U.S. Department of Housing and Urban Development
Office Of Policy Development & Research

The Distribution of Homeownership Gains During the 1990s Across Neighborhoods

PD&R

The Distribution of Homeownership Gains During the 1990s Across Neighborhoods

Prepared for:
U.S. Department of Housing and Urban Development
Office of Policy Development and Research

Prepared by:
Christopher E. Herbert
Bulbul Kaul

Abt Associates Inc.
Bethesda, MD

January 2005

Table of Contents

Executive Summary ..... **v**

1. Introduction **1**

2. Data **2**

3. Analysis of Changes in Homeownership Rates During the 1990s at the Neighborhood Level.. ..... **4**
3.1. Homeownership Change Quintiles 6
3.2. Characteristics of Neighborhoods by Homeownership Change Quintile 10
3.3. Summary 19

4. Neighborhood Distribution of Black Gains in Homeownership **20**
4.1. Black Homeownership Change Quintiles 21
4.2. Characteristics of Neighborhoods by Black Homeownership Change Quintiles 23
4.3. Summary 28

5. Neighborhood Distribution of Hispanic Gains in Homeownership **29**
5.1. Hispanic Homeownership Change Quintiles 30
5.2. Characteristics of Neighborhoods by Hispanic Homeownership Change Quintile 32
5.3. Summary 37

6. Neighborhood Distribution of Asian Gains in Homeownership **38**
6.1. Asian Homeownership Change Quintiles 39
6.2. Characteristics of Neighborhoods by Asian Homeownership Change Quintile 41
6.3. Summary 45

7. Characteristics of Underserved Areas by Homeownership Change Quintile **46**
7.1. Characteristics of Underserved Neighborhoods by Homeownership Change Quintile 46
7.2. Summary 53

8. Regression Analysis of Homeownership Rate Changes **54**
8.1. Variables Used in the Regression Analysis 54
8.2. Regression Results 58
8.3. Discussion of Results 62

9. Conclusions and Areas for Further Research **64**

Bibliography **65**

Appendix A: Decomposing Homeownership Changes **66**

Executive Summary

During the 1990s, homeownership rates increased for virtually all racial and ethnic groups, income groups, regions, and rural and urban areas. However, little is known about how the broad homeownership gains of the 1990s were distributed across neighborhoods. For a variety of reasons the distribution of homeownership gains during the 1990s is of interest. First, since homeownership is thought to benefit neighborhoods as well as individuals, it is of interest to know to what extent efforts to encourage homeownership have benefited some types of neighborhoods while disfavoring others. Second, policy makers have focused attention on increasing homeownership opportunities for minorities so they can share in the benefits of homeownership. Since some of the benefits of homeownership are associated with gaining access to high quality public services and amenities, it would be of interest to examine the socioeconomic status of the neighborhoods where minority homeownership gains have been concentrated. Third, to the extent that greater racial and ethnic integration is viewed as an important goal both as an indication of greater access by minorities to all residential areas and as a means of fostering greater understanding across racial and ethnic groups, it is also of interest to examine the extent to which gains in minority homeownership have furthered or hindered the goal of greater racial and ethnic integration. Finally, in the early 1990s, the U.S. Department of Housing and Urban Development (HUD) introduced housing goals for Fannie Mae and Freddie Mac (the government sponsored enterprises or GSEs) that included a goal of increasing access to mortgage credit in "underserved areas," defined as areas either with incomes no more than 90 percent of market-area median family income or where minorities comprise at least 30 percent of the population and area median family income does not exceed 120 percent of market-area median income. Given this housing goal, it would be of interest to examine trends in homeownership rates in these underserved areas

The goal of this study is to examine changes in homeownership rates between 1990 and 2000 at the neighborhood level, which is defined as the census tract. This study explores the characteristics of tracts where homeownership increased the most as well as those where there was little change or absolute declines. It also examines the characteristics of neighborhoods where minority homeownership increased. Given the establishment of the underserved-area housing goal for the GSEs, changes in homeownership in underserved areas are also of interest. Detailed univariate analysis is presented to explore the characteristics of areas that experienced different rates of change in homeownership rates, while a multivariate analysis is conducted to separate the relative importance of the different factors examined. The data set used in this analysis is the Neighborhood Change Data Base (NCDB) developed by the Urban Institute and GeoLytics, Inc. This data set is specifically designed to support research that examines changes in neighborhoods over time by reporting data from the 1970, 1980 and 1990 decennial censuses using 2000 census tract definitions.

The Distribution of Overall Homeownership Gains Across Neighborhoods

While homeownership gains were fairly widespread during the 1990s, it was by no means the case that all neighborhoods shared in these gains. A small majority (57 percent) did see rising homeownership rates, but 43 percent saw rates drop over the decade. Many neighborhoods (53.6 percent) experienced fairly small changes (gains or declines of less than 3 percentage points) in homeownership rates over the course of the 1990s, although 28.6 percent experienced moderate changes of plus or minus 3 to 7 percentage points and 17.8 percent experienced significant changes in excess of plus or minus 7 percentage points. Thus, there was a fair amount of diversity across

neighborhoods in the degree of change in homeownership rates over the decade, with a sizeable share experiencing sizeable swings over the decade.

To compare the characteristics of neighborhoods across this distribution of changes in homeownership rates, census tracts were divided into five groups, or quintiles, from neighborhoods with the largest declines in homeownership to those having the largest gains. Tracts in the top quintile with the largest increases in homeownership rates were found to account for much of the overall gain in national homeownership rates. The weighted average increase in the homeownership rate in these tracts was 8.7 percentage points. The contribution reflected both an increase in tract-level homeownership rates and more rapid household growth in these areas. In comparison, tracts in the bottom quintile had a weighted average decline in homeownership rates of 7.4 percentage points.

One of the most interesting results from comparing the characteristics of neighborhoods in the quintile with the greatest declines in homeownership to those in the quintile with the greatest increases is that there was a fair amount of similarity in the characteristics of these two groups of tracts. Tracts in these two quintiles both experienced relatively high rates of household growth over the decade. However, areas with increases in homeownership had rapid growth in owner households while those with declines in homeownership had rapid growth in renter households. Tracts in these two groups also started the decade with household incomes and house values that were lower than among the tracts in the middle three homeownership change quintiles. The quintiles with strongest growth and greatest declines in homeownership over the decade also started out with a similar housing stock profile, including lower shares of single family units and higher rates of multifamily ownership than other quintiles of tracts. Among the differences between the quintiles with the greatest declines and increases in homeownership are that areas with declining rates had greater shares of minorities and larger proportions of central city households.

In short, this analysis suggests that the gains in homeownership over the 1990s were not an example of the rich getting richer – that is, areas with already high homeownership rates gathering much of the growth in homeowners. Rather, the study found that the tracts where homeownership growth was concentrated started the decade as places with higher than average concentrations of renters and lower-income households. But the rapid growth of homeowners in these areas appears to have transformed these neighborhoods, since by the end of the decade this group of tracts had the highest average income and house values of the five quintiles. On average, tracts with the largest increases in homeownership rates had median incomes that increased from 90 percent of the area median income to 116 percent, while house values increased from 94 percent of the area median to 120 percent.

Another interesting finding is that tracts in the quintile experiencing the largest declines in homeownership rates during the 1990s cannot be characterized as declining areas. These neighborhoods were marked by fairly rapid growth in households – although mostly renter households – and high levels of new construction. While incomes and house values remain below the levels of other quintiles of tracts, these areas generally experienced more rapid increases in incomes and values than the tracts with small homeownership gains.

Based on the data available from the decennial census, it is difficult to identify the factors that distinguish tracts with the most rapid growth in owner households from those with the most rapid growth in renter households. An examination of the patterns evident in selected metropolitan areas suggests there is a tendency for high owner growth tracts to be located toward the periphery, but there are also high growth tracts in central cities and dispersed throughout the MSA. Central city areas

accounted for 29 percent of the tracts in the quintile with the largest gains in homeownership, only slightly less than central cities' 31 percent share of all tracts. Areas of high renter growth are slightly less likely to be on the periphery of the MSA and tend to be located more toward the center or along transportation corridors. A more detailed analysis of neighborhoods in specific metro areas is needed to shed more light on the factors associated with trends in homeownership at the neighborhood level.

Neighborhood Distribution of Black Gains in Homeownership

The neighborhood distribution of black homeownership was examined in the same way – by identifying five quintiles of tracts ranging from those with significant declines in homeownership rates to those with significant gains. Similar to the pattern found with regard to all households, the study finds that tracts where there were substantial increases in black homeownership rates over the decade had much in common with tracts that had substantial declines in black homeownership rates, including similar levels of income and house values, minority household shares, and central city shares. However, in contrast to the pattern observed for increases in homeownership among all households, the areas with large declines and gains in black homeownership are marked by high overall rates of homeownership, and higher incomes and house values than other categories of neighborhoods. They are also less likely to be in central cities and underserved areas. Of note, these areas with the most rapid growth in black households also had relatively smaller shares of minority households. But this trend toward greater integration should not be overstated. While black households, both renter and owner, are moving to areas of less minority concentration, on average these neighborhoods have much higher minority shares than the U.S. as a whole.

As with all households, areas with the largest increases and the largest declines in black homeownership rates both experienced rapid growth of black households – but in the former case this growth was concentrated in owner households and in the later it is concentrated in renter households. However, while growth among black households was concentrated in rental households in the first quintile, there was fairly strong growth of other owner occupied households in these areas. As a result, areas with growing numbers of black renters (and so of declining black homeownership rates) were areas with generally high overall homeownership rates. Thus, while it is the case that the growth in black homeownership is associated with movement to areas of generally less minority concentration and higher socioeconomic status in terms of incomes, house values, and homeownership rates, it is also true that black renter households were also increasingly gaining access to these types of neighborhoods. So a movement to homeownership is not the only route to better neighborhoods.

Neighborhood Distribution of Hispanic Gains in Homeownership

The patterns evident in the distribution of Hispanic homeownership gains across neighborhoods is very similar to the pattern observed for blacks. To begin with, areas with significant gains in Hispanic homeownership had much in common with areas that had significant declines. Both categories of neighborhoods were marked by very rapid growth in Hispanic households – but those with declines in Hispanic homeownership had much more rapid growth in renters while those that had gains in homeownership had much more rapid growth in owners. These quintiles of neighborhoods were quite similar in other dimensions as well. Both had higher levels of household incomes and house values than other neighborhoods where Hispanics reside and were less likely to be in central cities or underserved areas. They also had higher levels of overall homeownership rates and overall household growth. Areas of rapid Hispanic growth – and thus large swings in Hispanic

homeownership rates – also had lower shares of minorities than other areas, suggesting that the Hispanic population is becoming less segregated over time. But this integration is occurring among both renters and owners. In short, while Hispanic homeownership growth is concentrated in neighborhoods with a variety of generally positive characteristics, areas with declines in homeownership were strikingly similar.

Neighborhood Distribution of Asian Gains in Homeownership

One notable feature of homeownership growth among Asians during the 1990s is that it was not nearly as rapid as among blacks or Hispanics. While the aggregate black homeownership rate rose by 2.9 percentage points and the Hispanic rate rose by 3.4 points, the Asian homeownership rate only rose by 0.3 percentage points. Nonetheless, as of 2000 Asians had an overall homeownership rate that was about 8 percentage points higher than for blacks or Hispanics. The characteristics of areas experiencing different rates of change in Asian homeownership were similar to that observed for blacks and Hispanics in that areas with significant declines in homeownership rates had a fair amount in common with areas experiencing significant gains. However, there were several ways in which the characteristics of Asian homeownership change quintiles differed from other minority groups. First, there tended to be less variation across the quintiles of tracts in average neighborhood characteristics, as there were fairly small differences in terms of overall homeownership rates, household incomes, and house values. Second, unlike for other minority groups, the areas experiencing significant declines in Asian homeownership generally tended to have more favorable characteristics than those experiencing significant gains. For example, overall household growth was stronger, household income and house values were higher, and the shares of households in central cities and underserved areas were lower. Even areas with small or moderate declines in homeownership ranked higher in terms of household income levels and house values than areas with significant increases in homeownership. Finally, neighborhoods in the fourth quintile, that is areas with moderate gains in homeownership, tended to have the lowest measures of economic well-being. These areas had the slowest rate of household growth, the lowest income and house values, and the highest shares central city and underserved. In sum, in contrast to other minority groups, areas with the highest rates of Asian homeownership were not necessarily the areas with the most positive characteristics. But like other minority groups, areas with rapid growth in renter households, were marked by fairly positive characteristics.

Characteristics of Underserved Areas Experiencing Gains and Declines in Homeownership

While underserved tracts were somewhat more likely to experience significant declines in homeownership over the decade, for the most part these areas were fairly evenly distributed across the five homeownership change quintiles. Given the emphasis placed on lending in these areas by the housing goals for the GSEs, it might have been expected that these areas would have had an increased presence in areas with the largest gains in homeownership. But given that these areas had historically been underserved by the mortgage market, it may be that *not* having a disproportionately small share of tracts in the quintiles with larger gains in homeownership is a positive outcome from the housing goals.

As was true of all tracts, there were a fair number of similarities in 1990 between underserved tracts that experienced significant declines in homeownership and those that experienced significant gains. As of 1990, tracts in both of these quintiles had similar homeownership rates, household income and house values levels, share minorities, and shares of the housing stock in single-family housing.

However, tracts with gains in homeownership were less likely to be in central cities than tracts that experienced significant declines in homeownership. By the end of the decade, underserved tracts with significant gains in homeownership had higher incomes and house values and higher shares single family housing than other quintiles. For example, the average tract median income as a percent of area median income rose from 73 to 89 percent, while the average tract median house value as a percent of the area median house value rose from 75 to 87 percent. Of course, despite the increase in incomes and house values these areas are still below average for their market areas, but that is not surprising given their low starting points. Thus, as with all tracts, the sharp rise in homeownership in these underserved areas was associated with strong gains in a number of socioeconomic characteristics.

Results of Multivariate Analysis of Neighborhood Homeownership Rate Changes

A multivariate analysis was conducted to shed light on the basic questions posed by this study. Since homeownership is thought to benefit neighborhoods as well as individuals, one question this study was intended to address is what were the characteristics of neighborhoods where homeownership increased the most in the 1990s. The regression analysis found that the most important factors associated with increases in overall homeownership rates were low housing density, high shares of housing in single-unit structures, and higher average house values. While these measures suggest that homeownership gains were most likely to be experienced in areas that were already fairly well off, importantly the analysis also showed that homeownership gains were not statistically significantly associated with either starting income levels or minority shares. Thus, homeownership gains were not concentrated in higher income, white areas. In addition, areas with higher starting homeownership rates were less likely to experience increases in homeownership, so areas with previously low homeownership rates did benefit from the increasing rates.

