Section 8 Households and the Relationship to Residential Property Values in Charlotte, NC

for

Charlotte Housing Authority

By
Metropolitan Studies Group
University of North Carolina at Charlotte
June 11, 2008

Background and Context

The biggest asset that most individuals possess is their home. Any threat, perceived or real, which can affect housing value, is carefully considered. Not surprising, community groups as well as, individuals take great interest in protecting property values and utilize homeowner's associations and covenants to make sure that property owners manage their residence or property in a fashion that will not adversely impact property values. But home and property values are affected by a myriad of factors beyond the control of individuals or home owner's associations. These exogenous variables include the quality of neighborhood schools, housing market dynamics, neighborhood socio-economic characteristics, and neighborhood change. At the local scale, home ownership changes can affect a neighborhood as it ages. Decline and gentrification are the extreme opposite conditions. Local housing market adjustments are not constant as they are impacted by intra-metropolitan market forces. Taken together, neighborhood scale housing prices are highly varied and affected by a multitude of factors.

Often, economic and demographic forces provide opportunities for investors to buy homes in neighborhoods and rent them. This shift to rental housing in a neighborhood may not initially cause alarm among existing residents. But over time, incremental changes can produce potential problems within the neighborhood. Increasing rates of rental housing may result in undesirable challenges to the neighborhood. Residential stability is a common them. In general, rental housing tenants are more mobile. As resident mobility increases, the social structure and the related cohesion of the neighborhood begins to change. Ultimately, the social capital within the neighborhood may be weakened.

The US Department of Housing and Urban Development Section 8 voucher program was established to provide low-income households with greater flexibility and access to housing in the private market. This program allows low-income households to move from less desirable neighborhoods with social and economic challenges, to communities that offer more opportunities and a higher quality of life. But the use of Section 8 vouchers in single family neighborhoods and multi-family rental complexes can raise concerns among existing residents about the impacts of Section 8 voucher householders. Fears of crime, social disruptions, and other community oriented risks are common.

However, the main concern about the impact of the Section 8 program is its impact on surrounding property values. There is a common belief that Section 8 householders negatively impact the property values in the neighborhood. This report examines this issue. It begins with a review of the existing literature related to affordable housing projects and the impact of these developments on residential property values. This is followed by an empirical analysis that examines this issue in Charlotte and Mecklenburg County. Finally, a summary section discusses the research findings.

Literature Review

A survey of the urban planning and land economics research literature identified a number of empirical studies examining the impact of low income and public subsidized housing on surrounding or nearby property values. None of these studies followed the research model in this report.

A study completed in suburban New York City by Briggs et al. (1999) studied the impacts of new scattered site public housing on neighborhoods in Yonkers, NY. The

geographical scale of analysis was a one-quarter mile buffer around all new public housing locations. The data incorporated individual house sales within these buffers. The research team augmented the results with a telephone survey to further contextualize the perceptions of residents both in the target research sites and city wide. The results of the research indicate there was no impact on housing prices around seven subsidized housing sites. The study took considered a variety of site specific variables, including negative politics as well as significant housing and socio-economic differences between the sites. The authors did caution, however, that further analysis was needed to verify the results. This study did not incorporate the Section 8 voucher program in their research.

A Denver, Colorado (Santiago et al, 2001) study examined the impact of proximity between rehabilitated subsidized housing and single family housing values. This research examined the change in housing prices and controlled for existing neighborhood conditions. The research findings were mixed. They findings were impacted by neighborhood conditions. Overall, the proximity to subsidized housing generally had a positive influence on housing prices. However, neighborhoods with higher proportions of minority residents displayed a slower growth in housing sales. This study focused on specific subsidized units. Again, it did not test for the impact of Section 8 households in the study areas.

Work by Lee and colleagues (Lee et al, 1999) in Philadelphia found a weak negative impact on property values associated with Section 8 vouchers. Their analyses did not incorporate house value change. Thus, it could not prove that changes in housing prices were a result of changes in the Section 8 household residence. This study used two

distance intervals, one-eighth mile and one-quarter mile, from each property to determine the proximity sensitivity for Section 8 householders.

