). Presumably, this gave households more flexibility in their choices of available housing. In 1998, the Quality Housing and Work Responsibility Act merged the two programs and renamed them the Housing Choice Voucher program (HCV) (Schwartz 2006). The current HCV program allows housing authorities to set payment standards from 90 to 110 percent of FMR, or even higher in some circumstances (HUD 2000). The program also allows multiple payment standards within the same metropolitan area to account for internal differences within a housing market. The use of vouchers has grown rapidly, while the use of project-based assistance has declined steadily since the early 1990s.

Not all voucher households are able to secure housing through the HCV program, however. To use an HCV, a household must find an apartment that meets three requirements: 1) has a rent that does not exceed the program's maximum allowable; 2) meets the program's standard for physical condition; and 3) has a owner (landlord) that is willing to participate in the program. Although voucher use increased rapidly after the inception of the program, in recent years use has declined from 81 percent in the late 1980s to about 70 percent in 2000 (Finkel and Buron 2001). Shortages of affordable rental housing, tight market conditions, racial and ethnic discrimination, and a lack of landlords willing to accept vouchers have all been offered as explanations for declining success rates (Turner 2003; Finkel and Buron 2001).

Vouchers, when they are used, give households more flexibility in the types and locations of the housing available. Project-based programs have historically done a poor job of providing better living conditions to recipients of public assistance (Newman and Schnare 1997). Newman and Schnare (1997) find that 37 percent of public housing residents live in neighborhoods that have more than 40 percent poverty rate, while

Goering, Kamely, and Richardson (1994) find that most African-American residents of public housing live in neighborhoods that are majority black. Housing produced through the Low-Income Housing Tax Credit (LIHTC) and HOME programs is also more likely to be located in predominantly black neighborhoods or in neighborhoods with below average social conditions (Van Zandt and Mhatre 2008; Oakley 2008; Rohe and Freeman 2001; Buron et al. 2000).

The HCV program, however, allows households to access a wider range of neighborhoods and theoretically facilitates the de-concentration of poverty (Turner 1998). Devine and her colleagues (2003) found that eight out of ten neighborhoods in large metropolitan areas were home to at least a few voucher households, but that only about 28 percent of all voucher holders were located in neighborhoods with less than 10 percent poverty. About 22 percent were living in neighborhoods with poverty levels exceeding 30 percent. More recent research by McClure (2006) suggests that the HCV program is improving its results. McClure (2006) finds that the nearly 70 percent of HCV households are living in moderate poverty (between 10 and 40 percent), while nearly a quarter of all HCV households are living in low poverty tracts. In the suburbs the proportion is even higher, with more than 43 percent of suburban HCV households living in low poverty neighborhoods (McClure 2006).

Although the HCV program enjoys some success at moving assisted households out of high-poverty neighborhoods, Devine et al.'s (2003) findings suggest disparities in outcomes among different racial groups. They find that vouchers are not as effective at promoting mobility among minorities as among whites. Minority voucher holders are over-represented in neighborhoods where vouchers are clustered, and more likely to be living in high-poverty and high-minority neighborhoods (Devine et al. 2003).

The spatial concentration of poverty and disadvantage is often associated with a host of other poor social conditions. Perhaps the most troubling is the incidence of crime in poor, urban neighborhoods. Concentrated disadvantage may produce conditions which facilitate or even encourage criminal activity. Neighborhood conditions may reduce the perceived or actual returns to work or schooling, may provide the needed accomplices, and may limit the social penalties, making criminal activity easier and more attractive in poor neighborhoods (Ludwig, Duncan, and Hirschfield 2001; Sampson, Raudenbush, and

Earls 1997). While it can be difficult to separate individual or family effects from neighborhood effects, evidence suggests at least a correlation between neighborhood characteristics and teen criminal behavior (Jencks and Mayer 1990; Brooks-Gunn, Duncan, and Aber 1997a; Brooks-Gunn, Duncan, and Aber 1997b; Ellen and Turner 1997; Matsueda and Anderson 1998).

For households exposed to these conditions, tenant-based assistance may provide an escape—the ability to live in lower poverty neighborhoods with conditions that discourage rather than encourage criminal behavior. On the other hand, tenant-based assistance may provide a conduit by which teen criminals may access new victims. While program regulations prohibit individuals with criminal records from receiving housing assistance, this doesn't rule out the possibility that members of subsidized households may become involved in criminal activity or continue to be involved in activity that had not yet resulted in an arrest or conviction.

Fairly little academic research addresses this important topic, however. Only a handful of studies examine the relationship between housing assistance and neighborhood crime. Studies of opposition to supportive housing (not housing mobility programs) indicate that receiving neighborhoods cite fear of declining property values and crime as their two main objections to these facilities (National Law Center 1997). Galster and his colleagues (2002) find some validity to these claims—large supportive housing facilities were associated with a moderate upswing in crime reports. However, Galster and colleagues (2002) also conclude that the supportive housing residents were not the cause of the increase but were more likely to be victims of it. Ludwig, Duncan, and Hirschfield (2001) examine outcomes from the MTO program to find that the relocation of families from high- to low-poverty neighborhoods reduces juvenile violent crime by about 30 to 50 percent, but may increase property-crime arrests. In the only study to examine neighborhood responses to voucher recipients from other jurisdictions, Churchill and her colleagues (2001) found that suburban communities resisted these households based on prejudice, fear of racial and economic change, as well as fear of the crime and social service needs they believed would accompany the new residents. The study did not, however, address whether these fears were founded. These studies offer inconclusive findings to the question of whether assisted households actually cause increases in crime

in the neighborhoods around them, but do demonstrate that fears of such increases are likely widespread.

As noted above, the concurrence of crime and subsidized households suggest two alternative hypotheses:

1. HCV households are limited by the availability of housing units which accept vouchers, and are settling in neighborhoods with higher than average crime; or
2. HCV households are the perpetrators or carriers of crime, and are using vouchers to penetrate otherwise low-crime neighborhoods.