Another question posed by this study is whether minority homeownership gains occurred in areas of higher socioeconomic status so that these increases were associated with minorities gaining access to areas with higher quality public services and amenities. The regression analysis finds that blacks and Hispanic homeownership gains were more likely in neighborhoods with higher relative income levels and higher overall homeownership rates. But while Hispanic homeownership gains were more likely in areas with higher income levels, they were also more likely in areas with lower house values. Asian gains were neutral with respect to both neighborhood incomes and house values. In terms of other factors associated with minority homeownership gains, many of the factors associated with increases in overall homeownership rates were also important for minorities, including lower housing density, more single family units, and higher levels of new construction in the previous decade. Thus, it appears that minority homeownership gains were for the most part occurring in areas with positive indicators of economic health.

With regard to the question of how changes in homeownership relate to levels of racial and ethnic segregation the results are mixed. On the one hand, changes in overall homeownership rates were not associated with the share of minorities in the neighborhood. On the other hand, homeownership rates for all minority groups were more likely to rise in areas that started with higher shares of minorities, although gains in minority homeownership were also less likely in areas where minorities started the decade with higher homeownership rates. Together these results are consistent with a pattern where minorities seek to purchase in areas outside of established minority communities with high homeownership rates, but nonetheless seek to buy in areas with an established minority presence.

Finally, the regressions also attempt to examine the association between homeownership rate changes and whether neighborhoods were designated as underserved areas by HUD and so received special emphasis from the GSEs in supporting mortgage lending. The results find that overall underserved status was associated with declines in overall homeownership rates, all else equal. However, homeownership rates for blacks and Asians were found to have increased in these areas, while there was no impact on changes in Hispanic homeownership rates. These results are consistent with a pattern where white homebuyers avoided these areas due to their very low income levels and high minority shares, but that the increased attention from lenders nonetheless benefited minorities.

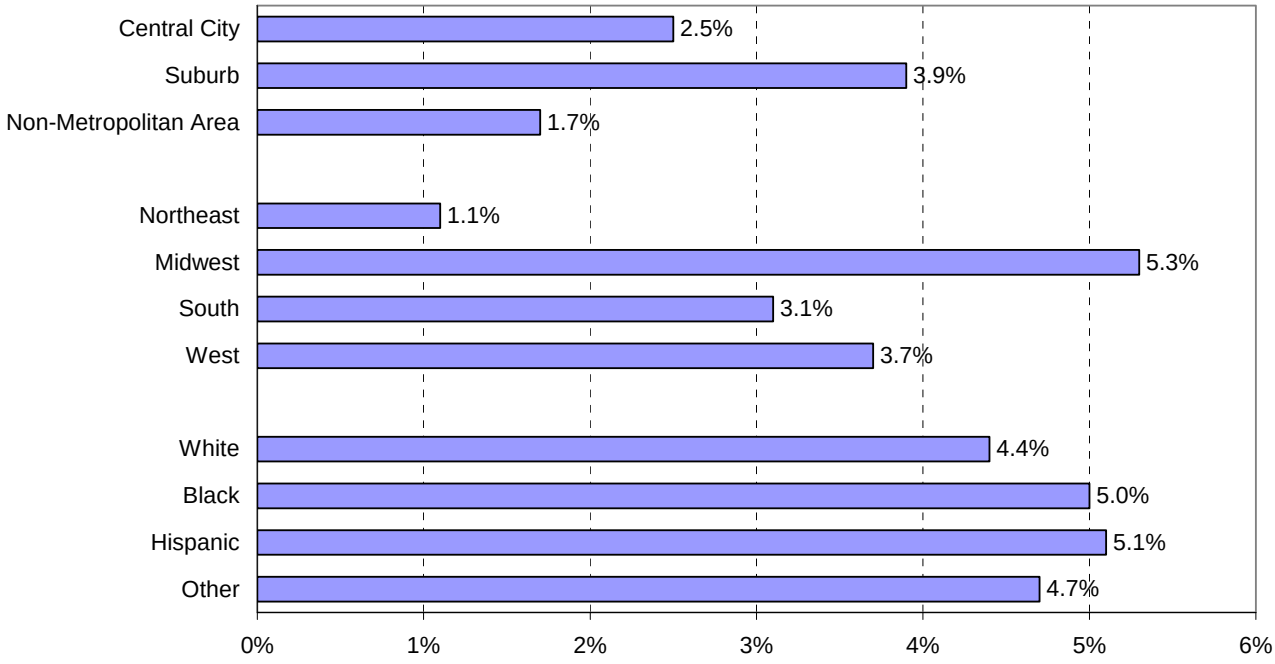
Areas for Further Research

More work is needed to understand what differentiates neighborhoods that experienced strong growth in homeownership over the decade from those that experienced strong growth in renter households (and thus declines in homeownership rates) and those that experienced relatively little change in homeownership rates. The analysis presented in this study suggests that in many respects areas that had strong growth in homeownership had much in common with areas that experienced large declines in homeownership. In general, both types of neighborhoods started the decade with lower household incomes and house values than other neighborhoods and had similar housing stock characteristics. Both types of neighborhoods also experienced rapid growth in households over the decade supported by significant levels of new housing construction, but some areas tended to specialize in serving renter households while others catered primarily to owner households. As a hypothesis, it seems likely that are important differences in these areas related to such factors such as their location within the metro area relative to transportation corridors and job growth. It also seems likely that local zoning regulations and the quality of public services may also play a role in supporting different types of development and in attracting different types of households. Case studies of specific market areas might help to better understand the market dynamics associated with these trends. A better understanding of the factors that determine where homeownership gains occur would help inform policy makers concerned about how homeownership gains are distributed across neighborhoods.

1. Introduction

As discussed in detail in Herbert et al. (2004) and illustrated in Exhibit 1, large national surveys such as the CPS and the AHS have documented that homeownership rates rose during the 1990s for all racial and ethnic groups and among all geographic areas from central cities to non-metropolitan areas. However, one aspect of the change in homeownership that these surveys cannot shed light on is how these gains have been distributed across neighborhoods of different racial, economic, and housing stock characteristics.

Exhibit 1
Change in Homeownership Rates 1990 to 2000 by Geographic Area, Race and Ethnicity



Source: Current Population Survey.

There are a variety of reasons why the spatial distribution of homeownership gains during the 1990s is of interest. First, since homeownership is thought to benefit neighborhoods as well as individuals, it is of interest to know to what extent efforts to encourage homeownership have benefited some types of neighborhoods while disfavoring others. Second, policy makers have focused attention on increasing homeownership opportunities for minorities so they can share in the benefits of homeownership. Since some of the benefits of homeownership are associated with gaining access to high quality public services and amenities, it would be of interest to examine the socioeconomic status of the neighborhoods where minority homeownership gains have been concentrated. Third, to the extent that greater racial and ethnic integration is viewed as important goal both as an indication of greater access by minorities to all residential areas and as a means of fostering greater understanding across racial and ethnic groups, it is also of interest to examine the extent to which

gains in minority homeownership have furthered or hindered the goal of greater racial and ethnic integration. Finally, in the mid 1990s, the U.S. Department of Housing and Urban Development (HUD) introduced housing goals for Fannie Mae and Freddie Mac (the government sponsored enterprises or GSEs) that included a goal of increasing access to mortgage credit in "underserved areas," defined as areas either with incomes no more than 90 percent of market-area median family income or where minorities comprise at least 30 percent of the population and area median family income does not exceed 120 percent of market-area median income. Given this geographically-targeted housing goal, it would be of interest to examine trends in homeownership rates in these underserved areas

The 2000 decennial census provides an opportunity to examine changes in homeownership at the neighborhood level, defined in this analysis as the census tract. This study will explore the characteristics of tracts where homeownership increased the most as well as those where there was little change or absolute declines. We also examine the characteristics of neighborhoods where minority homeownership increased. Given the establishment of the underserved-area housing goal for the GSEs, changes in homeownership in underserved areas are also of interest.

The next section of the report describes the data used in this analysis. Section 3 then analyzes how changes in homeownership rates during the 1990s were distributed across neighborhoods. Section 4 through 6 examine how change in homeownership for three key minority groups—blacks, Hispanics, and Asians—were distributed across neighborhoods. Section 7 then examines the characteristics of underserved areas that experience declines and gains in homeownership. Section 8 presents the results of multivariate analysis to examine the relative importance of various tract characteristics at the start of the decade in predicting which areas would experience the largest gains or declines in homeownership. The report ends with a discussion of conclusions and areas for further research.

2. Data

The goal of this study is to examine changes in homeownership rates between 1990 and 2000 at the neighborhood level, which is defined as the census tract. Census tracts are locally defined areas that generally have a population between 1,000 and 8,000. While tracts may span city or town boundaries, they do not cross state or county lines. Tract boundaries are intended to remain stable over many decades, and so generally follow visible, permanent boundaries such as roads, railways, or natural boundaries such as rivers or mountains.

Despite this intention, tracts do, in fact, change boundaries between decennial censuses to account for changes in population. Tracts that have grown rapidly will be split, while tracts that have lost population will be joined. There are three primary types of changes that are made to tract boundaries: a single tract may be broken into 2 or more tracts; 2 or more tracts may be combined into a single tract; and 2 or more tracts may be recombined to form 2 or more new tracts. These changes in tract definitions between decennial censuses pose a problem for analyzing changes at the neighborhood level over time. Of the 65,232 tracts identified in the 2000 census, 51 percent did not change boundaries. Of the remaining tracts, 9 percent resulted from one 1990 tract being broken into several tracts, 2 percent resulted from several 1990 tracts being combined into a single tract, and 38 percent resulted from multiple 1990 tracts being recombined into multiple tracts in 2000.

The data set used in this analysis is the Neighborhood Change Data Base (NCDB) developed by the Urban Institute and GeoLytics, Inc. This data set is specifically designed to support research that examines changes in neighborhoods over time by reporting data from the 1970, 1980 and 1990 decennial censuses using 2000 census tract definitions. The methodology used to create 1990 estimates of census tract characteristics corresponding to 2000 tracts relies on data reported by the census on 'blocks.' Blocks are the smallest geographic area for which decennial census data are reported, with an average population of about 100. Blocks are less likely to change between censuses than tracts. Between 1990 and 2000, 85 percent of blocks remained unchanged. The basic methodology used to create the NCDB is to derive weights for each 1990 tract that represent the proportion of the tract's population that falls within the 2000 tract boundaries. For example, if two 1990 tracts were recombined into three tracts in 2000, each 1990 tract would have three weights corresponding to the proportion of each tract that is estimated to comprise each of the three 2000 tracts. The weights for the 1990 tracts are derived from block level total population counts, which in turn are based on estimates of the correspondence between 1990 and 2000 blocks.[1]

There are some concerns with the estimates of 1990 tract characteristics. Given the small scale of census blocks, it is likely that the estimates of the share of each 1990-tract population that corresponds to 2000 tracts is fairly accurate. However, this methodology implicitly assumes that subgroups of the population are spread evenly throughout each tract. For example, consider the case of a 1990 tract with a 50 percent homeownership rate that is split evenly among two 2000 tracts. Since half of the population is allocated to each of the two 2000 tracts, the methodology will assume that each portion of the 1990 tract had a 50 percent homeownership rate. However, it is also possible that the two pieces of the 1990 tract that were split consisted on one area occupied mostly by renter households and one occupied mainly by owner households. The methodology cannot account for such uneven distributions of population subgroups within tracts. This issue will arise not just for housing tenure, but also for racial and ethnic groups and income classes. Since one of the goals in defining tracts is to identify areas that are demographically homogenous, it may be that extremely uneven geographic distributions of population characteristics within tracts are not common. However, there is no way to evaluate the degree of bias introduced by errors in the methodology used to allocate 1990 census data to 2000 tract boundaries.

Because our analysis focuses on changes in homeownership rates between 1990 and 2000, we exclude from our analysis tracts that had no occupied housing units in either 1990 or 2000. This situation arises mostly in tracts with a significant share of the population in group quarters rather than housing units. Group quarters include dormitories, prisons, and military barracks. In addition, there are cases where areas of 2000 tracts that consist entirely of housing constructed since 1990 and so did not contain any occupied housing units in 1990. In all, we exclude 555 of the 2000 census tracts, accounting for 0.25 percent of all households nationally in 2000.

Another challenge for analysis of changes during the 1990s using decennial census data is that a new approach was introduced in 2000 for identifying race. Prior to 2000, respondents were required to report a single race, but as of 2000 respondents were allowed to identify multiple racial categories. In

[1] For a more thorough discussion of the methodology for developing the estimates of 1990 census data in 2000 tract boundaries see Tatian (2002).

an attempt to make the 1990 and 2000 racial definitions comparable, the NCDB assigns a single racial category in 2000 to those who identified themselves as belonging to multiple racial groups using the following rules:

- If any of the racial groups identified is black, the person is considered black;
- Otherwise, if any of the racial groups is Asian, the person is considered Asian;
- Otherwise, if any of the racial groups is Native Hawaiian or Other Pacific Islander, the person is assigned to that racial group;
- Otherwise if any of the racial groups is white, the person is considered white; or
- Otherwise if any of the racial groups s American Indian or Alaskan Native, the person is considered to belong to this group.

The one remaining racial group is "some other race." Only those selecting this racial group alone are assigned to this group.

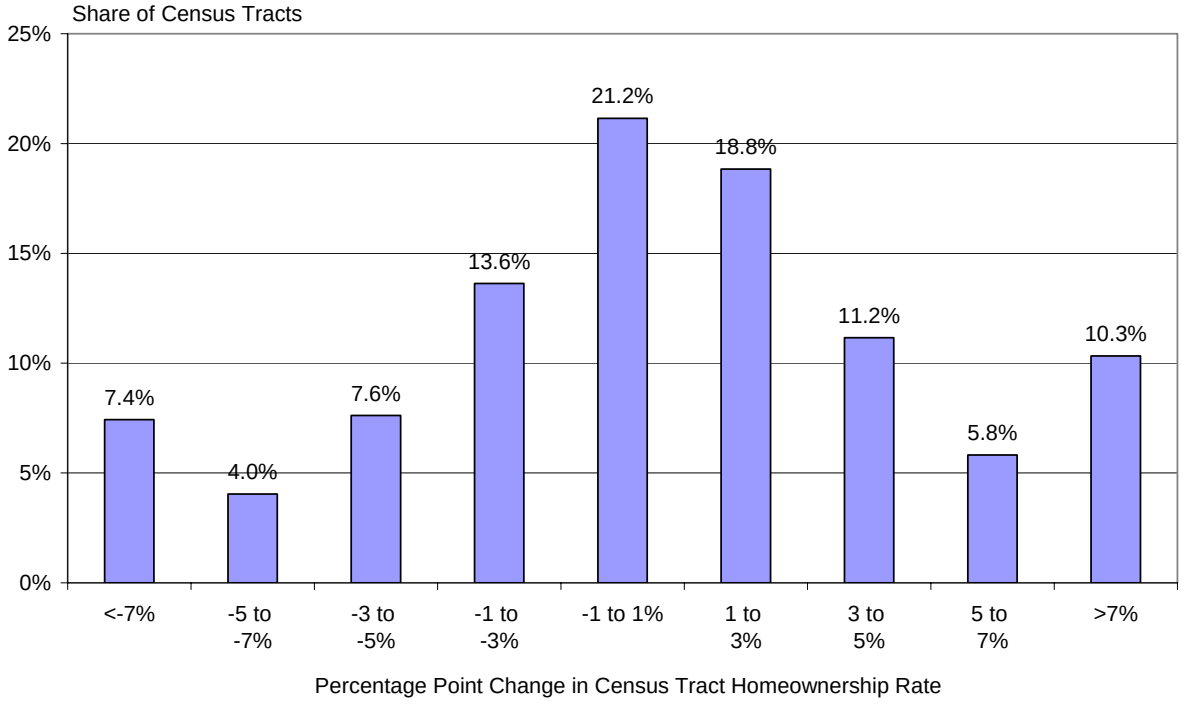
This study reports on the geographic distribution of homeownership gains among all households as well as separately for blacks, Hispanics, and Asians (which includes Native Hawaiians and Pacific Islanders). Of note, the three minority categories studied are not mutually exclusive: blacks include Hispanic blacks and Asians include Hispanic Asians.