A Baltimore based study by Galster and Tatian (1999) examined the impact of Section 8 vouchers on property values. The findings were inconclusive. They showed that the size of the Section 8 communities and the income level of the neighborhood were key determinants for property value change. In general, Section 8 sites with low number of units displayed a positive property value correlation, if these units were situated within 500 feet of higher valued homes in majority white census tracts. However, higher density Section 8 sites produced negative impacts on the property values in nearby lower to middle income neighborhoods. The geographical scales used for proximity sensitivity were less than 500 feet, 500 to 2000 feet, and greater than 2000 feet. This research design allowed the authors to examine the price impacts of Section 8 at varying scales. However, the study only looked at existing Section 8 households. It did not measure house prices change as Section 8 householders moved in and out of the neighborhood.

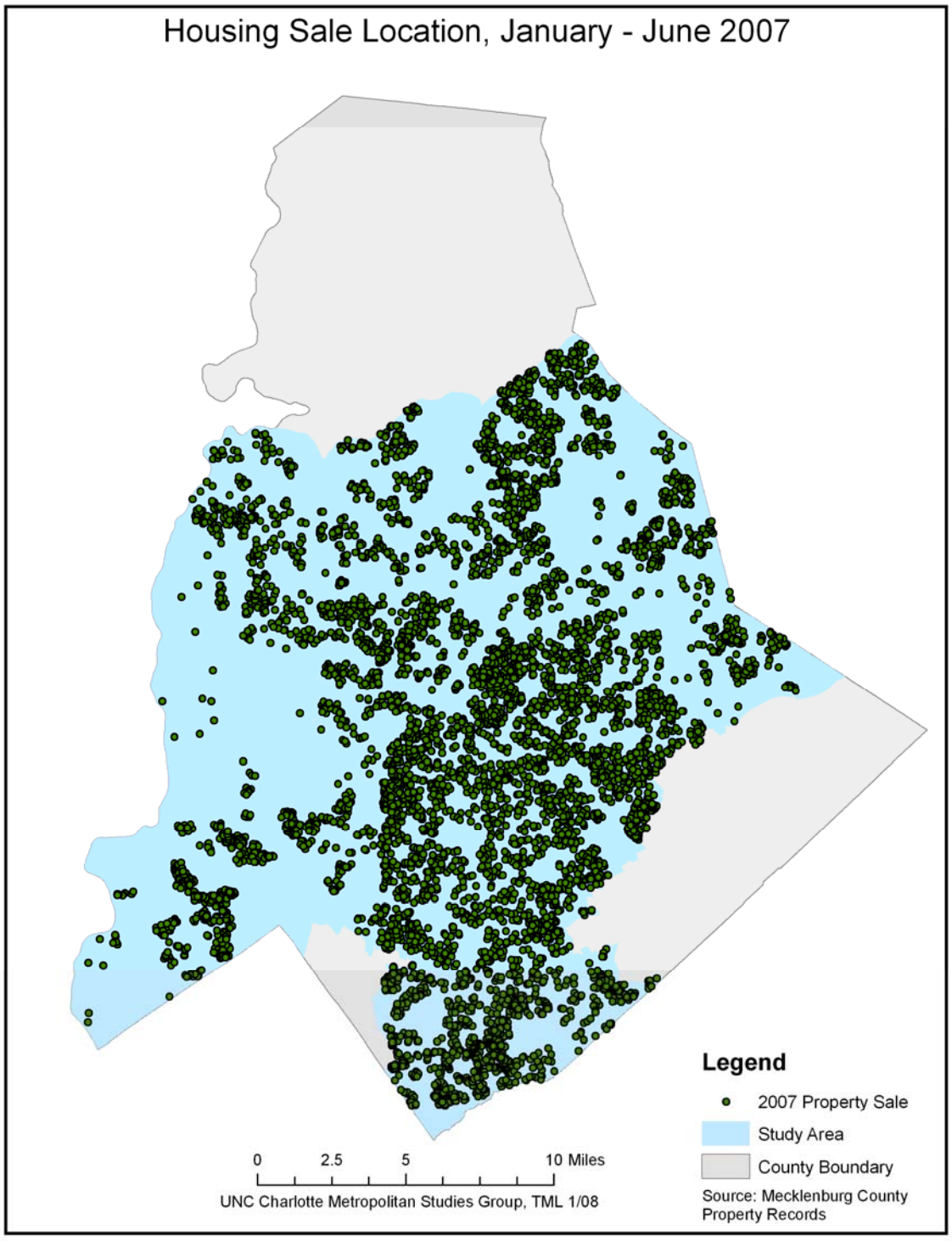
Research Framework

Overall, the review of the empirical literature examining the relationship between Section 8 households and property values yielded less than conclusive findings. More importantly, there is not current literature that is focused on the impact of changes in Section 8 householders and change in property values while controlling for both housing and neighborhood characteristics. This research project addresses that gap. Operationally, the research design uses a one-quarter mile radius analysis determine the impact (proximity sensitivity) for changes in Section 8 households and home values.

Data

Between January 1st and June 30th, 2007, there were 12,637 residential housing sales in the Charlotte Sphere of Influence (Figure 1). This area includes the City of Charlotte and the area that eventually will be annexed into the City. The data records for these transactions were extracted from the Mecklenburg County Property Records. These data were subsequently cleaned to remove potential problems and issues that might affect the reliability of the research design. Most importantly, only single family detached homes were included in the analysis and Multi-family structures and condominiums were excluded from the analysis. This reduced the number of sales records to approximately 10,000. The primary rationale for removing these residences was that they share property cooperatively and lot size could not be calculated for the analyses. Properties that were greater than an acre were also excluded since these properties may represent re-development potential and this option could not be ascertained. Redevelopment activity would also mask the relationships under study. This reduced the number of study units down to approximately 8,500 records. Finally, only