Hannah Rosin's controversial *Atlantic Monthly* article (2008) clearly takes the latter position. While the data she uses from Memphis undeniably reveals the co-incidence of subsidized households living in high crime areas, it does not establish a causal relationship between those households and increasing crime. By examining both absolute levels of crime and HCV households as well as changes in these levels over time, the analyses presented here seek to determine whether a causal relationship exists between HCV households and increases in criminal activity in the immediate neighborhood.

## Data and methods

The study uses a unique dataset from Dallas, Texas. We analyze crime counts within a ¼ mile radius of apartment complexes having ten or more HCV households during any month from October 2003 to July 2006. The longitudinal data used here permits the assessment of both levels of crime and changes in crime, allowing us to explicitly test whether changes in the number of HCV households are related to changes in crime, not just whether HCV households are present in high-crime neighborhoods.

*Data*

These data were collected as part of the consent decree in the *Walker* public housing desegregation case (against HUD and the Dallas Housing Authority)[3]. The

[3] *Walker v. HUD* was one of several public housing desegregation lawsuits across the country during the 1980s and 1990s (Popkin et al. 2003). Begun in 1985, *Walker* plaintiffs complained that they were compelled to live in poor housing conditions within high-poverty, racially-isolated

consent decree from the *Walker* case included a provision that the Dallas Police Department would monitor crime within a ¼ mile radius around apartment complexes that housed 10 or more HCV households. These data were intended to be administratively feasible to collect, limiting collection on crime data only to those apartment complexes with 10 or more voucher households. Crime counts were provided to the Dallas Housing Authority and the attorneys representing the plaintiffs in monthly reports from the Dallas Police Department. Although this sample is appropriate for the analyses presented here because it captures data relevant to those areas where HCV households are concentrated within a single apartment complex, the sample does not include all apartment complexes in which HCV households are housed. Further, once apartment complexes dropped below 10 HCV households, crime in the immediate neighborhood was no longer monitored. Apartment complexes remained in the sample, however, and crime rates are calculated only for the period during which more than 10 HCV households were in residence.

The dataset includes 251 apartment complexes located in 109 different census tracts. The majority, 104, of the census tracts examined are located in Dallas County, while four are located in Collin County and one in Denton County (see Figure 1). Measurement is complicated by the spatial dependence of the locations. As can be seen in Figure 1, many of the apartment complexes are clustered together—they are not independent observations. Further, the radii overlap. Because we only have counts of crimes within these radii, and not the coordinates of the crimes themselves, we cannot account for the likelihood (almost certainty) that some of these crimes are double-counted—in other words, the same crime is being reported for more than one apartment complex. However, since we are testing the null hypothesis that there is no relationship between changes in crime and changes in the number of HCV households, the potential for double-counting should make this a more difficult hypothesis to reject and thus a stronger test of the relationship.

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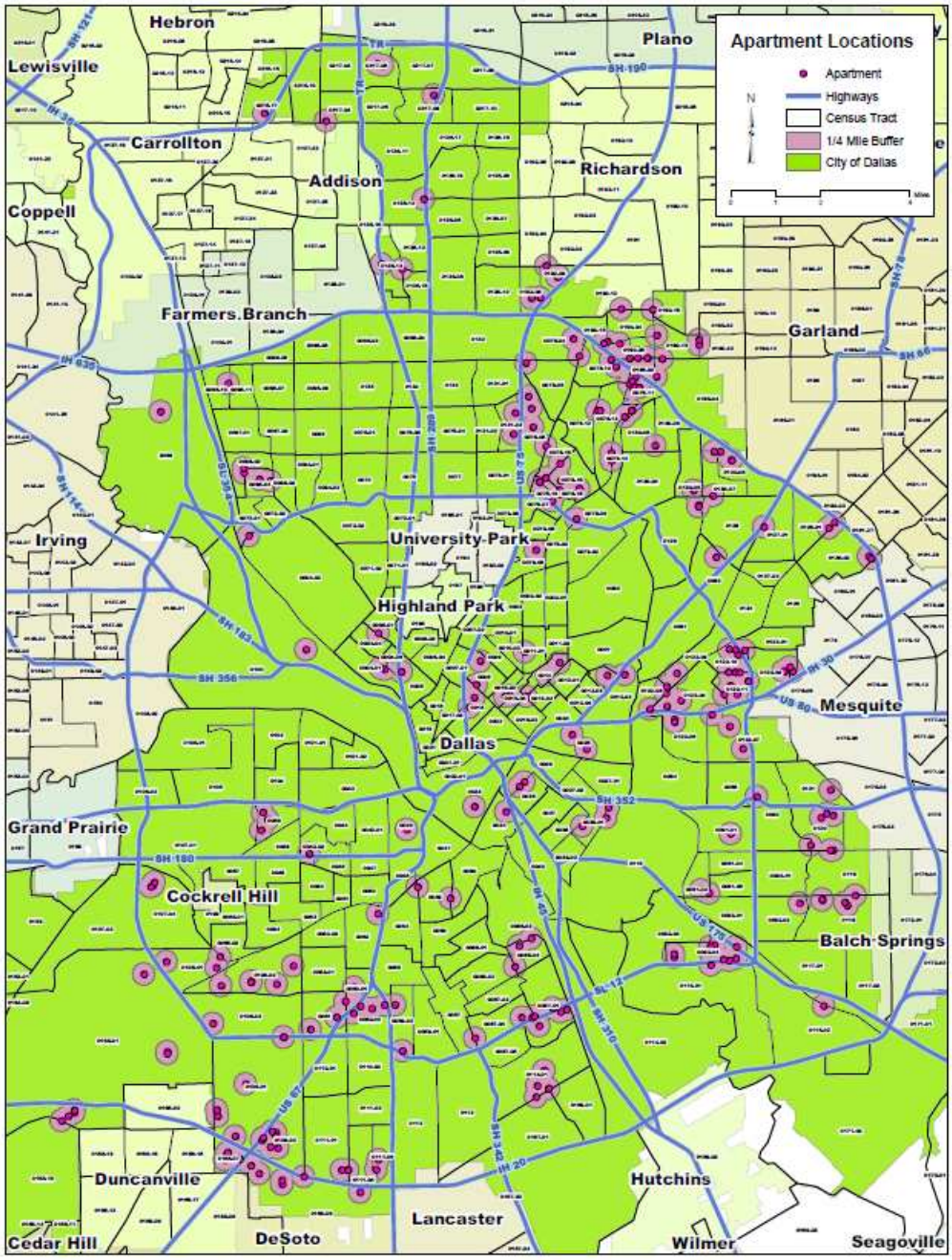
areas of the City of Dallas through public housing siting and housing choice voucher selection and assignment. The court issued a consent decree against the Dallas Housing Authority and HUD in 1987 and against the City of Dallas in 1990. The requirement for collection of crime data was imposed in the final judgment against the City of Dallas in August, 2003.