3. Analysis of Changes in Homeownership Rates During the 1990s at the Neighborhood Level

Exhibit 2 presents summary information on changes in homeownership rates between 1990 and 2000 among the 64,677 tracts that are the focus of this analysis. As shown, there was a fairly broad distribution of changes in homeownership rates. Interestingly, while a majority of tracts experienced increases in homeownership rates (57 percent), a substantial share (43 percent) actually experienced declines in homeownership over the decade. In general, a small majority of tracts had relatively small changes in homeownership rates, with 53.6 percent experiencing changes of less than plus or minus 3 percentage points. A little more than a quarter of tracts (28.6 percent) experienced what might be described as moderate changes in homeownership rates of between 3 and 7 percentage points, while the remaining 17.8 percent experienced fairly significant changes of 7 percentage points or more.

One point to note is that while the average change in homeownership rates among all tracts was 0.77 percentage points, the overall increase in homeownership rates between the two censuses was 1.96 percentage points. This raises the question of why the average tract did not have an increase in homeownership rates that is closer to the overall gain. The divergence in these two measures highlights the fact that there are two ways in which overall homeownership rates can rise: one is by having increases in homeownership rates in individual tracts (called the rate effect) and the other is by having a greater share of households located in tracts with high homeownership rates (called the composition effect).

Exhibit 2
Distribution of Homeownership Rate Changes Across Census Tracts 1990 to 2000



To understand this point consider the simplified case where a country is comprised of two equally-sized areas – one of which has an ownership rate of 50 percent while the other has an ownership rate of 80 percent. The total homeownership rate for the country would be the average of these two areas or 65 percent. If after 10 years the ownership rates in these two areas have not changed, one might suppose that the overall homeownership rate for the country would not have changed. But if the number of households in the area with a high homeownership rate doubled, while the other remained constant in size, the overall homeownership rate would increase by 5 percentage points as the area with higher homeownership rates now accounts for twice as many households as the area with lower ownership rates.

It is possible to decompose the overall change in homeownership rates into a portion due to increases in rates at the neighborhood level and a portion due to changes in the distribution of households across tracts (the composition effect). (See Appendix A for a detailed discussion of this decomposition approach.) Applying this decomposition approach to changes in homeownership rates at the tract level reveals that about two thirds (1.33 percentage points) of the overall increase in homeownership rates during the 1990s can be attributed to shifts in population to areas with higher homeownership rates, with the remainder (0.63 percentage points) due to increases in tract homeownership rates. While the primary focus on this study is examining the characteristics of areas that experienced increases in homeownership rates, given the importance of shifts in population to areas of higher homeownership rates we will also examine this issue as appropriate.

3.1. Homeownership Change Quintiles

The primary goal of this paper is to examine the characteristics of neighborhoods that experienced the greatest gains in homeownership over the decade from 1990 to 2000. To accomplish this, the basic analytic approach used in this study is to divide census tracts into quintiles based on the change in the homeownership rate in each tract between 1990 and 2000. To define the quintiles, tracts are sorted from lowest to highest in terms of the change in the homeownership rate. The quintiles are defined by dividing tracts into five groups with an equal numbers of households as of 2000. The average characteristics of tracts in each quintile are then compared to identify demographic, economic, and housing stock differences associated with different changes in homeownership rates over the decade.

One challenge with this approach is that tracts with smaller starting populations are more likely to have large changes in ownership rates. However, requiring that each of the quintiles have an equal number of households ensures that the groups are of equal importance in their contribution to overall homeownership rates. In addition, in describing the average characteristics of tracts in each quintile, we use the total number of households in each tract in 2000 as weights so that the characteristics of tracts with a small number of households do not have a disproportionate contribution to the average.

Exhibit 3 presents summary information on the change in homeownership rates for the five homeownership change quintiles of census tracts defined by this approach. The first quintile consists of tracts that had the largest declines in homeownership rates over the decade. Most tracts in this quintile experienced moderate declines in homeownership, with an average decline of 7.8 percentage points, and a range of declines from 100 to 2.7 percentage points. In general, tracts in the second quintile had small declines in homeownership rates, averaging 1.3 percentage points and ranging from 2.7 to 0.3 percentage points. Tracts in the third quintile had relatively little change in ownership rates, on average increasing by 0.6 percentage points and ranging from declines of 0.3 points to increases of 1.5 points. The fourth quintile experienced moderate increases in homeownership rates, with an average increase of 2.6 percentage points and gains ranging from 1.5 to 3.9 percentage points. Finally, tracts in the fifth quintile had moderate to significant gains in rates, averaging 9.5 percentage points and ranging from 3.9 to 100 percentage points.

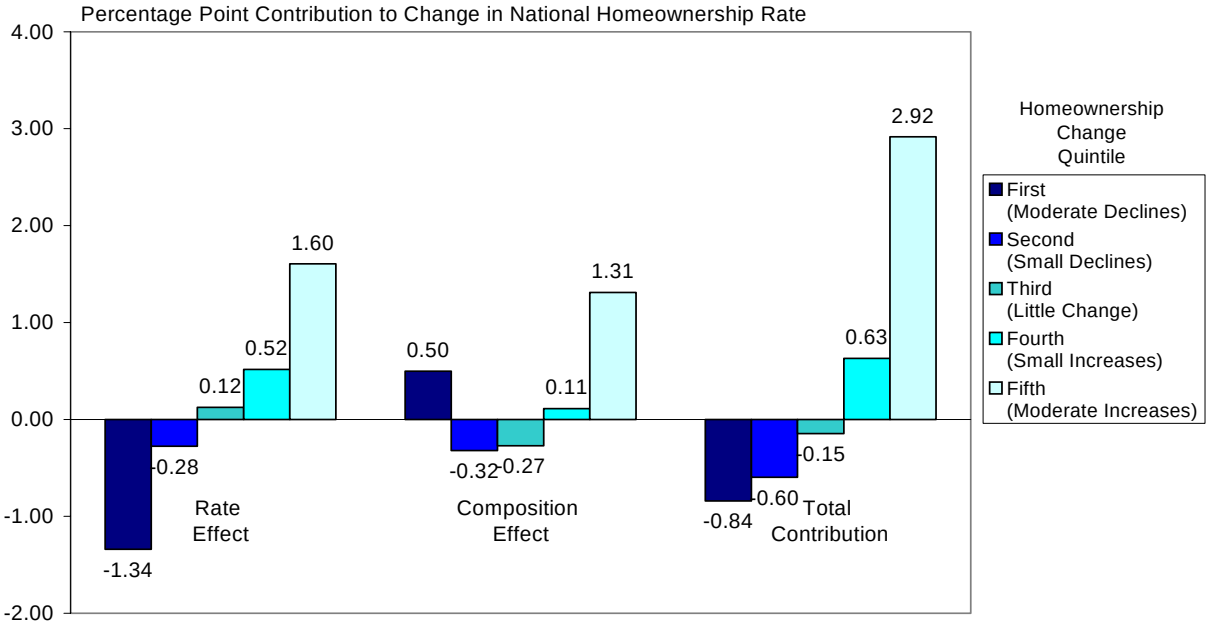
Exhibit 3 also shows that the number of tracts ranges from 12,375 in the second quintile to 13,810 in the fifth quintile. The higher number of tracts in the first and fifth quintiles is consistent with the expectation that tracts with more extreme changes in homeownership rates would tend to be tracts with a smaller number of households at the start of the decade. But on average the differences in tract size are not large. The average number of households in each tract in 1990 by quintile ranges from 1,250 to 1,547.

Before turning to an analysis of variations in the characteristics of neighborhoods across these five quintiles, it is interesting to consider how much each quintile contributed to the overall increase in homeownership rates. As noted above, shifts in population between tracts accounted for a significant share of the overall rise in homeownership rates. It could be the case that areas with relatively small increases in homeownership rates nonetheless accounted for a large share of the national gains in homeownership. Exhibit 4 details the overall contribution of each of these quintiles to the national change in homeownership rates of 1.96 percentage points using the decomposition technique introduced above and described in detail in Appendix A.

Exhibit 3
Change in Homeownership Rates by Homeownership Change Quintile

	Homeownership Change Quintile					
	Quintile 1 Moderate Declines	Quintile 2 Small Declines	Quintile 3 Little Change	Quintile 4 Small Gains	Quintile 5 Moderate Gains	All Tracts
Homeownership Rate Change						
Average	-7.8%	-1.3%	0.6%	2.6%	9.5%	0.8%
Minimum	-100.0%	-2.7%	-0.3%	1.5%	3.9%	-100.0%
Maximum	-2.7%	-0.3%	1.5%	3.9%	100.0%	100.0%
Other Characteristics						
Average Households 1990	1,327	1,547	1,542	1,468	1,250	1,421
Average Households 2000	1,567	1,700	1,700	1,659	1,524	1,627
Number of Tracts	13,430	12,375	12,380	12,682	13,810	64,677

Exhibit 4
Contribution of Each Homeownership Change Quintile to Overall National Change in Homeownership Rates 1990 to 2000



Note: See text for definition of rate and composition effects. Total contribution is the sum of rate and contribution effects. Sum of total contribution for the five quintiles is the national change in homeownership rates between 1990 and 2000.

The first set of bars in Exhibit 4 show the "rate effect" associated with each quintile, which is the contribution made by each of the five quintiles due to changes in homeownership rates at the tract level. Tracts in the bottom two quintiles had negative impacts on national homeownership rates (-

1.34 and –0.28, respectively), while tracts in the third through fifth quintiles had positive impacts (0.12, 0.52, and 1.60, respectively). Since the quintiles are defined on the basis of the change in homeownership rate at the tract level, these results are not surprising. But the decomposition methodology pinpoints the magnitude of the contribution of each group of tracts and, as shown, the bottom and top quintile are found to make much larger contributions to overall changes in homeownership rates than the middle quintiles.

The middle set of bars in Exhibit 4 illustrate the contribution made by each quintile to the national change in homeownership rates as a result of shifts in population between tracts. As described above, the "composition effect" measures the extent to which shifts in population between tracts accounted for changes in the national homeownership rate. The results show that the top quintile contributed nearly as much to the increase in national homeownership rates as a result of increases in population (1.31 percentage points) as it did from increases in homeownership rates (1.60 percentage points). Interestingly, the quintile with moderate declines in homeownership rates also made a fairly large positive contribution to national homeownership rates due to shifts in population of 0.50 percentage points. As will be discussed more below, the positive composition effect associated with the first quintile reflects the fact that these neighborhoods experienced above average increases in households during the decade.

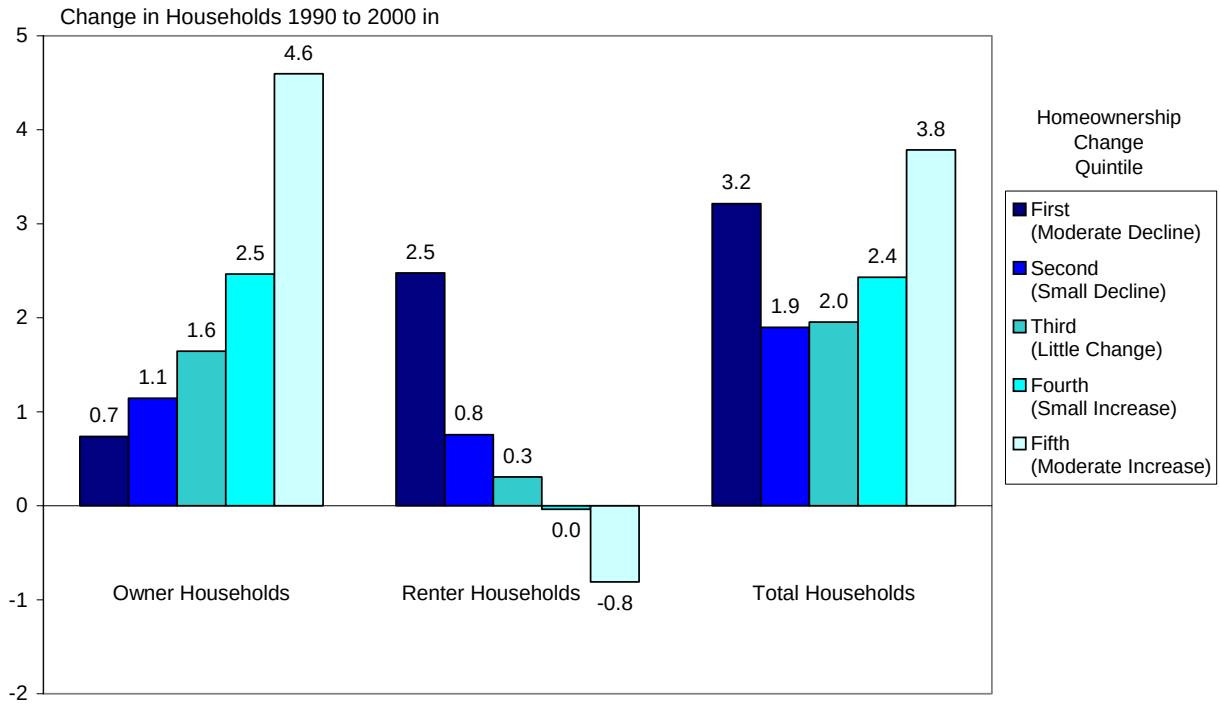
The last set of bars in Exhibit 4 show the sum for each quintile of the combined rate and contribution effects, which is the total contribution of each quintile to the national gain in homeownership rates over the decade. (The sum across quintiles of the "total contribution" equals the 1.96 percentage point increase in the national homeownership rate.) As shown, tracts with moderate gains in homeownership rates made by far the biggest contribution to the national gain in homeownership rates. Tracts with small gains in homeownership made a smaller positive contribution, while the remaining three quintiles actually had a negative influence on the national homeownership rate. This exhibit underscores the fact that the homeownership gains of the 1990s were clearly concentrated in the top quintile of tracts, those with moderate to significant gains in homeownership. Tracts with small gains in homeownership also made a positive contribution to overall homeownership rates, but the amount was small relative to the top quintile. The remaining quintiles of tracts all had declines in homeownership rates.