housing units priced between $20,000 and $1,000,000 were included in the database. Those home values below $20,000 were likely family transfers and did not indicate market value sales. Homes values above $1,000,000 were excluded because of potential to skew the findings. This restriction further reduced the sales records to approximately 6,900. Finally, fewer than 100 records were excluded owing to insufficient data. This resulted in a final data set of

Figure 1


Housing Sale Location, January - June 2007
Legend
2007 Property Sale
Study Area
County Boundary
Source: Mecklenburg County Property Records
0
2.5
5
10 Miles
UNC Charlotte Metropolitan Studies Group, TML 1/08

6,803 records in the analysis. These screening criteria used for this analysis followed the model laid out by Goolsby (1997) and Allen and Dare(2003).

The dependent variable in this research is the change in residential property value. This measure was calculated using the most recent Mecklenburg County assessed housing value, January 1, 2003, and the subsequent sales price. The change in this variable ranged from -85 percent to + 685 percent. Te wide range in values reflects the dynamic Charlotte housing market and national home value fluxuations. Two broad categories of independent (predictor) variables were analyzed. The first group included eight real estate centered variables. These were attached to the property sales record. These real estate related variables are displayed and described in Table 1. They are the heated area of the structure, the lot size, the year of construction, the number of bedrooms, 2003 assessed value, the number of baths. A dummy variable was also developed to code whether a property sale was the result of a foreclosure.

Table 1. Real Estate Variables

Variable	Min	Max	Mean	Std Dev	Definition
heatedarea	432	6,726	1,785	743	Number of heated Square Feet
totalvalue	$20,400	$923,500	$157,223	$101,790	2003 Assessed Value
lotsize	414	81,215	11,894	7,210	Lot Size (in square feet)
fullbaths	1	5	1.89	0.58	Number of Full Baths
bedrooms	1	7	3.10	0.66	Numbere of Bedrooms
yearbuilt	1900	2006	1982	21	Year house was built
dist_cent	2913.03	86,966.34	39613.33	17,030.35	Distance to city center in feet
Foreclosure	0	1	0.08	0.28	Dummy Variable indicating Sale was the result of a foreclosure
N = 6803					

The second category was neighborhood characteristics. They reflect the common conditions in the neighborhoods. The data used in this portion of the analysis were derived from the most recent Charlotte Neighborhood Quality of Life Report. The study was published in 2006 by the City of Charlotte, with the support of seven city and county agencies and departments. The quality of life analysis is geographically structured around 173 neighborhood statistical areas (NSA) and 20 independent socio-economic, physical, and crime variables.