**Figure 1. Location of Apartment Complexes in the City of Dallas.**



In addition to the dependent variables (crime), and the independent variables (HCV households), neighborhood data were drawn from the 2000 U.S. Census, at the tract-level. These data help us to control for alternative explanations for levels of crime. They are cross-sectional, however, and do not capture changing neighborhood conditions. Table 1 identifies the different dependent and independent variables collected and how they were measured.

**Table 1. Dependent and independent variables used in analyses.**

| **Variable Name** | **Measurement** |
|---|---|
| *Dependent Variables* | |
| Average crime rate (overall level of crime) | Number of crimes reported in ¼ mile radius of apartment complex averaged over the study period, divided by 1000s of tract population |
| Change in crime rate | Slope (fitted line) of crime rates over study period |
| *Independent Variables* | |
| HCV Density (Complex) | Complex HCV households as percent of number of tract housing units (HCV household number averaged over study period) |
| Change in HCV households | Change in HCV households in complex during study period |

*Analyses*

Several analyses are presented here. First, descriptive data are presented to cross-tabulate and assess the numbers of apartment complexes that were experiencing increases or decreases in crime during the study period with increases or decreases in the numbers of HCV households. Second, simple correlations are presented showing the association between HCV households and both the levels of the crime rates as well as the direction and magnitude of their change. Correlations between absolute levels of HCV households and crime test whether apartment complexes with more than ten HCV households are also areas with high levels of crime. Correlations between changes in the number of HCV households and changes in crime levels tests whether increases or decreases in the number of HCV households are associated with changes in crime. While a simple test, this correlation tests whether influxes of HCV residents are associated with increases in criminal activity in the immediate neighborhood. While not definitive (we have no

information on the perpetrators of the crimes), this test offers strong evidence as to whether the presence of HCV residents cause crime spikes.

Spatial autocorrelations are also calculated to account for the spatial dependence of the locations. Spatial dependence in this case exists when neighborhood characteristics associated with HCV apartment complexes like average crime rate or slope of crime rate are spatially associated with similar values in neighboring HCV apartment complexes located elsewhere. Spatial clustering of sample data points violates the basic assumption of independence of errors for ordinary least squares (OLS) regression and renders our estimated parameters biased and inefficient.

Cartographic coordinates for each apartment complex were derived using its street address. Spatial analysis including spatial regression was conducted using GIS mapping and GeoDa software (Anselin 2003). First, we test for spatial dependence using Moran's I test to account for the extent of spatial autocorrelation. Second, we use cluster analysis tested with Local Indicators of Spatial Autocorrelation (LISA) to enable us to inspect spatial clustering on crime variables associated with apartment complexes with HCV units and test for corresponding significance[4]. Finally, we obtain OLS estimates and test for the presence of significant spatial autocorrelation by using diagnostic tests for spatial dependence such as Lagrange Multiplier (LM) test. Depending on the results, we use appropriate (lag or error) spatial regression methods to account for such influences. Spatial clustering of the average crime rate is modeled using the spatial lag model which is expressed as:

$$y = \rho Wy + \beta X + \varepsilon$$

[4] Since the apartment complexes are represented by point sample data, we convert them to Thiessen (Voronoi) polygons for our analysis. Thiessen polygons are defined around each point to represent the area that is closest to each point relative to other points by using an algorithm that minimizes distances between apartment complexes in order to create contiguous spatial weights for the polygons representing each apartment complex with HCV units (Anselin 1995). These polygons enable us to use the contiguity spatial weights matrix for our spatial analysis. Specifically, we use a queen weights matrix that defines a location's neighbors as those with either a shared border or vertex; thus each location is controlled by the influences of its immediate neighbors. Thiessen polygons as opposed to sample points allow us to model for influences that extend into surrounding neighborhoods; substantively speaking each apartment complex influences outcomes in the neighboring apartment complex.

where *y* is 1 x *n* vector of observations of the average crime rate, β is a *k* x 1 vector of parameters associated with independent variables *X*, which is a *n* x *k* matrix, ε is the vector of random error terms, ρ is the spatial autoregressive coefficient reflecting the strength of the spatial dependence, and *W* is the *n* x *n* spatial weights matrix (Anselin 1988); here *n* (number of sample points) = 251 and *k* (number of independent variables) = 8. These regression models (OLS or spatial lag model, where appropriate) help to control for alternative explanations for changes in crime rates by including neighborhood variables.

## Findings

*Crime rates in neighborhoods surrounding HCV apartment complexes*

Table 2 shows the incidence of crime in apartment complexes having ten or more HCV units during the study period. Overall, crime increased considerably during the study period — 37 percent — in the neighborhoods in which HCV households were located, while in the City as a whole, crime was down slightly — nearly 2 percent. While alarming, this increase in crime does not initially appear to be associated with growing numbers of HCV households, however. In fact, the number of HCV households in these apartment complexes was declining, regardless of crime rates.