As noted above, the pattern of composition effects across quintiles reflects differences in household growth across the five quintiles. Exhibit 5 shows the aggregate change in households by tenure for each of the five homeownership change quintiles. In terms of the number of owner households, the quintiles with small and moderate gains in homeownership rates accounted for two-thirds of the overall gain in homeowner households over the decade. In fact, 43 percent of the national growth in homeowner households was in the top quintile alone. However, while homeownership growth was heavily concentrated in these two quintiles, there were absolute gains in the number of owner households in all quintiles.

It is also interesting to note that while the bottom quintile (tracts with moderate declines in homeownership) experienced relatively slow growth in owner households, in the aggregate this category experienced the largest growth in renter households. In fact, only tracts with moderate increases in homeownership rates had faster overall household growth. The three middle quintiles all had similar levels of overall household growth, although tracts with small increases in

homeownership rates grew somewhat faster than tracts with small declines or little change in homeownership rates. Thus, despite being at opposite ends of the spectrum in terms of growth of owner households, tracts with moderate declines in homeownership and those with moderate increases were both areas of fairly robust household growth. In fact, tracks that experienced moderate declines in homeownership did so mostly because of exceptionally strong growth in renter households.

Exhibit 5
Change in Number of Households by Tenure and Homeownership Change Quintile



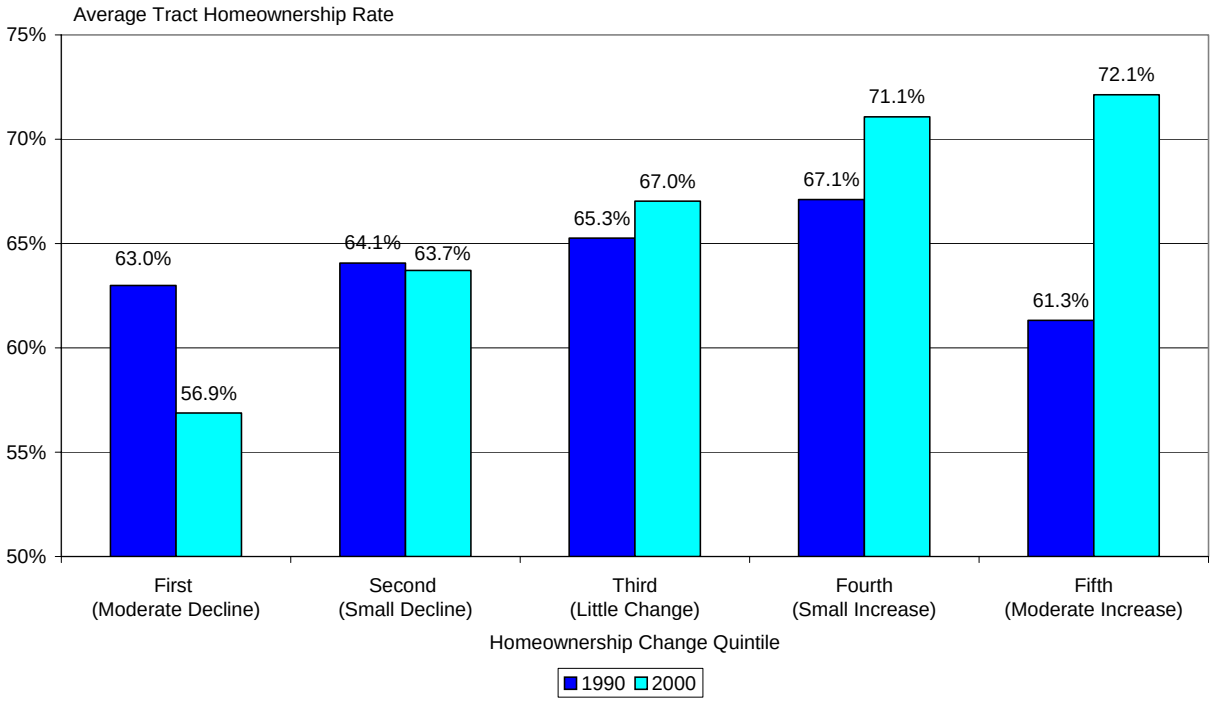
It is also noteworthy that the number of renter households actually declined in tracts with moderate increases in homeownership and, to a lesser extent, among tracts with small increases in homeownership. The absolute decline in renter households coupled with strong growth in owner households indicates that the gains in homeownership that occurred in these quintiles can be attributed at least in part to tenure switching of some of the existing housing stock from renters to owners.

As illustrated in Exhibit 6, one of the interesting features of the five quintiles is that, for the most part, the quintiles with larger gains in homeownership started the decade with higher rates of homeownership.[2] However, the exception to this pattern is the fifth quintile with moderate gains in

[2] In order to avoid having small tracts (which are more likely to experience large swings in homeownership rates) from exerting undue influence on the quintile averages, the quintile averages for 1990 are weighted by the number of households in each tract in 1990 while the averages for 2000 are weighted by the number

homeownership, which actually started the decade with the lowest homeownership rates among the five quintiles. In these tracts, the increase in the homeownership rate would appear to have made a more substantial impact on these neighborhoods, moving them from areas with a lower than average share of owner-occupied units to areas with than higher than average shares of these units.

Exhibit 6
Trends in Average Homeownership Rates by Quintile (1990 to 2000)



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

3.2. Characteristics of Neighborhoods by Homeownership Change Quintile

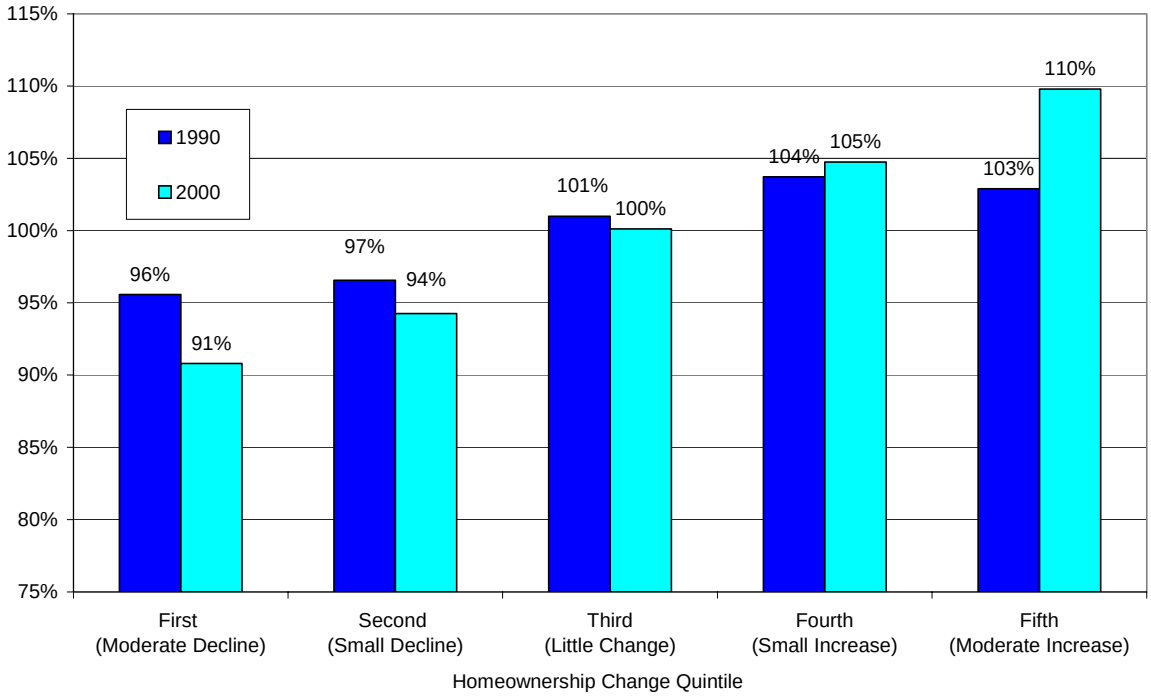
Income and House Values

As noted at the close of the previous section, the quintile with moderate gains in homeownership was characterized by very sharp increases in owner-occupied housing units coupled with declines in the number of renter households, resulting in a transformation of these tracts from areas with the lowest homeownership rates of the five quintiles in 1990 to having the highest homeownership rates in 2000. This significant transformation of these neighborhoods is reflected in trends in income and house values in these tracts. For each of the five homeownership change quintiles, Exhibits 7 and 8 present

of tract households in 2000. This weighting scheme is used in all of the exhibits that compare 1990 and 2000 averages unless otherwise noted.

the average tract household income as a percent of the relevant area average income in 1990 and 2000 and the average tract house value as a percent of the area average house value. For tracts in metropolitan areas, the "area" is the metropolitan area as defined at the time of the 2000 census. For non-metropolitan areas the "area" is the non-metropolitan portion of the state where the tract is located. Measuring income and house values as a percent of the area average is meant to provide some control for variation in income levels and house values across market areas and over time.

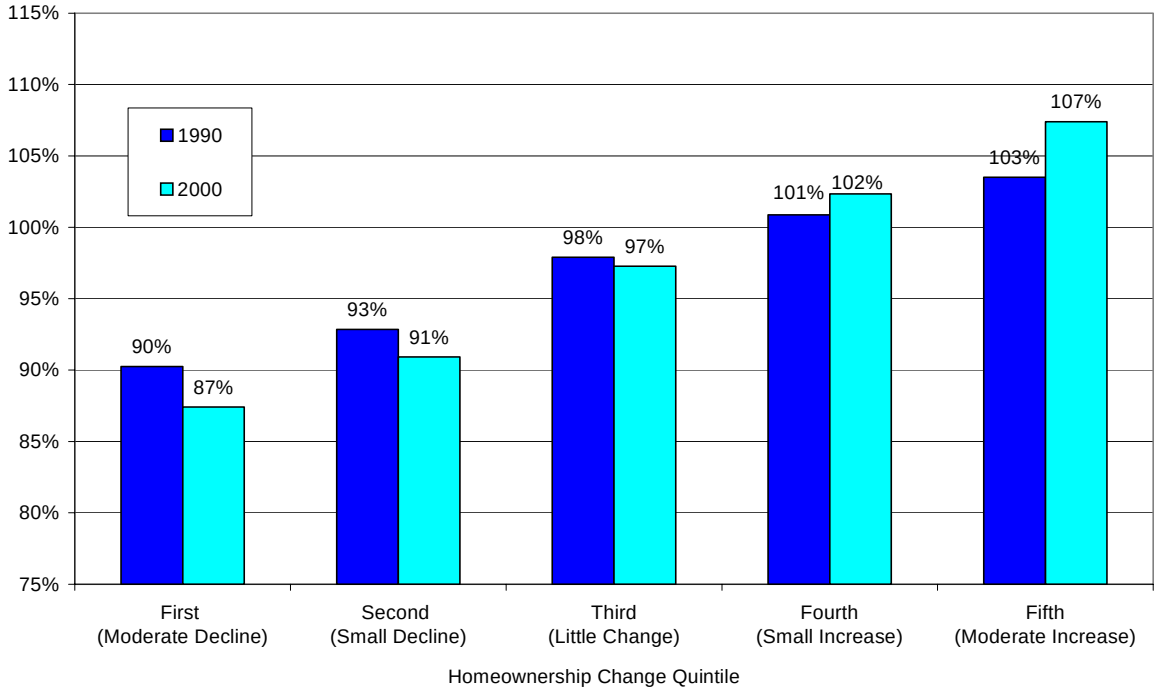
Exhibit 7
Trends in Tract Average Household Income as a Percent of Area Average Income by Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Focusing first on income and house values at the start of the decade, there is a fairly clear tendency for areas with higher incomes and house values to have experienced stronger growth in homeownership rates over the decade. This relationship is clearest with regard to house values, as tract average values as a percentage of the area average rises from a low of 90 percent in the first quintile to a high of 103 percent in the fifth quintile. This relationship is more muted with income, as the quintile with the highest levels of homeownership gains had average incomes that were slightly lower than the fourth quintile and only 2 percentage points higher than the third quintile. The range of average incomes across the quintiles is also less extreme than for house values, ranging from a low of 96 percent in the first quintile to 104 percent in the fourth quintile.

Exhibit 8
Trends in Tract Average House Value as a Percent of Area Average House Value by Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

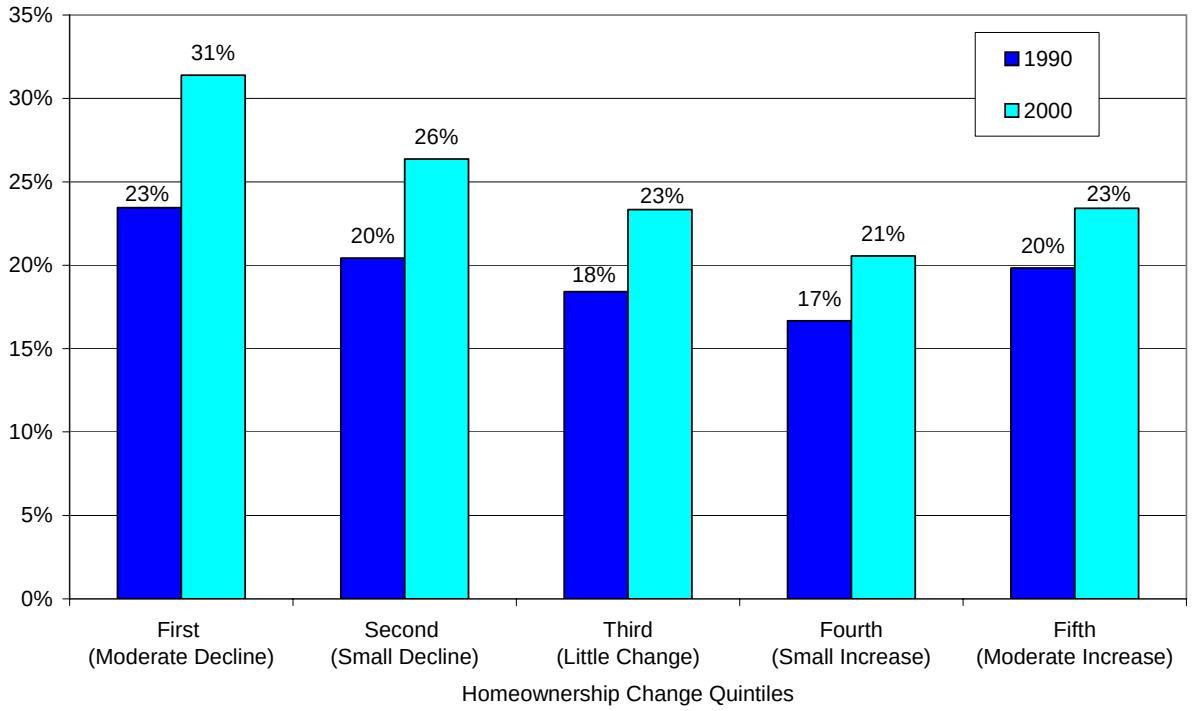
In terms of trends in incomes and house values, greater increases in homeownership were associated with larger increases in both incomes and house values. This trend is perhaps not surprising since owners have higher incomes than renters and the sharper rise in homeownership would be expected to spur increases in house values. In fact, the first three quintiles experienced declines in relative incomes and house values over the decade, while the top two quintiles had increases. As a result of these divergent trends, by 2000 there fairly large differences in average incomes and house values between the first and fifth quintiles. Average tract incomes in the fifth quintile increased to 110 percent of the area average, while average incomes in the first quintile dropped to 91 percent of the area average. Income growth was much stronger in the fifth quintile than in the fourth quintile, so that by the end of the decade the areas with the largest increases in homeownership had the highest average incomes of the five quintiles. Similarly, average house values increased to 107 percent of the area average in the fifth quintile, while declining to 87 percent of the area average in the first quintile. Thus, there is some evidence that the homeownership boom in the 1990s did favor areas that were better off at the start of the decade.