For this research seven quality of life variables were chosen as independent variables. They represent neighborhood conditions that might be expected to affect housing price changes. The neighborhood variables included violent crime, code enforcement (housing quality), homeownership, access to public transportation, persons receiving food stamps, median household income, and change in median household income. Table 2 presents the neighborhood characteristics variables.

Table 2. Neighborhood Characteristics variables

Variable	Min	Max	Mean	Std Dev	Definition
violent	0.00	11.12	0.75	0.91	Violent Crime Rate as Location Quotient by NSA
code	0.00	0.18	0.01	0.02	Code Enforcement Index (Housing Quality) by NSA
owner	0.06	0.94	0.62	0.19	Homeownership Rate by NSA
transit	0.00	1.00	0.41	0.38	Percent of People with access to Public Transportation by NSA
food	0.00	0.51	0.07	0.07	Percent of People receiving food stamps by NSA
Mhi_change	-0.01	0.07	0.02	0.01	Percent Change in Median Household Income by NSA
income	$16,281	$195,060	$65,608	$26,657	Median Household Income by NSA
N = 6803					

Two additional variables were added in the analysis. They were, first, the distance to the city center. The data for this variable were calculated using geographic information science (GIS) software. The inclusion of this variable was designed to capture the impact of proximity to center city Charlotte on residential property value. Table 1 presents a description of this variable. Secondly, an interaction variable linking homeownership and distance to the city center also calculated and included in the research model. This variables was created to more precisely measure the spatial variability of homeownership within large NSAs..

The dependent variable, the percent change in Section 8 households, was calculated with data provided from the Charlotte Housing Authority. This variable contextualized each home sale with the percentage change of Section 8 households within one-quarter mile radius. The data, 2005 to 2007, include the most recent complete Section 8 vouchers. Figure 2 displays the geographical distribution of the Section 8 vouchers. A descriptive analysis of the change in Section 8 vouchers reveals that within the home sale radius the change in Section 8 vouchers ranges between -32 percent to +9 percent.

In the first stage, preliminary analyses tested the direct relationships between housing value change and the real estate and neighborhood variables. A simple correlation analysis was used in this phase of the research. This statistical tool assessed the strength of association between the change in housing value and the suite of independent variables. The results are displayed in Table 3 and 4 respectively.