**Table 2. Crime rate trend line summary for 251 apartment complexes analyzed.**

| Direction and size of change in crime rate trend line | Number of Apt. Complexes in decile | Average slope of crime rates | Average Change in Number of S8 in Apt. Complexes |
|---|---|---|---|
| -7.3355 to -.2432 | 26 | -1.34 | -3.92 |
| -.0334 to -.2352 | 25 | -0.12 | -3.92 |
| -.0325 to .07897 | 25 | 0.03 | -9.44 |
| .08213 to .14215 | 25 | 0.11 | -7.88 |
| .1422 to .212 | 25 | 0.18 | -10.00 |
| .21733 to .32535 | 26 | 0.27 | -11.77 |
| .32839 to .45191 | 23 | 0.39 | -13.04 |
| .45379 to .66228 | 26 | 0.54 | -7.96 |
| .66775 to 1.20006 | 25 | 0.90 | -2.72 |
| 1.20192 to 14.2774 | 25 | 2.83 | -2.76 |
| **All** | **251** | **0.37** | **-7.30** |
| **City of Dallas** | | **-0.02** | |

Table 3 summarizes the findings of the relation of the crime rate to the number of HCV households in apartment complexes over the time period, showing a cross-tabulation of the numbers of apartment complexes experiencing changes in the numbers of HCV households, as well as changes in crime rates. The results show no association between the two. In fact, a decline in HCV population was significant for many projects in the neighborhoods with increasing crime rates, with 137 apartment complexes having a decrease in HCV units but an increase in crime. Only 36 apartment complexes of the 251 studied had an increase in crime rate and an increase in HCV units, and 10 apartment complexes with a decreasing crime rate had an increase in HCV units. Of the apartment complexes that retained the same number of HCV units, 22 had an increase in crime and 8 had a decrease in crime.

**Table 3. Status of HCV Units in 251 apartment complexes analyzed.**

| Description | Increase in HCV units | Decrease in HCV units | Same Number of HCV units |
|---|---|---|---|
| Number of Apartment Complexes Increasing Crime Rates | 36 | 137 | 22 |
| Number of Apartment Complexes with Decreasing Crime Rates | 10 | 37 | 9 |

Although a decrease in HCV households for 56 complexes occurred during this time period, this change does not reflect a decrease in the total number of HCVs for the City of Dallas. As shown in Table 4, there was an overall increase of households receiving HCVs for the period analyzed. This indicates that more HCV recipients were moving to areas with fewer than 10 other HCV households.

**Table 4. Overall change for HCV Vouchers.**

| Description | First Count (10/09/02) | Last Count (10/10/06) | Change |
|---|---|---|---|
| Total Number of HCV Units for Apartment Complexes with 10 or more HCV Units | 7,668 | 5,830 | -1,838 |
| Total Number of HCV Units for City of Dallas | 14,596 | 15,704 | 1,108 |

*Relationship between crime and HCV households*

To determine if a significant association between crime and HCV households exists in the City of Dallas, correlations between both the level (magnitude) and changes in crime were calculated. These are shown in Table 5. A small but significant correlation exists ($r=.151$, $p<0.05$) between the average crime rate within a ¼ mile radius of the apartment complex and the proportion of apartment complex HCV households in the tract. This suggests that apartment complexes with higher proportions of HCV households were associated with higher neighborhood crime rates during the study period (2002-2006). However, the *change* in crime rates is not significantly correlated ($r=.015$) with *changes* in the number of HCV households in the apartment complex. This indicates that increases in the numbers of HCV households were not associated with increases in crime rates in those neighborhoods, nor were decreases in HCV households associated with decreases in crime rates. Rather than being the cause of the higher crime rates, these results indicate that it is more likely that HCV households were moving into apartment complexes that were already otherwise experiencing higher levels of criminal activity.

**Table 5. Correlations of the magnitude and relative changes among crime and HCV households.**

| | Crime Rate | Slope of Crime Rate |
|---|---|---|
| **HCV Density in Tract (# of Complex HCV units/Tract housing units)** | 0.151* | 0.094 |
| **Change in HCV units in complex** | 0.068 | 0.015 |

* Correlation significant at 0.05 level

*Spatial clustering*

The Global Moran's I as shown in Table 6 indicates significant clustering of HCV apartment complexes based on average crime rate (Moran's I value of 0.35, significant at 0.01 level) but the same apartment complexes are perceived as randomly distributed when measured based on slope of crime rate (Moran's I value of 0.02, highly insignificant). This suggests that, in Dallas, there are a number of areas of high crime that are associated with clusters of HCV residents, but again, the *changes* in crime rates are not associated with clusters of HCV residents.

**Table 6: Global Moran's I Summary**

| | Average Crime Rate | Slope of Crime Rate |
|---|---|---|
| Moran's Index | 0.350 | 0.023 |
| Variance | 0.002 | 0.002 |
| Z-score | 8.439 | 0.684 |
| P-value | 0.000 | 0.494 |

The diagnostics for spatial dependence using OLS regression methods using maximum likelihood estimation in conjunction with the contiguity spatial weights matrix are shown in Table 7. As seen earlier, the Moran's I value is highly significant for crime levels but not for changes in crime rates. Similarly, the Lagrange Multiplier test statistics are highly significant for crime levels but not for changes in crime rate. Thus, based on the results of Moran's I and Lagrange Multiplier tests, overall crime rates display a higher propensity for spatial dependence than changes occurring in crime rates during the study period. Because average crime rates—indicating the overall level of crime—is spatially-dependent, it would be inappropriate to use OLS regression to model it. Instead, we use the spatial lag model to model spatial regression (Anselin 1995). However, changes in crime rates are not spatially-dependent; thus we use the linear regression estimates in the next section.