Racial Composition

Another interesting question concerns the racial composition of tracts where homeownership increases were concentrated. Exhibit 9 shows the average share of minority households among tracts by quintile. In general, the larger the increases in homeowner rates, the lower the share minority in the quintile – with the exception of the quintile with moderate gains in homeownership rates. Tracts

with the largest gains in homeownership started the decade with an average minority share that was higher than tracts that experienced little change or small gains in homeownership. However, these tracts experienced smaller increases in minority shares over the decade, so by 2000 the share minority in the top quintile was near the bottom of the distribution across the quintiles. In contrast, areas with moderate declines in homeownership – and strong growth in renter households – had the largest gains in the share minority. Thus, while it is true that homeownership gains were generally more likely in areas with lower minority shares, the tracts with the largest gains in homeownership had moderate shares minority. In part, this may reflect the concentration of these tracts in the South and West, where the share minority is higher.

Exhibit 9
Average Tract Share Minority by Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Housing Stock Characteristics

As noted in the beginning of this section, the areas with both small and moderate gains in homeownership rates experienced an absolute decline in the number of renter households. This suggests that part of the increase in homeownership rates occurred as a result of tenure switching of housing units from rentals to owner-occupied units. Exhibits 10 and 11 provide support for this conclusion. Exhibit 10 shows the share of single-family homes that were rented in 1990 and 2000 for each of the five homeownership rate change quintiles. Since a majority of homeowners occupy single-family homes, rented single-unit buildings are a likely source for increases in homeownership.

At the start of the decade, tracts that experienced moderate increases in homeownership actually had a slightly higher rental rate of single-family units than the other quintiles – 18 percent compared to 16 percent for the middle quintiles and 17 percent for tracts that experienced moderate declines in homeownership. But by the end of the decade, the share of single-family units that were rented in the top quintile had dropped by 5 percentage points, while among tracts with small increases in homeownership the share dropped by 2 percentage points. In contrast, the tracts experiencing moderate and small declines in homeownership had increases of 3 and 2 percentage points, respectively, in the share rented.

Decreases in renter households may also occur from an increase in ownership among multifamily unit buildings. Exhibit 11 shows the ownership rate of housing units in buildings with five or more units (which are most likely condominiums or cooperatives). At the start of the decade, there was little variation across the five quintiles in the ownership rate of these units, although both quintiles with moderate declines and increases in homeownership had slightly higher multifamily ownership rates than the middle quintiles. Over the decade, the ownership rate in multiunit structures rose in quintiles with small (2 percentage points) and moderate gains in homeownership rates (by 2 and 4 percentage points, respectively), while dropping among tracts with moderate and small declines in homeownership (by 6 and 2 percentage points, respectively). Thus, by the end of the decade there was a fairly large divergence in the ownership rates of multiunit structures across quintiles, ranging from 16 percent in the bottom quintile to 27 percent in the top quintile.

Aside from tenure switching of existing units, increases in homeownership are also supported by new construction. In keeping with the household growth patterns by quintile, Exhibit 12 shows that tracts with moderate gains in homeownership had the largest share of housing units built during the 1990s at 24 percent. Reflecting the household growth patterns, tracts with moderate declines in homeownership rates had the second largest share of newly constructed units of either tenure.

As shown in Exhibit 13, the relatively high volumes of new construction in these areas were associated with fairly large swings in the share of the housing stock in single-family and multifamily units. Interestingly, at the start of the 1990s, the quintile of tracts with moderate increases in homeownership actually had the smallest share of single-family units of the five quintiles – 62 percent compared to 64 percent for the quintiles experiencing declines in homeownership. Over the course of the decade, however, the single-family share of the housing stock rose sharply among tracts with moderate increases in homeownership to 70 percent, while dropping significantly among tracts with moderate declines in homeownership to 60 percent. Thus, the tenure trends among these quintiles were clearly supported by new construction of housing units.

In keeping with the high share of single-family units in the fourth and fifth quintiles, these areas also had much lower levels of housing density per square mile of land. In 1990, the fourth and fifth quintiles had an average of 1,908 and 1,856 housing units per square mile, respectively, compared to about 2,300 units per square mile in the second and third quintiles. The first quintile had a housing density level that was between these two extremes, with 2,100 units per square mile. While all quintiles experienced increases in average housing density over the decade, the increases were fairly small so the two quintiles with the greatest increases in homeownership rates remained much less dense than the other three quintiles.

Exhibit 10
Share of Housing Units in Single Unit Structures That Are Rented by Homeownership Growth Quintile

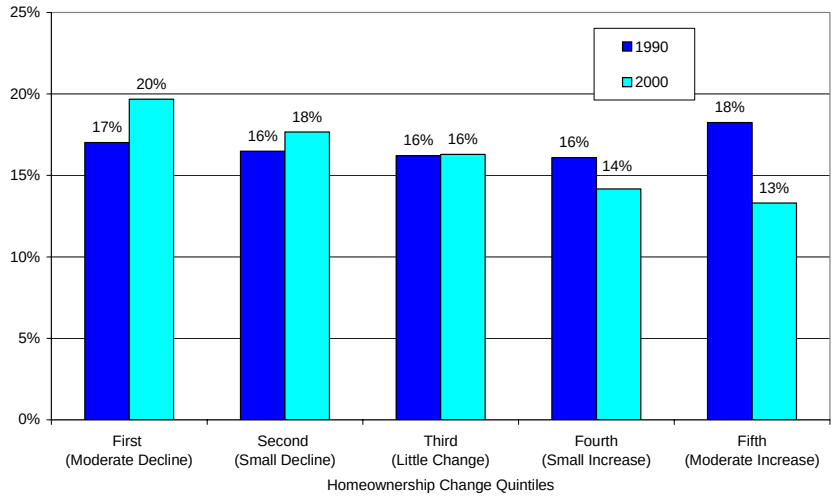


Exhibit 11
Ownership Rate of Units in Buildings with 5 or more Units by Homeownership Growth Quintile

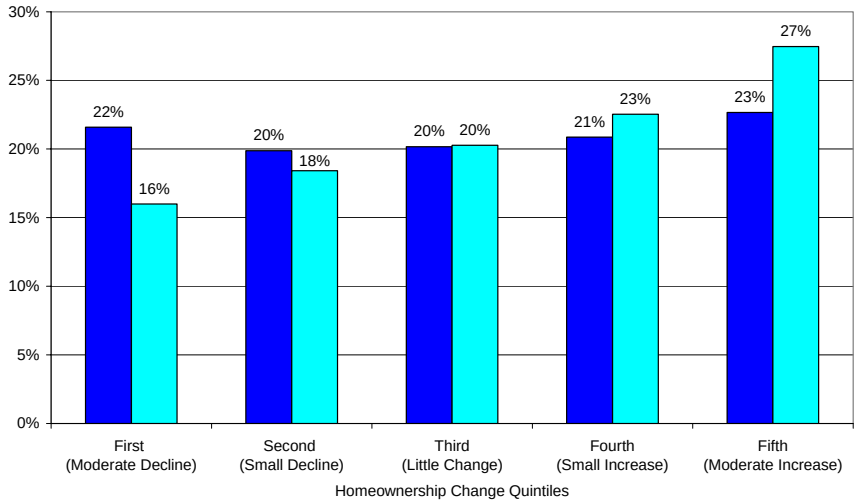


Exhibit 12
Share of All Housing Units Built in Last Decade by Homeownership Growth Quintile

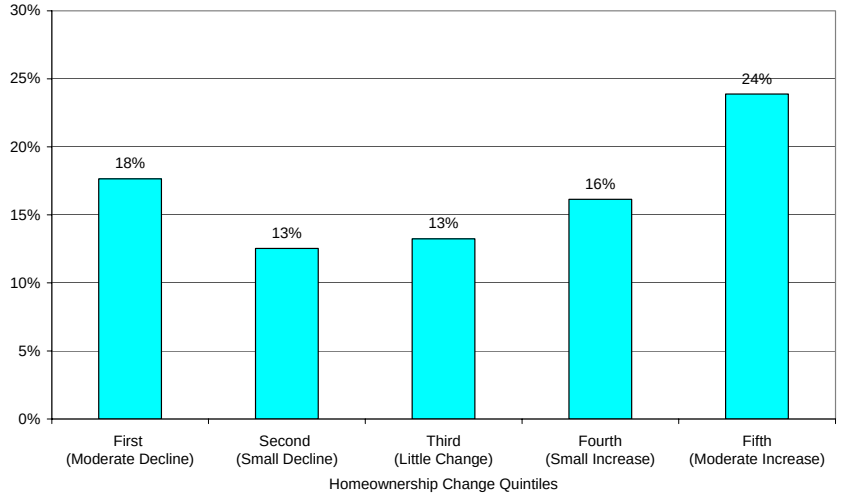
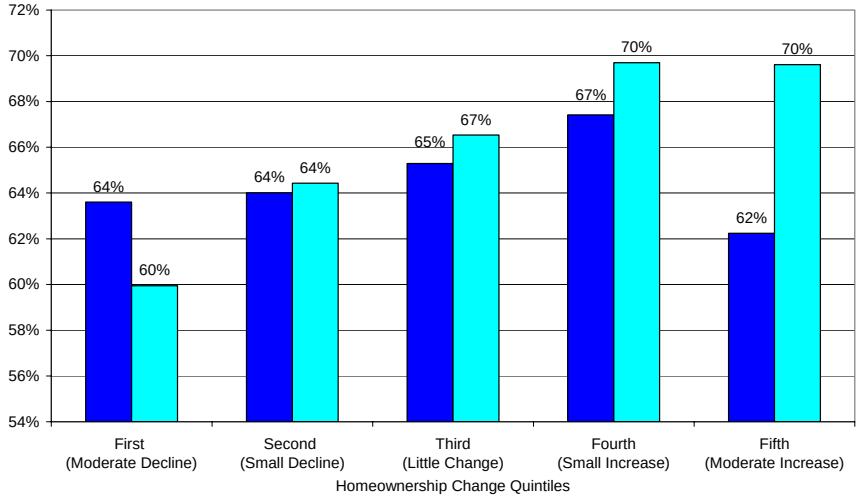


Exhibit 13
Share of Housing Units in Single Unit Structures by Homeownership Growth Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

1990 2000

Regional and Intra-Metropolitan Distribution of Homeownership Gains

Exhibit 14 shows the share of households in each homeownership change quintile that reside in the four broad regions of the country. In most cases, each region's share of a quintile's households is within four percentage points of their share of all U.S. households, so there is not a significant regional bias in how these quintiles are distributed. However, among the larger deviations are the above average shares of households in the quintiles experiencing moderate declines and increases in homeownership in the South and West coupled with below average shares in these quintiles in the Northeast and a below average share in the bottom quintile in the Midwest. This pattern reflects the fact that the South and West are the fastest growing regions and so naturally have a larger share of the fastest growing tracts, which are concentrated in the quintiles with the largest changes in homeownership rates. Other notable deviations are that the Northeast has higher than average shares of households in the quintiles with small declines or little change in homeownership, while the Midwest has an above average share in the quintile experiencing small gains in homeownership.

Exhibit 14
Share of Households in Each Homeownership Change Quintile by Region

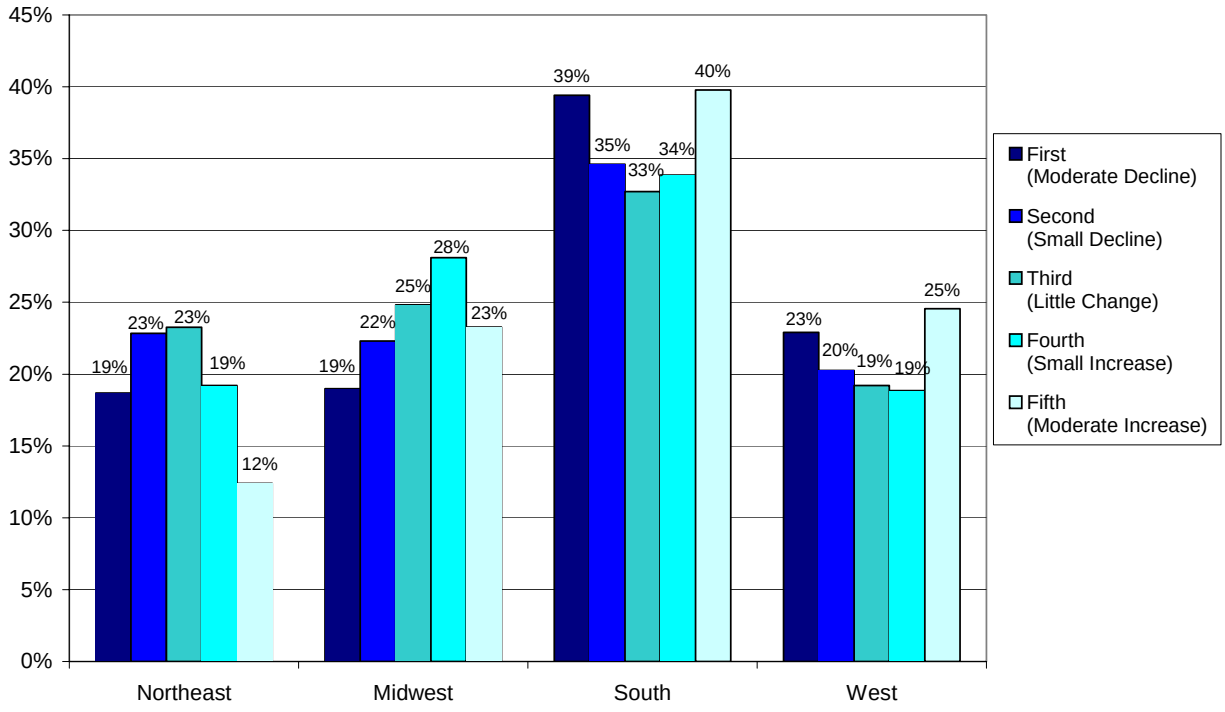
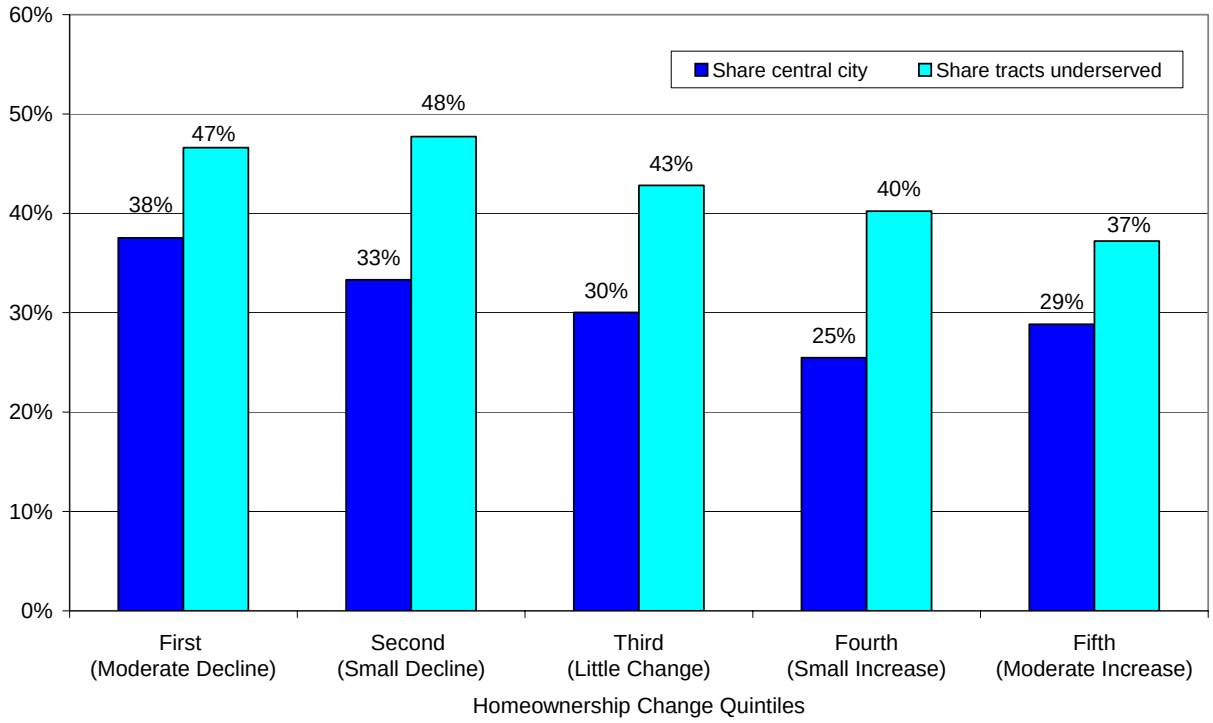