Figure 2

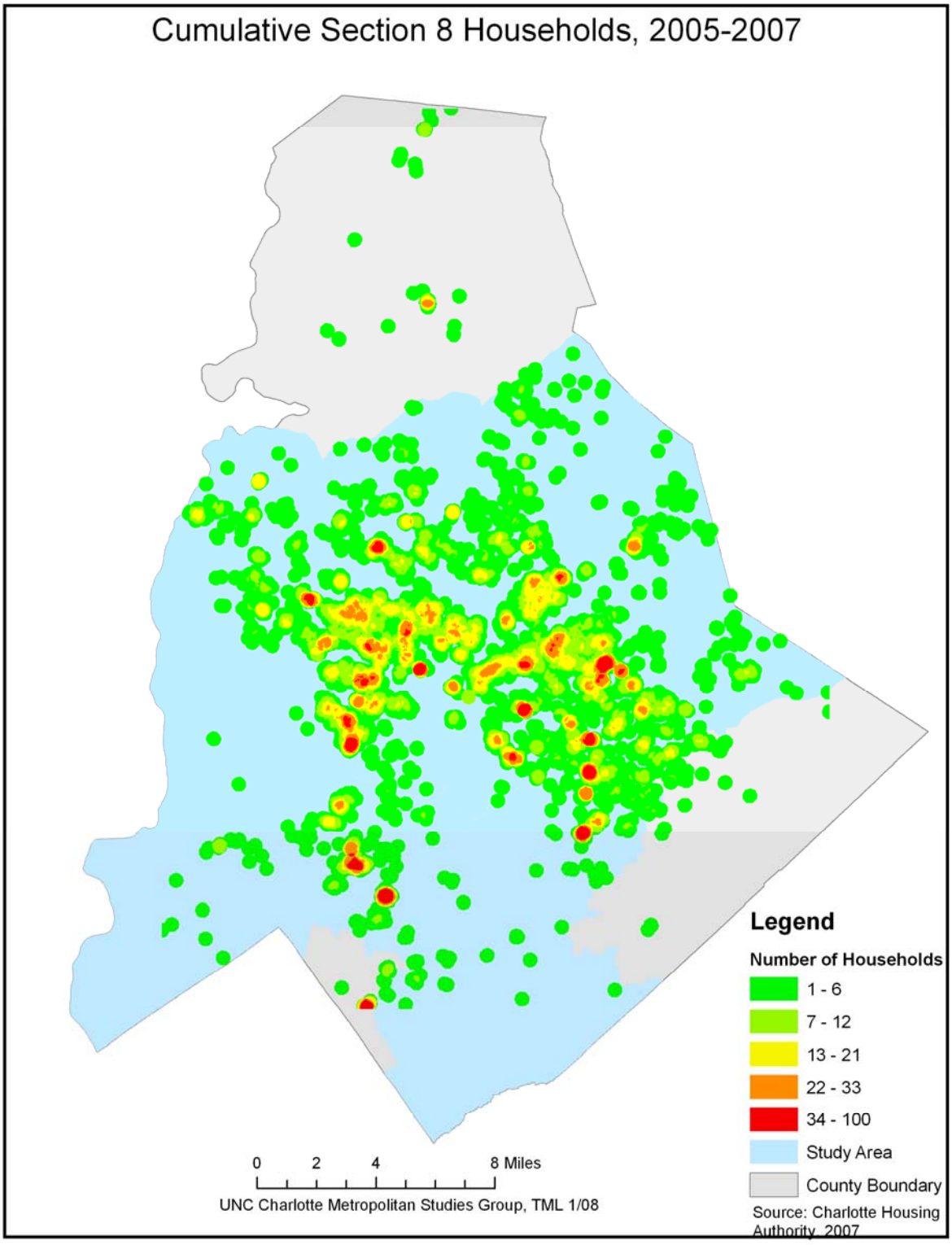

Cumulative Section 8 Households, 2005-2007
Legend
Number of Households
1 - 6
7 - 12
13 - 21
22 - 33
34 - 100
Study Area
County Boundary
Source: Charlotte Housing Authority, 2007
0
2
4
8 Miles
UNC Charlotte Metropolitan Studies Group, TML 1/08

Table 3. Real Estate

Variable	Preliminary Correlation Analysis w/ Property Value Change
heatedarea	.109**
totalvalue	.156**
lotsize	.097**
fullbaths	-.035**
bedrooms	.054**
yearbuilt	-.350**
dist_cent	-.209**
Foreclosure	-.214**

Table 4. Neighborhood Characteristics

Variable	Preliminary Correlation Analysis w/ Property Value Change
violent	.074**
code	.147**
owner	-.116**
transit	.239**
food	-.051**
Mhi_change	.206**
income	.032**
Owner X dist_cent	-.154**

** Correlation significant at the 0.01 level

The simple correlation results show some interesting trends in the Charlotte housing market. For the real estate characteristics, there are positive correlations between property values and housing size, assessed property values, lot size, and number of bedrooms. In other words, increases in home values were associated with larger residences, homes with higher 2003 property value assessments, homes with larger lots, and homes with the more bedrooms. The analyses also reveal that homes with fewer full baths, older homes, and homes closer to the center city, also experience property values increases. Not unexpectedly, propensity for foreclosure is negatively correlated with increase residential home values. All of the independent variables were statistically significant. Simple stated that means the findings were reliable.

The results for the neighborhood conditions analyses offer some confounding findings. As one might expect, homes in neighborhoods with high and increasing levels of median income, declining levels of food stamp usage, and better access to public transit displayed are linked to increased residential property values. But, other neighborhood characteristics, including code enforcement, violent crime, and home ownership do not perform as expected. These results indicate that neighborhoods with higher rates of violent crime, more code enforcement violations, and lower homeownership are linked to increasing home property values. All of the individual variables were statistically significant.