**Table 7: Diagnostic Tests for Spatial Dependence**

| | Average Crime Rate | | Slope of Crime Rate | |
|---|---|---|---|---|
| Test | Value | Prob. | Value | Prob. |
| Moran's I (error) | 5.65 | 0.000 | 0.122 | 0.903 |
| Lagrange Multiplier (lag) | 30.56 | 0.000 | 0.121 | 0.728 |
| Robust LM (lag) | 5.20 | 0.023 | 0.676 | 0.411 |
| Lagrange Multiplier (error) | 26.03 | 0.000 | 0.061 | 0.805 |
| Robust LM (error) | 0.67 | 0.415 | 0.616 | 0.433 |

*Neighborhood characteristics*

To help account for alternative explanations for levels and changes in criminal activity, the relevance of neighborhood characteristics is next assessed. As seen in Table 8, compared to the City of Dallas as a whole, the residents of neighborhoods with apartment complexes with critical masses of HCV households have lower education

levels, higher percentages of minorities, higher unemployment, a poverty rates, and much lower homeownership rates. These data indicate that the neighborhoods which house apartment complexes with high numbers of HCV households are experiencing poorer social and economic conditions than the average Dallas neighborhood.

**Table 8. Comparison of neighborhood characteristics for 251 apartment complexes versus City of Dallas.**

| Neighborhood Characteristics | Average for Neighborhoods with 251 Complexes | Average for City of Dallas |
|---|---|---|
| Median family income in 1999 | $34,638 | $37,628 |
| % White | 22% | 35% |
| % African-American | 45% | 26% |
| % Hispanic | 28% | 36% |
| % Other | 5% | 3% |
| % No High School Diploma | 31% | 30% |
| % High School Diploma | 25% | 20% |
| % Associates Degree or some College | 26% | 23% |
| % Bachelors Degree | 13% | 18% |
| % Masters or Greater | 6% | 10% |
| % Below Poverty Line | 23% | 18% |
| % Unemployed | 9% | 7% |
| % Owner | 33% | 43% |

Source: American Factfinder, 2000. U.S. Census. Tract-level data from Summary Tape File (STF) 3.

To assess the salience of these neighborhood characteristics to both the magnitude and change in crime, both independent (HCV) variables and neighborhood characteristics were regressed on the dependent (crime) variables using OLS or spatial lag models. Because average crime rate, representing the overall level of crime, has been diagnosed as being spatially dependent, it is appropriate to model it using a spatial lag model. For comparison, both OLS and spatial lag models are shown for average crime rate; but for the change in crime, we show only the OLS model, since the change in crime rate demonstrated no spatial dependence.

Table 9 shows the coefficients, t values and significances of each variable's influence on both dependent variables. Looking first at the significant variables (those with significance values lower than 0.05), and then at the relative magnitude of their coefficients (the coefficient with the largest absolute value is the most important predictor), we see that the density of HCV households is positively associated with higher

crime rates in the neighborhood, but that the change in HCV households is not a significant predictor of crime levels. The density of HCV households is the most salient predictor of high crime rates. The absolute number of HCV households, however, is significantly negatively associated with crime levels.

In the spatial lag model, the spatial autoregressive coefficient, ρ, or the coefficient of the spatially lagged dependent variable indicates the rate at which one apartment complexes' average crime rate contributes to that of its neighbors. The autoregressive coefficient (ρ) is 0.43 and is highly significant, justifying the use of a spatial regression model without which parameter estimates would suffer from bias. The highly significant statistic of 26.14 for the likelihood ratio test further reinforces this finding. The log-likelihood statistic and R-square for the spatial model is also an improvement over the linear model. The spatial model eliminates (barely) the statistical significance (at 0.05 level) for female-headed households and rate of ownership but other variables like percent black, average HCV, and change in HCV households are still significant. The magnitude of the coefficients is more or less similar to the linear model.

In both models, the contrast between density measures and absolute numbers of HCV residents is a curious finding. It suggests that while higher *numbers* of HCV households within an apartment complex are associated with lower neighborhood crime levels, that greater *densities* are associated with higher levels, even when accounting for spatial dependence. Given that many of the ¼ mile radius areas overlap (see Figure 1), these areas of concentrated areas of apartment complexes with relatively small numbers of HCV households may be adding up to produce larger concentrations of subsidized households within a few given areas, and that these areas are associated with higher crime levels[5].

Other neighborhood characteristics are also important predictors of area crime levels. In fact, the percentage of female-headed households with children is the second

[5] The LISA maps for Moran's typology offer support for this interpretation (figures available upon request). Each polygon associated with an HCV apartment complex is classified into one of four categories based on whether its average crime rate is above or below the mean of the corresponding characteristics and if the weighted average of the neighboring apartment complexes is above or below the mean. Central Dallas has significant clusters of 'high-high' complexes and significant clusters of 'low-low' complexes in the North, East, and Southwest parts of Dallas. The maps suggest that Central Dallas has several apartment complexes that are clustered together and are associated with particularly high levels of crime.

most important predictor of crime rates, but the direction of the effect is opposite from what we might expect. High proportions of female-headed households are negatively associated with high crime rates, and are the most important predictor. Taken together with the previous finding that the number of HCV households within a particular complex is also negatively related to crime levels, these findings suggest that the presence of HCV households (most of which are female-headed with children) may actually be associated with relatively lower crime levels (within areas that are already well-above city averages). Where these households are concentrated in areas that have a high density of subsidized households coupled with high minority (particularly African-American) and poor populations, however, crime rates are higher. This supports the hypothesis that HCV households are locating in existing areas of crime, rather than causing it. In these cases, rather than facilitating mobility for low-income households, the restricted availability of qualifying units is serving to re-concentrate low-income households in areas that offer little in the way of improved conditions or opportunities.

The model regressing independent variables and neighborhood characteristics on the change in crime reveals further, although weak, support for this position. Neither the HCV variables nor the neighborhood characteristics are salient predictors of changes in crime rates during the study period. Further, the model has very low explanatory power (R-squared of 0.03). This model suggests that outside forces (possibly deteriorating economic conditions or poor law enforcement) are more likely explanations for changes in crime in these areas during the study period.

Because we are unable to measure changing neighborhood conditions, it is difficult to rule out the possibility that neighborhood changes may be responsible for changes in crime levels. On average, the neighborhoods in the sample had poorer social and economic conditions than the average Dallas neighborhood. It is possible if not likely that the neighborhoods that were on a downward trajectory were also experiencing increases in crime independent of changes in the number or density of assisted households.