Exhibit 15 shows the share of households living in central cities and underserved tracts in each quintile. For example, the exhibit shows that 38 percent of households in the first quintile live in a census tract that is in a central city, while 47 percent live in a census tract that is underserved. There is a fairly clear tendency for areas experiencing larger increases in homeownership to include fewer households living in central cities and in underserved tracts. Although the top quintile once again breaks this pattern by having a slightly higher share central city than the quintile with small gains in homeownership. But while the share of tracts in central cities is lower in areas experiencing increases

in homeownership, nonetheless, central cities did have a non-trivial share of tracts with the most rapid increases in homeownership. Overall, 31 percent of households reside in central city tracts. Thus, the 29 percent share of households in the quintile of tracts with the largest increase in homeownership is not very far below average. There is a slightly larger divergence, however, in the share of underserved tracts. Overall, 43 percent of all tracts are underserved, but only 37 percent of tracts in the quintile with moderate gains in homeownership rates are underserved.

Exhibit 15
Share of Households that Live in Central City and Underserved Census Tracts by Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Neighborhood Distribution of Homeownership Change in Selected Metropolitan Areas

To get a sense of how this analysis plays out in individual metropolitan areas, we selected the three largest areas in each of the four regions of the country for examination. Exhibit 16 lists these metro areas in order based on the change in their homeownership rates during the 1990s. As shown, the 12 areas include a fairly broad range of changes in homeownership, ranging from a decline of 0.4 percentage points in Los Angeles to a gain of 4.4 percentage points in Houston. The areas also experienced a fairly broad range of household growth, from a low of 4.7 percent in Los Angeles to a high of 38.6 percent in Phoenix. The right hand columns of Exhibit 16 shows how the neighborhoods in each of these market areas are distributed across the five homeownership change quintiles. As shown, all metro areas had tracts in each of the five categories. Nonetheless, there were some differences in the distribution of tracts that reflect differences in both overall homeownership changes

in the market as well as levels of household growth. To begin with, there was a clear tendency for areas with more significant increases in homeownership to have a greater share of tracts in the quintile with moderate increases in homeownership and for those with slower homeownership growth to have a lower share. On the flip side, areas with slow growth in homeownership tended to have higher shares of tracts in the quintiles with small declines or little change in homeownership, while areas of more significant growth in homeownership rates had lower shares in these areas. The areas with the greatest share of tracts in the quintile with moderate declines in homeownership actually had high overall levels of homeownership increases, reflecting the fact that these areas had high levels of household growth and so experienced rapid growth in renter households in some areas.

Exhibit 16
Share of Households by Homeownership Change Quintiles for Selected Metropolitan Areas

Metropolitan Area	Change in Homeownership Rate 1990 to 2000	Household Growth Rate 1990 to 2000	Distribution of Census Tracts by Homeownership Change Quintile				
			First (Moderate Decline)	Second (Small Decline)	Third (Little Change)	Fourth (Small Increase)	Fifth (Moderate Increase)
Los Angeles	-0.4%	4.7%	23%	31%	22%	13%	11%
Philadelphia	0.2%	6.4%	31%	23%	18%	14%	14%
Riverside	1.2%	19.3%	35%	19%	11%	10%	26%
New York	1.3%	7.1%	17%	20%	25%	19%	18%
Boston	2.2%	8.6%	9%	15%	26%	30%	20%
Washington	2.7%	18.0%	21%	15%	19%	23%	23%
Detroit	2.9%	7.3%	13%	16%	24%	25%	22%
Minneapolis	3.6%	18.4%	14%	18%	20%	26%	23%
Chicago	3.6%	11.2%	13%	19%	20%	19%	29%
Atlanta	3.7%	36.5%	28%	13%	13%	16%	30%
Phoenix	3.9%	38.6%	27%	16%	14%	15%	27%
Houston	4.4%	22.5%	20%	10%	14%	16%	41%

Note: Metropolitan areas are metropolitan statistical areas or primary metropolitan statistical areas as used in reporting results of the 1990 and 2000 decennial censuses.

One question this study was intended to examine was whether the relatively strong increase in homeownership evident in the 1990s might have served to depress household growth in areas with fewer homeownership options. The analysis of household growth among all tracts in the quintile with moderate declines in homeownership found that on average these areas actually experienced fairly robust household growth – just that this growth was concentrated among renters. However, it is still possible that in some metro areas tracts with declines in homeownership were more likely to experience actual declines in households. However, a review of household growth rates by homeownership change quintile in each of these 12 metro areas finds that in all of these markets, tracts with moderate declines in homeownership rates had either the highest or second highest rate of growth of the five quintiles. (See Appendix Exhibit A-1 for household growth rates by tenure for each quintile in these 12 market areas.) Thus, the basic pattern evident in the national statistics is also evident in each of these markets.

Appendix B also presents maps of the tracts in each of these 12 metro areas to illustrate how the five types of tracts are distributed throughout these market areas. While there are no good summary measures for these distributions, a few patterns are evident:

- Tracts from all five quintiles are located throughout these metro areas;
- While tracts with moderate increases in homeownership are found throughout the metro areas, there is a tendency for a slightly higher concentration of these tracts on the periphery; and
- Tracts with moderate decreases in homeownership rates are also found throughout the metro areas, but there is a tendency for these tracts to be adjacent to major highways and to have a slightly lower concentration on the periphery.

3.3. Summary

While homeownership gains were fairly widespread during the 1990s, it was by no means the case that most neighborhoods shared in these gains. A small majority (57 percent) did see rising homeownership rates, but 43 percent saw rates drop over the decade. Many neighborhoods (53.6 percent) experienced fairly small changes (gains or declines of less than 3 percentage points) in homeownership rates over the course of the 1990s, although 28.6 percent experienced moderate changes of plus or minus 3 to 7 percentage points and 17.8 percent experienced significant changes in excess of plus or minus 7 percentage points. Thus, there was a fair amount of diversity across neighborhoods in the degree of change in homeownership rates over the decade, with a sizeable share experiencing sizeable swings over the decade.

To compare the characteristics of neighborhoods across this distribution of changes in homeownership rates, census tracts were divided into quintiles from the largest declines in homeownership to the largest gains. Tracts in the top quintile, which experienced moderate to significant increases in homeownership rates, were found to account for much of the overall gain in national homeownership rates. The contribution reflected both an increase in tract-level homeownership rates and more rapid household growth in these areas. One interesting result from comparing the characteristics of neighborhoods with moderate declines in homeownership to those with moderate increases is that there was a fair amount of similarity in some of the characteristics of these two groups of tracts. Tracts with both the largest declines and largest increases in homeownership rates both experienced relatively high rates of household growth over the decade. However, areas with moderate increases in homeownership had rapid growth in owner households while those with moderate declines in homeownership had rapid growth in renter households. The areas of strongest growth and greatest declines in homeownership over the decade also started out with a similar housing stock profile, including lower shares of single family units and higher rates of multifamily ownership than other groups of tracts.

Among the key differences were that the quintiles of tracts with greater gains in homeownership started the decade with higher average incomes and house values than the other quintiles. Higher levels of homeownership gains were also associated with greater gains in income and house values so that by the end of the decade there were fairly large differences across the quintiles. In 2000 tracts in

the first quintiles had incomes that were 91 percent of the area average income and house values that were 87 percent of the area average, compared to the fifth quintile where tract incomes averaged 110 percent of the area average and house values averaged 107 percent. Other differences between the tracts with moderate declines and moderate increases in homeownership are that areas with declining rates had greater shares of minorities and larger proportions of central city households.

With regard to the question of whether the homeownership boom of the 1990s was a case of the rich getting richer, the answer is somewhat mixed. Tracts where homeownership growth was concentrated started the decade as places with higher than average concentrations of renters and had housing stock characteristics that were similar in several respects to areas that experienced declines in homeownership. But there was also a clear association for areas with rapid growth in homeownership to have started the decade with higher average incomes and house values than other quintiles. The rapid growth of homeowners in these areas combined with the rapid growth of renters in quintiles that had declines or little gains in homeownership intensified these differences so that by the end of the decade the differences in average incomes and house values across the homeownership change quintiles had gotten much larger. Nonetheless, areas experiencing drops in homeownership rates cannot be characterized as declining areas. These neighborhoods were marked by fairly rapid growth in households and high levels of new construction.

An examination of the patterns evident in selected MSAs suggests there is a tendency for high owner growth tracts to be located toward the periphery, but there are also high growth tracts in central cities and dispersed throughout the MSA. Areas of high renter growth are less likely to be on the periphery of the MSA and tend to be located more toward the center or along transportation corridors. A more detailed analysis of specific metro areas may be needed to shed more light on the factors associated with trends in homeownership.

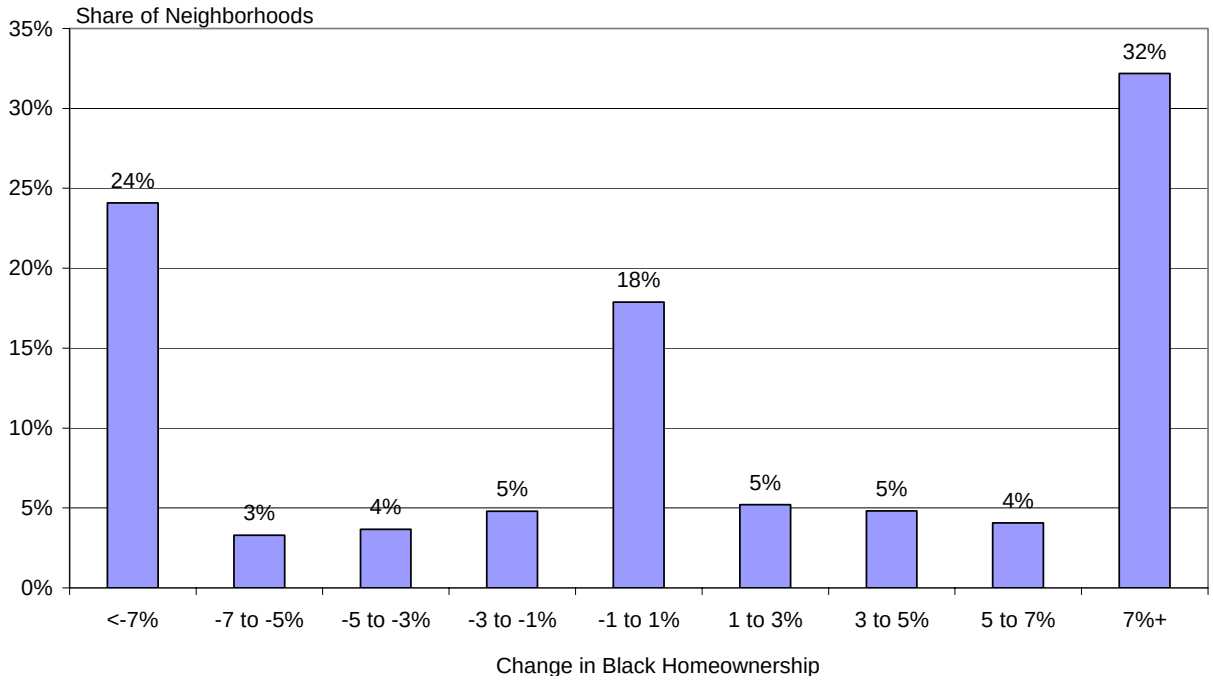
4. Neighborhood Distribution of Black Gains in Homeownership

In examining changes in black homeownership rates at the neighborhood level, we begin by excluding tracts that did not have any black households at the beginning or end of the decade. After applying this exclusion, a total of 46,343 tracts are included in our analysis.[3] In these neighborhoods the aggregate black homeownership rate increased by 2.90 percentage points over the 1990s, from 43.4 percent to 46.3 percent, while the average tract saw an increase of 1.7 percentage points.[4] As shown in Exhibit 17, a majority of tracts experienced significant swings in black homeownership

[3] This restriction resulted in 18,317 tracts being dropped from the analysis out of the 64,677 tracts included in the analysis of overall homeownership rates. Some of the dropped tracts included small numbers of black households in either 1990 or 2000, but collectively they accounted for less than 1 percent of all black households in 2000.

[4] The fact that the average increase in black homeownership across tracts is less than the aggregate increase reflects the fact that changes in the distribution of black households across tracts contributed to the overall rise in black homeownership. This issue will be examined more below.