One plausible explanation for these confusing findings may be the role of gentrification in low wealth neighborhoods. In Charlotte, increasingly these communities with significant challenges are targets for reinvestment. Thus, change in property values in formerly blighted neighborhoods have been some of the highest across in the City. For example, the property values in the Wilmore NSA, classified as "Challenged" in the 2006 Neighborhood Quality of Life Report have experienced a 250% increase since 2003.

Research Question

To review, the primary focus of this research paper is the impact of Section 8 households on property values in Charlotte. Initially, simple correlations between property values and Section 8 households were carried out. This analysis examined the relationship between property value change and the percent of Section 8 households within one-quarter mile of a residence. The simple results found a weak negative correlation of -.167. In other words, an increase in Section 8 householders is associated with decreases in housing values. However, the change in Section 8 households could

explain only 16.7 percent of the change in housing values. Additionally, the simple correlation between the change in residential property values and the change in Section 8 households was calculated. In this analysis, there was also a weak negative association, where increases in Section 8 households result in a decrease in housing values. The correlation coefficient was -.025. This finding indicates the proportion of Section 8 households could explain only 2.5 percent in the variability of housing value change. Both of these simple correlation analyses did not, however, consider the larger contexts of real estate and neighborhood characteristics.

Thus, subsequent analyses focused on the relationship between the changes in Section 8 households and residential property values, while controlling for real estate and neighborhood characteristics. Based on the preliminary modeling results, it was hypothesized that the variable of interest, the change in Section 8 households would display a weak negative relationship on the price of housing. In other words, as the proportion of Section 8 households increase, there would be a slight downward change in housing values. However, because real estate and neighborhood characteristics powerful agents for affecting home values, it was also hypothesized that these variables would be more effective in explaining the change in the sales prices.

The following equation describes the model to be tested. The change in housing value is determined by the characteristics specific to that house, including its real estate and neighborhood characteristics. Therefore,

$$HVC_h = R(H_h, N_h, CSECT8_h)$$

Where HVC is the change in single family home values, H is a collection of real estate characteristics, N is a collection of neighborhood characteristics , the variable of interest, (**CSect8)** is the percent change in Section 8 households.

Research Findings

The research hypothesis was tested using an ordinary least squares regression. This type of statistical analysis is widely used to predict the variability of a dependent variable, using the values of independent variables. The 17 independent variables used in the model encompassed the factors employed used in the earlier preliminary models. The measure of model predictability is represented be the term R^2. This coefficient represents the strength of the association between dependent variable and the independent variables. The potential coefficient values can range from 1.0 to 0.0, with the former representing 100 percent explanatory power and the latter a 0 percent explanatory.

Table 5 presents the results of the regression analysis. The overall model produced in an adjusted R^2 of .286. This means that the model was able to explain approximately 29 percent of the variability in housing value change. Among the independent variables, 14 out of the 17 independent variables were statistically significant or reliable predictors. Overall, the model results are considered modestly effective. All of the neighborhood variables performed in the same direction as they had in the simple correlation analysis. They were statistically significant except median household income. Four of the real estate variables changed direction of operation in the full model. These were total value, lot size, full baths, and bedrooms. The lot size and bedrooms were not statistically significant in the model. As expected, our variable of

interest, the change in Section 8 households showed a weak negative relationship with the changes in residential property value.

Table 5

Variable	Unstandardized Coefficient	Standardized Coefficent	P-Value
Intercept	12.124*		0.00
heatedarea	0.00*	0.23	0.00
totalvalue	-0.00*	-0.12	0.00
lotsize	-0.00	-0.02	0.06
fullbaths	0.04*	0.06	0.01
bedrooms	-0.00	-0.01	0.70
yearbuilt	-0.01*	-0.29	0.00
dist_cent	0.00*	-0.86	0.00
Foreclosure	-0.21*	-0.14	0.00
violent	0.02*	0.05	0.03
code	1.40*	0.06	0.00
owner	-0.99*	-0.46	0.00
transit	0.07*	0.07	0.00
food	-2.77*	-0.38	0.00
Mhi_change	4.68*	0.12	0.00
income	-0.00	-0.04	0.09
CSect8	-1.45*	-0.05	0.00
owner_dist	0.00*	0.97	0.00

Adjusted R^2 = .286; * = variable significant to the 0.05 level

The standardized coefficient for Section 8 households is only -0.05. This indicates that this factor accounts for only 5 percent of the predictability when included with other predictor variables. Indeed, compared to other variables in the model, the Section 8 variable provides a much weaker explanatory power. Twelve of the 14 statistically significant variables had stronger affects on property values changes.