**Table 9. Regression models predicting levels of crime and changes in crime.**

| | Average Crime Rate (Level) OLS Model | | | Average Crime Rate (Level) Spatial Lag Model | | | Slope of Crime Rate (Change) OLS Model | | |
|---|---|---|---|---|---|---|---|---|---|
| | Standardized Coefficients | t | Sig. | | | | Standardized Coefficients | t | Sig. |
| (Constant) | | 2.610 | .010 | | .00019 | .997 | | 2.085 | .038 |
| W_Average Crime Rate (ρ) | - | - | - | | .436 | .000 | - | - | - |
| **Housing Choice Voucher Households** | | | | | | | | | |
| Average Number of HCV households in Complex | -.322 | -2.792 | .006 | -0.346 | -2.792 | .001 | -.058 | -.474 | .636 |
| Complex HCV households as percent of number of tract housing units | .366 | 3.240 | .001 | 0.369 | 3.240 | .000 | .129 | 1.072 | .285 |
| Change in HCV households in Complex | -.024 | -.338 | .736 | -0.032 | -.338 | .612 | .020 | .269 | .788 |
| **Neighborhood Characteristics (Tract)** | | | | | | | | | |
| Percent Black | .323 | 3.073 | .002 | 0.295 | 3.073 | .025 | .031 | .277 | .782 |
| Percent Female-headed households with kids | -.361 | -3.393 | .001 | -0.260 | -3.393 | .065 | -.094 | -.823 | .411 |
| Percent living below poverty line | .102 | 1.004 | .317 | 0.074 | 1.004 | .421 | -.098 | -.901 | .369 |
| Homeownership Rate | -.213 | -2.753 | .006 | -0.130 | -2.753 | .052 | .007 | .083 | .934 |
| Family Income | .017 | .162 | .871 | 0.034 | .162 | .708 | -.203 | -1.864 | .064 |
| R-Squared | 0.152 | | | 0.238 | | | 0.030 | | |
| Likelihood Ratio Test | - | | | 26.142 | | .000 | - | | |

## Discussion

In Dallas, like many other large cities across the nation, subsidized households are more likely to live in distressed neighborhoods. Housing Choice Vouchers are intended to provide subsidized households with the mobility required to escape concentrated poverty. Data on voucher utilization from Finkel and Buron (2001) indicates that Dallas Housing Authority clients have a 66 percent success rate for securing rental housing with vouchers. While this is just below average nationwide, it suggests that households both in Dallas and likely elsewhere are constrained in their housing choices by a lack of landlords willing to accept vouchers, as well as an uneven distribution of affordable units across metropolitan areas.

As a result of constrained housing opportunities, voucher holders tend to re-concentrate in those areas that will accept them. In Dallas, apartment complexes with higher proportions of HCV households were found to have a mild association with higher neighborhood crime rates during the study period (2002-2006). However, the change in crime rates over the study period is not related to changes in the number of HCV households within the apartment complex. Rather than being the cause of the increasing crime rates, these results indicate that it is more likely that HCV households are moving into apartment complexes that are already otherwise experiencing higher levels of criminal activity. Regression models that control for neighborhood characteristics further suggest—albeit somewhat inconclusively—that it is not the HCV households themselves that are causing high crime levels, but rather a re-concentration of poverty and disadvantage. Taken together, the hypothesis that voucher holders are the cause of increases in neighborhood crime is not supported by these data. Rather, these findings support the hypothesis that observed relationships between crime and HCV households are due to a lack of units that accept vouchers in areas that have lower levels of crime.

While these results contradict the conclusions Hannah Rosin drew in her 2008 *Atlantic Monthly* article, they are consistent with her findings. Although perhaps not to the same degree as in the Memphis case, clusters of HCV households in Dallas are associated with higher crime rates. They are not, however, the cause of spikes in crime. Although Rosin's (2008) contention that HCV households are causing increases in crime

is not supported by the Dallas case, we are still left with the finding that HCV households are not realizing the full potential of housing mobility. HCV recipients are clustered in neighborhoods with higher-than-average crime. Culprits include a short supply of affordable rental housing and a lack of landlords willing to accept vouchers. Also important, and often overlooked, is the spatial distribution of the housing supply. A greater number of units and additional landlords will only be helpful if they avoid concentration in areas with poor social and economic conditions.

Land use practices may limit the construction of a variety of housing options by increasing the costs of construction, making housing unaffordable for lower-income population groups. Zoning regulations sometimes fail to provide adequate area for rental housing options or provide it in inappropriate or less-desirable locations (Pendall 2000). Uneven regional development patterns concentrate affordable rental in central cities while limiting or even eliminating affordable rental in suburban communities (Pendall, et al. 2006). The tight market conditions of the 1990s and early 2000s squeezed supplies even further, and despite HUD's increase of allowable subsidy levels, many local housing authorities continued to face high turn-back rates for voucher recipients (Turner 2003).

Even in areas with reasonable supplies of rental units, availability is constrained by a lack of participation by landlords. In healthy rental markets, there is little incentive for landlords to accept vouchers because they can lease the units on their own. Many landlords don't want voucher holders because they believe they will be bad tenants or they fear that they won't be able to evict them if they are. Others have a negative perception of their local housing authority or simply don't want the bureaucratic hassle of dealing with the government (Turner 2003; Turner, Popkin, and Cunningham 2000).