Exhibit 17
Distribution of Neighborhoods by Change in Black Homeownership Rate 1990 to 2000



rates over the decade, with 24 percent experiencing declines of 7 percentage points or more and 32 percent experiencing increases of 7 percentage points or more. A small majority of neighborhoods experienced increases in black homeownership (61.6 percent), with the rest experiencing declines.

4.1. Black Homeownership Change Quintiles

The same methodology used to create quintiles of tracts based on changes in overall homeownership rates during the 1990s was used to create quintiles of tracts based on changes in black homeownership rates. Tracts were ordered from lowest to highest in terms of the change in the black homeownership rate in the tract over the decade, with the five quintiles defined so that each contained an approximately equal number of black households in 2000. Exhibit 18 shows summary information on these five quintiles of tracts. Across the quintiles the average change in black homeownership rates ranges from a decline of 13.6 percentage points in the first quintile to a gain of 18.4 percentage points in the fifth quintile. On average, tracts in the second quintile experienced a small decline (2.2 percentage points), the third quintile experienced small gains (1.0 percentage points), and the fourth quintile experienced moderate gains (4.9 percentage points). Interestingly, areas with greater declines in homeownership started the decade with the highest black homeownership rates, while those with greater increases started the decade with the lowest ownership rates. Even though areas with the most significant gains in black homeownership had the highest black ownership rates by the end of the decade, there was not a large difference in homeownership rates in 2000 between these tracts and tracts with significant or small declines in homeownership rates.

Exhibit 18
Selected Characteristics of Black Homeownership Change Neighborhood Quintiles

Characteristic	Homeownership Change Quintiles					All Neighborhoods
	First (Significant Declines)	Second (Small Declines)	Third (Small Increases)	Fourth (Moderate Increases)	Fifth (Significant Increases)	
Average Black Homeownership Rates						
1990	58.7%	51.0%	40.6%	39.5%	33.0%	44.6%
2000	45.1%	48.8%	41.6%	44.4%	51.4%	46.3%
Change	-13.6%	-2.2%	1.0%	4.9%	18.4%	1.7%
Number of Tracts	12,998	4,379	9,550	5,193	14,223	46,343
Average Share Black						
1990	44.2%	63.6%	60.8%	55.4%	34.9%	52.8%
2000	41.6%	61.4%	57.6%	53.1%	35.0%	49.8%
Black Household Growth 1990 to 2000						
All Households	35.1%	10.5%	9.6%	13.2%	36.8%	19.9%
Owners	8.6%	7.5%	18.1%	30.5%	108.0%	27.9%
Renters	69.1%	13.5%	4.2%	2.4%	0.5%	13.7%

Note: Quintile averages are weighted averages of each census tract in the quintile using the number of black households in 1990 and 2000 as weights for 1990 and 2000 figures, respectively.

One reason for the significant swings in black homeownership rates in the first and fifth quintiles is that there are a significant number of tracts with a relatively small black population. Across all of the tracts included in this analysis, the median number of black households in 2000 was 91, while the 25th percentile had only 28 black households. In areas with relatively few black households, a small absolute increase or decrease in the number of black homeowners can be associated with a fairly sizeable change in the black homeownership rate. The disproportionately large number of tracts in the first and fifth quintiles, and to a lesser extent the third quintile, is an indication that these quintiles include a large share of tracts with few black households.[5] In order to avoid having tracts with relatively few black households exert a disproportionate influence on the average characteristics of tracts in each quintile, weighted averages are reported using the number of black households in 1990 as weights for 1990 averages and the number of households in 2000 as weights for 2000 averages.

Exhibit 18 also shows that the pattern of black household growth across these quintiles is similar to that observed for the quintiles of homeownership changes for all households discussed in the previous section. That is, the quintiles with significant declines and significant increases in black homeownership rates both experienced strong black household growth, while the middle quintiles all had more moderate levels of growth. Among tracts with significant declines in black homeownership rates, the number of black renter households grew sharply, while among tracts with significant increases in black homeownership rates, black homeowners grew sharply. Again reflecting the broad geographic distribution of the increase in homeownership over the decade, all quintiles experienced growth in black owner households. However, in contrast to the pattern with all households, all of the black homeownership change quintiles also experienced increases in black renter households, although the growth was very modest in the top three quintiles that had increases in black homeownership rates.

[5] The third quintile includes a disproportionate number of tracts with few black households as this quintile includes areas with no change in homeownership rates, and tracts with only a small number of black households are also more likely than large tracts to have no change in black ownership rates.

The relative importance of each of these quintiles to the overall change in black homeownership can be evaluated using the decomposition methodology described in Section 3. As shown in Exhibit 19, when this decomposition is applied to the five quintiles of black homeownership change, we find that the top quintile accounts for the vast majority of the gain in black homeownership rates, with the fourth quintile contributing to a much smaller degree. All of the first three quintiles actually made negative contributions to black homeownership rates over the decade.

Exhibit 19
Decomposition of the Change in Black Homeownership Rate by Black Homeownership Change Quintile
(Percentage Point Contribution to Overall Change in Black Homeownership Rate 1990 to 2000)

Homeownership Change Quintile	Rate Effect	Composition Effect	Total Contribution
First (Significant Declines)	-2.12	1.17	-0.95
Second (Small Declines)	-0.48	-0.64	-1.12
Third (Small Increases)	0.22	-0.33	-0.10
Fourth (Moderate Increases)	1.03	-0.32	0.71
Fifth (Significant Increases)	3.06	1.31	4.36
All Neighborhoods	1.71	1.19	2.90

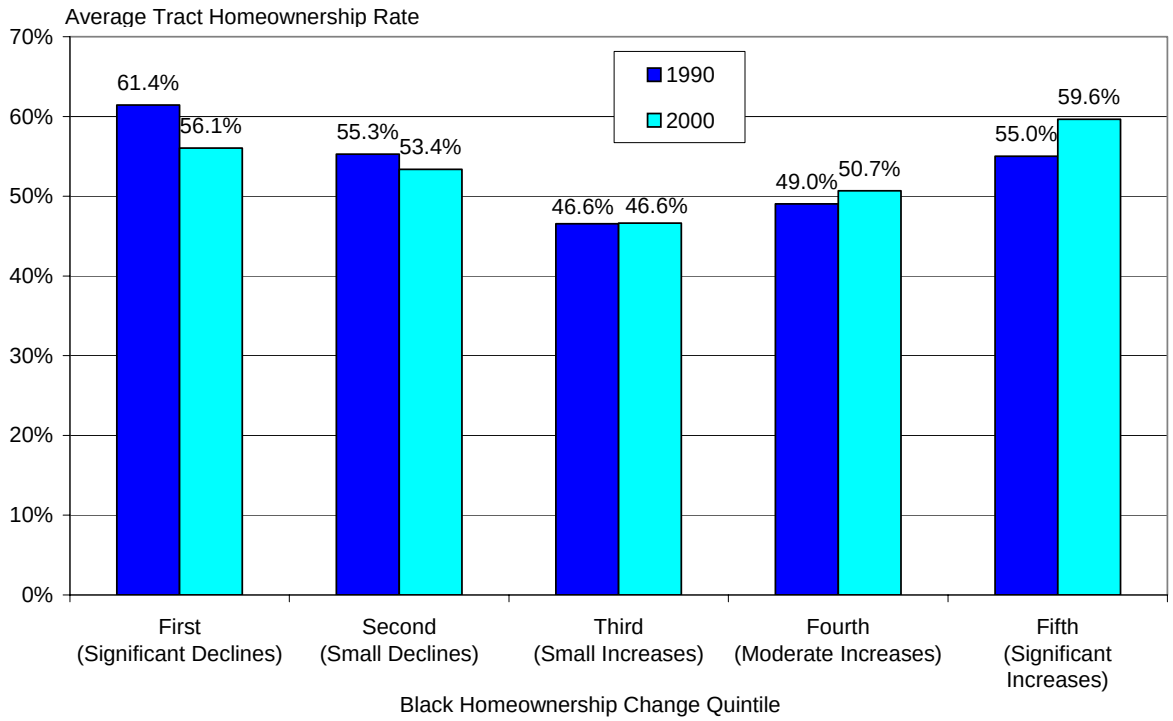
Note: See Appendix A for a discussion of the decomposition methodology.

4.2. Characteristics of Neighborhoods by Black Homeownership Change Quintiles

Trends in Overall Homeownership Rates and Household Growth

It is interesting to consider the trend in overall homeownership rates across the five quintiles of black homeownership change, which are illustrated in Exhibit 20. There are two interesting aspects to the homeownership trends illustrated in Exhibit 20. First, the change in average overall homeownership rates are ordered across the black homeownership quintiles from larger average declines to larger average gains. But the differences across quintiles are fairly small, ranging only from a decline of 5.3 percentage points to a gain of 4.6 percentage points. Second, overall homeownership rates are highest among both tracts in quintiles experiencing the largest declines in black homeownership rates and those experiencing the greatest gains. Thus, while the growth in black homeownership was concentrated in areas with relatively high homeownership rates, black renter growth was also concentrated in areas with similar homeownership rates. But is also notable that overall homeownership rates in these quintiles are low compared to the quintiles for all households. In 1990 the highest homeownership rate of any quintile in Exhibit 20 is 61.4 percent, which is lower than all of the quintiles for all households.

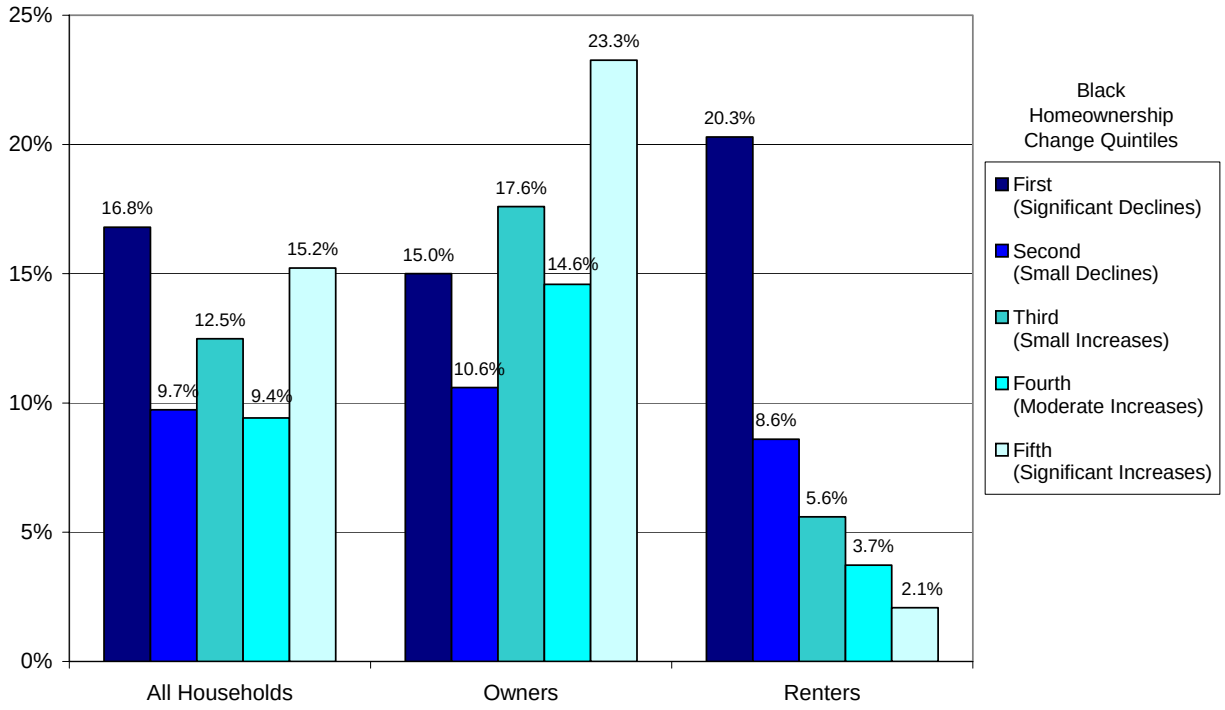
Exhibit 20
Overall Homeownership Rates 1990 and 2000 by Black Homeownership Change Quintiles



Note: The number of black households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

While black household growth was strongest in the first and fifth quintiles it is also interesting to consider the rate of overall household growth across the black homeownership change quintiles to see whether blacks were moving to areas that were experiencing growth among other households as well. Exhibit 21 illustrates differences in overall household growth by tenure across the black homeownership change quintiles. The pattern across black homeownership change quintiles is similar to that shown in Exhibit 5 for all households. The quintiles having both significant declines and gains in homeownership had the highest overall household growth, driven by more robust renter growth in one case and more robust owner growth in the other. However, there are also some notable differences from the pattern in Exhibit 5. Specifically, the middle quintile also exhibits fairly strong household growth, driven primarily by growth in owner households. Additionally, there was relatively little difference in the rate of overall owner growth across the five quintiles. So while homeowner households grew most quickly in the top quintile, the rate was only slightly faster than in the first and third quintiles.

Exhibit 21
Overall Household Growth 1990 to 2000 by Tenure and Black Homeownership Change Quintiles



Income and House Values

Exhibits 22 and 23 show the average tract average income and house value as a percent of the relevant area averages across the five black homeownership change quintiles. In comparing these distributions to those shown in Exhibits 7 and 8 for all households a few differences stand out. First, in general, blacks reside in tracts with much lower average incomes and house values than all households. In 1990, none of the five black homeownership change quintiles had average incomes or house values that were as high as 85 percent of the area average. In contrast, when all households were considered, no quintile had average incomes or house values that were *less* than 85 percent of the area average. Another notable difference is that while for all households the quintiles with the largest declines in homeownership had the lowest income and house value levels of all quintiles at the start of the decade, among the black homeownership change quintiles these groups had the second *highest* average income and value levels. But as with the homeownership change quintiles for all households, among the other four quintiles, those with greater homeownership gains started the decade with higher incomes and house values.

Over the course of the decade almost all quintiles experienced increases in both average incomes and average house values relative to area averages, with the exception being that average incomes as a percent of the area average declined for the fifth quintile. This pattern is also in contrast to that observed among the quintiles for all households where relative incomes and house values rose over the decade among areas experiencing gains in homeownership but declined among areas experiencing declines or little change in homeownership. Thus for blacks, there was not such a clear association between areas with rising homeownership and increases in incomes and house values.