Conclusion

A major issue for residential property owners is the stability of their home values. This concern can became more sensitive as housing quality and neighborhood conditions deteriorate. The Section 8 voucher program is often linked to undesirable neighborhood changes and threats to housing values. Too often, this program is misunderstood and surrounded by unwarranted negative publicity. For example, Section 8 households may be blamed for declining property values in communities where negative neighborhood change was already underway before the arrival of Section 8 householders.

This study was designed to examine this common perception surrounding Section 8 vouchers in Charlotte, NC. The research design was guided by earlier studies. The data used in the analysis were derived from primary data sources. Thus, the findings represent the Charlotte experience.

The summary results include:

- There is a weak statistical relationship between the change in housing values and Section 8 households in Charlotte. This pattern exists within a one-quarter mile radius of the residential property.
- The importance Section 8 households in explaining the change in residential property values is weak. In the research model, less than 5 percent of the explanatory power is attributable to the this factor
- In the research, 12 other real estate and neighborhood variables displayed a much stronger capacity to explain housing price variability. The stronger performing variables included sales as the result of foreclosure, the homeownership level of

the neighborhood, and the percent of people receiving food stamps of the neighborhood.

- Take together, the modeling results indicate the impact of Section 8 vouchers on residential property values in Charlotte needs to be contextualized with other real estate and neighborhood characteristics in order to form objective judgments. Simply saying, Section 8 households cause property value declines is inaccurate. Property value changes are linked to a set of micro (real estate) and macro (neighborhood) factors.
- The modest relationships between residential property value change and a wide array of real estate and neighborhood characteristics, including Section 8 vouchers, points out the complexity and challenge of explaining how and why home values rise and fall in a dynamic urban setting. The Charlotte real estate market is not easily predicted by one or tow factors, including the distribution of Section 8 vouchers.

Bibliography

Allen, Marcus T. and William H. Dare. 2003. “Identifying Determinants of Horizontal Property Tax Inequity: Evidence from Florida,” *Journal of Real Estate Research* 24, 2: 153-164.

Briggs, Xavier de Souza, Joe T. Darden, and Angela Aidala. 1999. “In the Wake of Desegregation: Early Impacts of Scattered-Site Public Housing on Neighborhoods in Yonkers, New York. *American Planning Association Journal* 65, 1:27-49.

Galster, George C., Peter Tatian, and Robin Smith. 1999. “The Impact of Neighborhood who use Section 8 Certificates on Property Values” Housing Policy Debate 10, 4: 879-917.

Goolsby, D. H. 1997. “Assessment Error in the Valuation of Owner-Occupied Housing,” *Journal of Real Estate Research* 13,1: 33-45.

Lee, Chang-Moo, Dennis P. Culhane, and Susam M. Wchter. 1999. “The Differential Impacts of Federally Assisted Housing Programs on Nearby Property Values: A Philadelophia Case Study” *Housing Policy Debate* 10, 1: 75-93.

Santiago, Anna M., George C. Galster, and Peter Tatian. 2001. “Assessing the Property Value Impacts of the Dispersed Housing Subsidy Program in Denver,” *Journal of Policy Analysis and Management* 20, 1: 65-88.

Appendix A
Change in Property Sales around
Selected Charlotte Housing Authority Locations

**Change in residential property sales (1/4 Mile Radius)
around selected Charlotte Housing Authority locations**

Location	2003 Sales Average	# of Sales	Sales 2007 Average	# of Sales	Percent Change (per Year)
Belvedere	$59,286	14	$89,293	29	10.2%
Piedmont Courts	$238,300	5	$323,783	23	7.2%
Leafcrest	$151,875	4	$222,500	3	9.3%
Savannah Woods	$233,239	19	$420,625	28	16.1%
Montgomery Gardens	$120,607	14	$153,591	11	6.8%

Source: Mecklenburg County Property Records, 2007.