*Both the magnitude and distribution of rental opportunities need improvement*

The lack of unit availability is a problem of supply, acceptance, and distribution. So, overcoming the difficulty in securing rental opportunities in lower-crime, higher-opportunity areas requires coordinated efforts. Complementary supply-side and demand-side housing programs should in theory broaden housing opportunities; first, by increasing the supply of affordable units (supply-side programs like LIHTC), and second, by giving households more freedom of choice in where they rent (HCV). Yet problems

faced by one program may compound those faced by the other. For example, if LIHTC units are being placed in low-opportunity areas (as about half of Dallas-area LIHTC units are), these exacerbate the uneven distribution of units available to HCV households. To combat these tendencies, several efforts are needed[6]:

*Improved efforts to provide mobility assistance and counseling can help HCV recipients achieve better outcomes.* Counseling can greatly improve locational outcomes for HCV recipients by educating them about the options available and how to negotiate with landlords. Evidence suggests that recipients who receive counseling are more likely to move to low-poverty and racially-mixed neighborhoods, which are also likely to be lower in crime (Goering, Tebbins, and Siewert 1995; HUD 1996, 1999; Turner and Williams 1998; Finkel and Buron 2001).

*Aggressive landlord outreach, service, and incentives are needed to increase the number and range of landlords that accept vouchers*. To increase the options available to HCV recipients, a greater selection of landlords is needed. Housing agencies need to address the obstacles to landlord participation. They should actively recruit new landlords, listen and respond to landlord concerns, and work to streamline the red tape associated with program participation. In some cases, additional financial incentives for landlord participation may be appropriate.

*Regional collaboration and/or regional administration of the voucher program may increase the options available to voucher recipients*. In large metropolitan areas, administrative barriers to portability can make it difficult for HCV recipients to cross municipal jurisdictions within the same metropolitan region. The Dallas Metroplex, for example, includes more than 130 municipalities, nine of which have populations greater than 100,000. The City of Dallas itself, like many central cities, is mostly built-out. New growth occurs mostly in the suburbs, which also contain the best schools, health care, and other opportunities (Van Zandt and Mhatre 2008). A lack of coordination between jurisdictions can make it difficult for recipients to access these areas. In the few areas

[6] Many of the recommendations made here are adapted from the testimony before Congress in June 2003 of the Urban Institute's Margery Austin Turner. She offered several still-relevant recommendations for strengthening the Housing Choice Voucher program that we build upon here.

that have experimented with regional coordination, outcomes for voucher recipients have been improved (Feins, et al. 1997; Katz and Turner 2001).

Together, these efforts should help housing agencies to offer more and better options for HCV households, giving them improved access to mixed-income, low-poverty neighborhoods. Efforts should be explicitly coordinated to achieve mixed income arrangements for subsidized households and housing units. The de-concentration of poverty implies some mixing of incomes, and program regulations do avoid placing voucher households in high-poverty neighborhoods. But little explicit attention is given to targeting rental options in low-poverty, high-opportunity, typically suburban neighborhoods. Both regional coordination and landlord outreach may be specifically targeted to achieve this outcome. In Dallas, for example, the *Walker* case and its settlement have given fair housing groups both grounds and resources for aggressively seeking to create new opportunities for voucher recipients in suburban communities outside the City of Dallas through the construction of replacement housing for demolished public housing units and efforts—including litigation—aimed at increasing the supply of affordable rental housing in communities that resist it. In the absence of assertive advocacy and vigilant monitoring of outcomes, it is not unlikely that the housing options of voucher recipients will continue to be constrained, exposing these households to poor or deteriorating economic and social conditions, including high levels of crime like those seen in the Memphis case.

## References

Anselin, Luc. 1988. *Spatial Econometrics: Methods and Models*. New York: Springer.

Anselin, Luc. 1995. Local Indicators of Spatial Association – LISA. *Geographical Analysis* 27: 93-115.

Anselin, Luc. 2003. *GeoDa 0.9 User's Guide*, Spatial Analysis Laboratory, University of Illinois, Urbana-Champaign, IL.

Brooks-Gunn, Jeanne, Greg J. Duncan, and J. Lawrence Aber. 1997a. *Neighborhood Poverty, Volume I: Context and Consequences for Children.* New York, NY: Russell Sage.

Brooks-Gunn, Jeanne, Greg J. Duncan, and J. Lawrence Aber. 1997b. *Neighborhood Poverty, Volume II: Policy Implications in Studying Neighborhoods.* New York, NY: Russell Sage.

Buron, Larry, Sandra Nolden, Kathleen Heintz and Julie Stewart. 2000. *Assessment of Economic and Social Conditions of LIHTC Residents and Neighborhoods*. Cambridge, MA: Abt Associates.

Churchill, Sarah, Mary Joel Holin, Jill Khadduri, and Jennifer Turnham. 2001. *Strategies that Enhance Community Relations in the Tenant-Based Housing Choice Voucher Program, Final Report*. Washington, DC: U.S. Department of Housing and Urban Development.

Devine, Deborah J., Robert W. Gray, Lester Rubin, and Lydia B. Taghavi. 2003. *Housing Choice Voucher Location Patterns: Implications for Participant and Neighborhood Welfare*. Washington, DC: U.S. Department of Housing and Urban Development.

Ellen, Ingrid Gould, and Margery Austin Turner. 1997. Does Neighborhood Matter? Assessing Recent Evidence. *Housing Policy Debate* 8(4): 833–66.

Feins, Judith D., W. Eugene Rizor, Paul Elwood, and Linda Noel. 1997. *State and Metropolitan Administration of Section 8: Current Models and Potential Resources.* Washington, DC: U.S. Department of Housing and Urban Development.

Finkel, Meryl and Larry Buron. 2001. *Study on Section 8 Voucher Success Rates Volume I. Quantitative Study of Success Rates in Metropolitan Areas*. Cambridge, MA: Abt Associates.

Galster, George, Kathryn Pettit, Anna Santiago, and Peter Tatian. 2002. The Impact of Supportive Housing on Neighborhood Crime Rates. *Journal of Urban Affairs* 24(3): 289-315.

Goering, John, Ali Kamely, and Todd Richardson. 1994. *The Location and Racial Composition of Public Housing in the United States.* Washington, DC: U.S. Department of Housing and Urban Development.

Goering, John, Helene Tebbins, and Michael Siewert. 1995. *Promoting Housing Choice in HUD's Rental Assistance Programs.* Washington, DC: U.S. Department of Housing and Urban Development.

HUD. 1996. *Expanding Housing Choices for HUD-Assisted Families: First Biennial Report to Congress*. Washington, DC: U.S. Department of Housing and Urban Development.

HUD. 1999. *Waiting in Vain: An Update on American's Housing Crisis*. Washington, DC: U.S. Department of Housing and Urban Development.

HUD. 2000. *Section 8 Tenant-Based Housing Assistance: A Look Back After 30 Years*. Washington, DC: U.S. Department of Housing and Urban Development.

Ihlanfeldt, Keith R. 2004. Exclusionary land-use regulations within suburban communities: a review of the evidence and policy prescriptions. *Urban Studies,* 41(2): 261 - 283

Jencks, Christopher, and Susan E. Mayer. 1990. The Social Consequences of Growing up in a Poor Neighborhood. In *Inner-City Poverty in the United States,* Laurence Lynn and Michael McGeary, (eds.) Washington, DC: National Academy of Sciences.

Katz, Bruce J. and Margery Austin Turner. 2001. Who Should Run the Housing Voucher Program? A Reform Proposal. *Housing Policy Debate* 12(2): 239-262.

Ludwig, Jens; Greg J. Duncan; and Paul Hirschfield. 2001. Urban Poverty and Juvenile Crime: Evidence from a Randomized Housing-Mobility Experiment. *The Quarterly Journal of Economics* 116(2): 655-681.

Matsueda, Ross L., and Kathleen Anderson. 1998. The Dynamics of Delinquent Peers and Delinquent Behavior," *Criminology,* XXXVI (1998): 269-308.

McClure, Kirk, 2006, The Low-Income Housing Tax Credit Program Goes Mainstream and Moves to the Suburbs. *Housing Policy Debate* 17(3): 419-446.

Mendenhall, Ruby, Stephanie DeLuca, and Greg Duncan. 2006. Neighborhood Resources, Racial Segregation, and Economic Mobility: Results from the Gautreaux Program. *Social Science Research* 35(4): 892-923.

National Law Center on Homelessness and Poverty. 1997. *Access delayed, access denied*. Washington, DC: Author.

Nelson, Katherine P. 1994. Whose Shortage of Affordable Housing? *Housing Policy Debate,* 5(4): 401-442.

Nelson, Arthur C., Casey J. Dawkins and Thomas W. Sanchez. 2004. Urban containment and residential segregation: a preliminary investigation. *Urban Studies* 41(2): 423-439.

Newman, Sandra J., and Ann B. Schnare. 1997. "…And a Suitable Living Environment": The Failure of Housing Programs to Deliver on Neighborhood Quality. *Housing Policy Debate,* 8(4): 703-741.

Oakley, Deidre. 2008. Locational Patterns of Low-Income Housing Tax Credit Developments: A Sociospatial Analysis of Four Metropolitan Areas. *Urban Affairs Review,* 43(5): 599-628.

Pendall, Rolf. 2000. Local Land Use Regulation and the Chain of Exclusion. *Journal of the American Planning Association,* 66(2): 125-143.

Popkin, Susan J., James E. Rosenbaum, and Patricia M. Meaden, 1993. Labor market experiences of low-income Black women in middle-class suburbs: evidence from a survey of Gautreaux program participants. *Journal of Policy Analysis and Management* 12(3): 556–573.

Popkin, Susan, George C. Galster, Kenneth Temkin, Carla Herbig, Diane K. Levy, and Elise K. Richter. 2003. Obstacles to Desegregating Public Housing: Lessons Learned from Implementing Eight Consent Decrees. *Journal of Policy Analysis and Management* 22(2): 179-199.

Quercia, Roberto G., and George C. Galster. 1997. Threshold Effects and the Expected Benefits of Attracting Middle-Income Households to the Central City. *Housing Policy Debate* 8(2):409–35.

Rohe, William M. and Lance Freeman. 2001. Assisted Housing and Residential Segregation: The Role of Race and Ethnicity in the Siting of Assisted Housing Developments. *Journal of the American Planning Association,* 67(3): 279-292.

Rosenbaum, James E. 1991. Black Pioneers—Do Their Moves to the Suburbs Increase Economic Opportunity for Mothers and Children? *Housing Policy Debate* 2(4):1179–1213.

Rosenbaum, James E. 1995. Changing the Geography of Opportunity by Expanding Residential Choice: Lessons from the Gautreaux Program. *Housing Policy Debate* 6(1): 231–69.

Rosenbaum, James E., and Stephanie DeLuca. 2000. Is Housing Mobility the Key to Welfare Reform? Lessons from Chicago's Gautreaux Program. Brookings Institution Center on Urban and Metropolitan Policy Survey Series. Washington, DC.

Rosin, Hannah. 2008. American Murder Mystery. *Atlantic Monthly* (July/August, 2008). Accessed August 21, 2008 at http://www.theatlantic.com/doc/200807/memphis-crime.

Schwartz, Alex. 2006. *Housing Policy in the United States*. New York: Routledge.

Turner, Margery Austin. 2003. *Strengths and Weaknesses of the Housing Choice Voucher Program*. Congressional Testimony prepared for the Committee on Financial Services, Subcommittee on Housing and Community Opportunity, United States House of Representatives, June 17, 2003. Washington, DC: The Urban Institute. Accessed December 22, 2008 at http://www.urban.org/url.cfm?ID=900635.

Turner, Margery Austin. 1998. Moving Out of Poverty: Expanding Mobility and Choice though Tenant-Based Housing Assistance. *Housing Policy Debate* 9(2): 373-395.

Turner, Margery Austin, Susan J. Popkin, and Mary K. Cunningham. 2000. *Section 8 Mobility and Neighborhood Health*. Washington, DC: The Urban Institute.

Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls, "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy," *Science*, CCLXXVII (1997), 918-924.

Van Zandt, Shannon, and Pratik Mhatre. 2008. Growing Pains: Perpetuating the Inequality of Opportunity through the Production of Low-income Housing in the Dallas Metroplex. Forthcoming in *Urban Geography*.