Exhibit 22
Trends in Tract Average Household as a Percent of Area Average Income by Black Homeownership Change Quintile

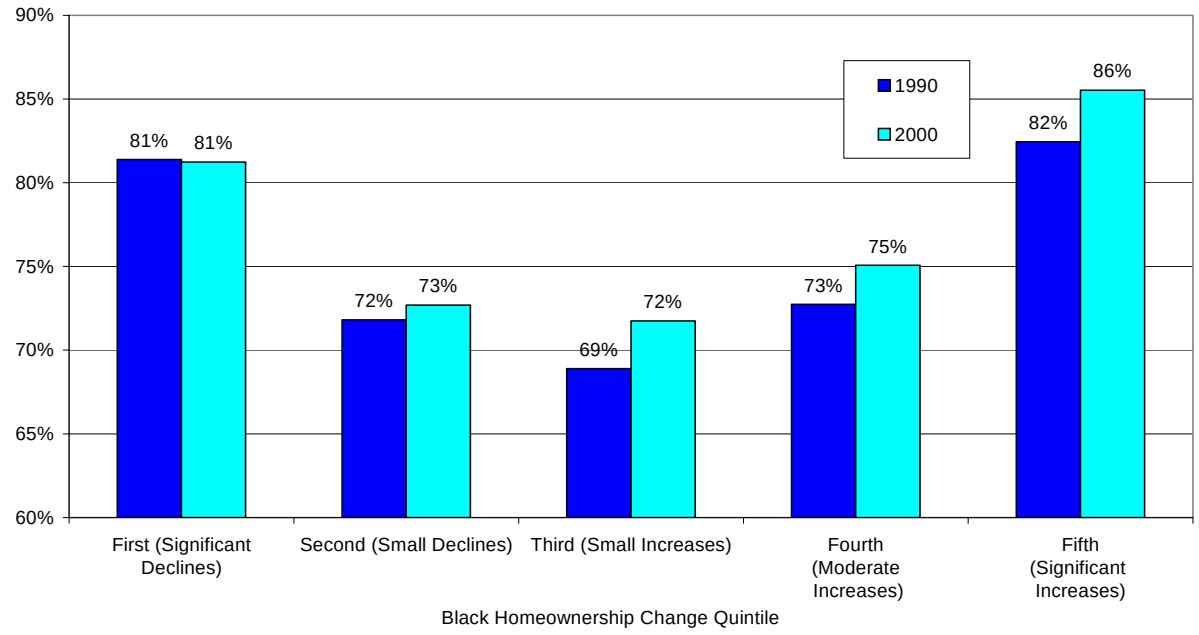
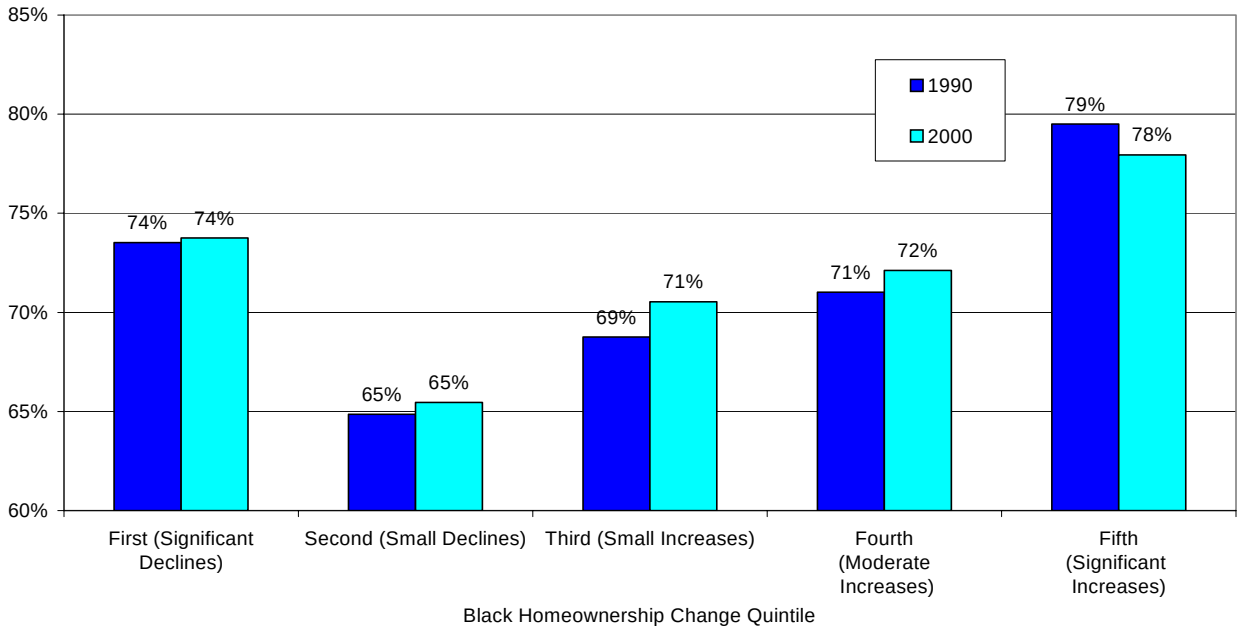


Exhibit 23
Trends in Tract Average House Value as a Percent of Area Average House Value by Black Homeownership Change Quintile



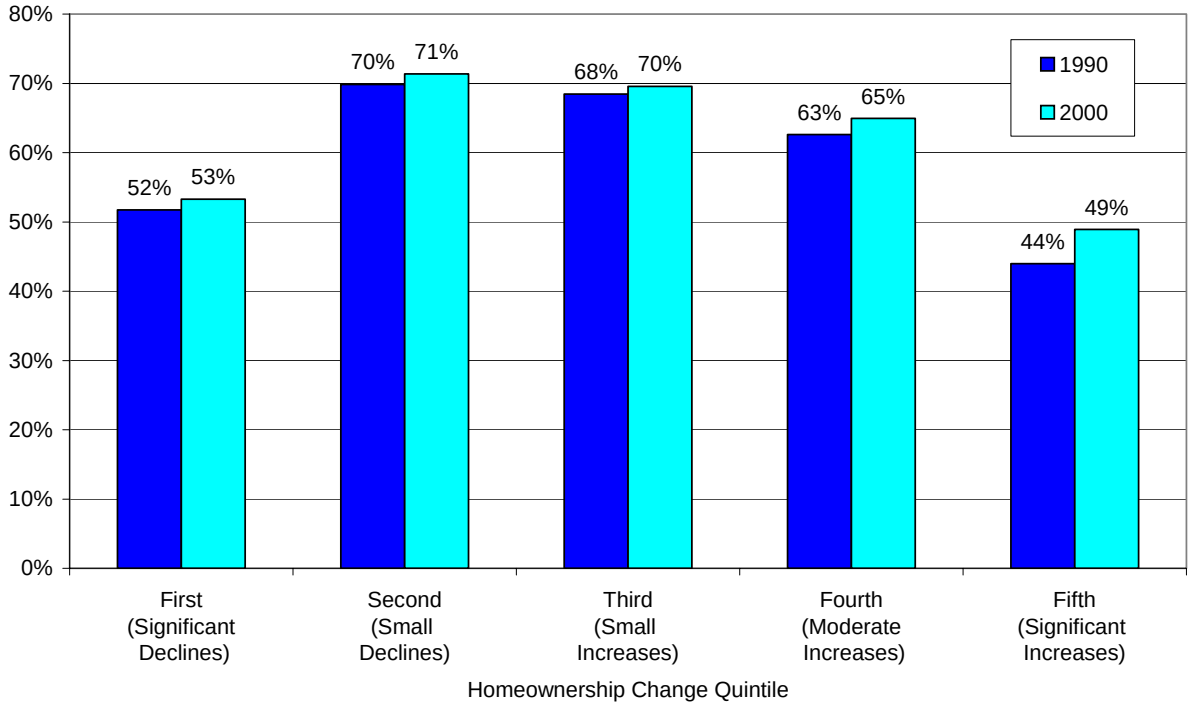
Note: The number of black households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Racial Composition

Exhibit 24 shows the average share of minority households in tracts in each black homeownership change quintile. While all quintiles are found to have high average shares minority, the quintiles with significant declines and increases in black homeownership had the lowest average minority shares. It is significant that increases in black homeownership were concentrated in tracts with less minority presence. This suggests that fostering homeownership may help increase racial integration at the neighborhood level. On the other hand, the fact that neighborhoods in the first quintile with significant black renter growth are also areas with lower minority concentration indicates that homeownership is not a prerequisite for entry into neighborhoods where whites make up a larger share of the population.

But this tendency toward greater integration should not be overstated. Tracts without any blacks in either 1990 or 2000 are excluded from the analysis – and these tracts account for nearly a quarter of all tracts in the country. The continued high degree of racial segregation by blacks is evident by the fact that even the areas with the lowest minority presence on average were nearly half minority and all five quintiles have average minority shares that are well in excess of the national averages of 20 percent in 1990 and 25 percent in 2000.

Exhibit 24
Average Share Minority by Black Homeownership Change Quintile

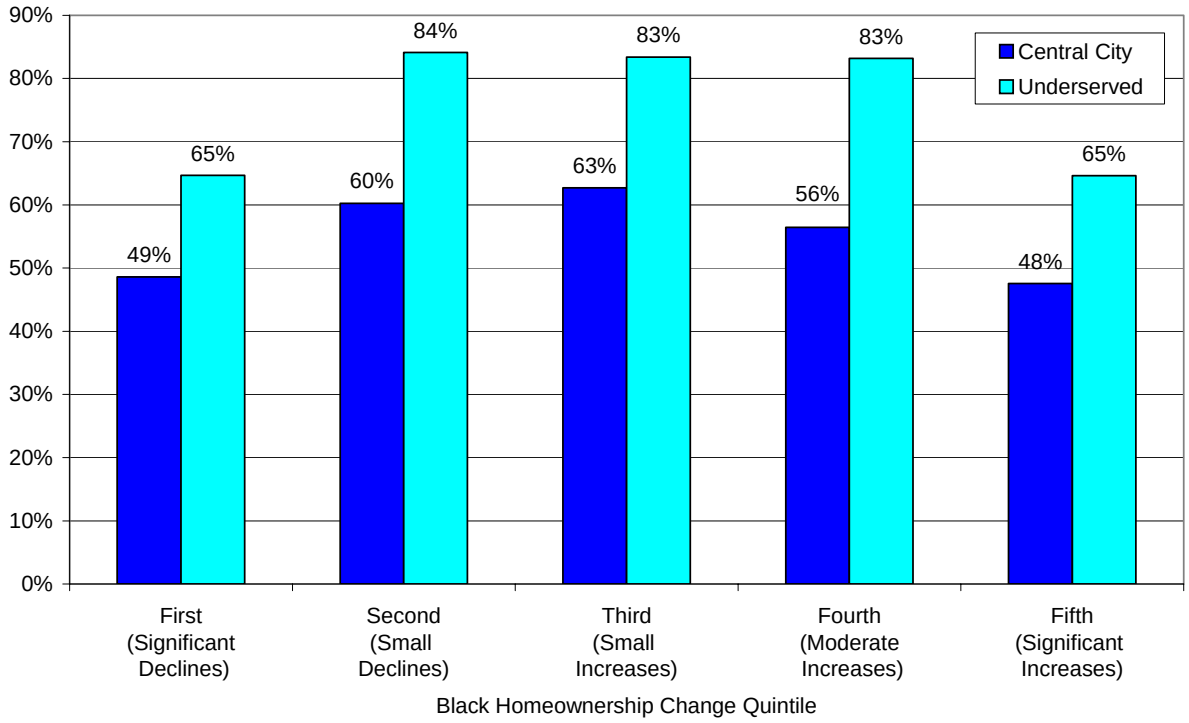


Note: The number of black households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Intra-Metropolitan Distribution of Homeownership Gains

Exhibit 25 shows the average share of households residing in central city and underserved areas in each of the five black homeownership change quintiles. Two key differences are notable compared to the distribution shown for all households in Exhibit 15. First, on average much higher shares of blacks live in central city and underserved areas than is true of all households. Of course, since underserved areas are defined as neighborhoods with high shares of minorities this is not surprising. Second, once again the quintiles with significant declines and increases in black homeownership rates stand out as being fairly similar in these dimensions. Both of these quintiles have lower shares of households in central cities and underserved areas. Thus, black household growth – both owner-occupied and renter-occupied – was greatest in areas outside of central cities and in areas with lower shares of minorities.

Exhibit 25
Average Share Central City and Underserved Tracts by Black Homeownership Change Quintile



Note: The number of black households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

4.3. Summary

Similar to the pattern found with regard to all households, we find that tracts where there were substantial increases in black homeownership rates over the decade had much in common with tracts that had substantial declines in black homeownership rates. These areas are marked by relatively smaller shares of minority households, high overall rates of homeownership, and higher incomes and

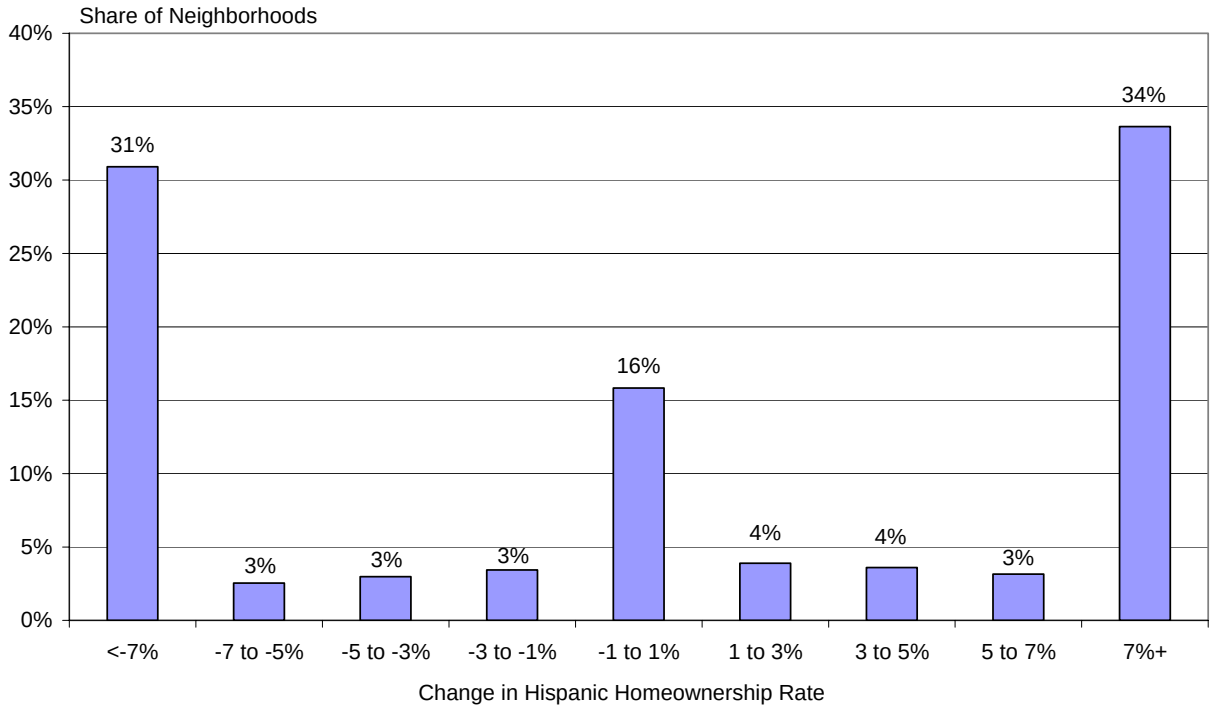
house values than other categories of neighborhoods. They are also less likely to be in central cities and underserved areas. As with all households, areas with the largest increases and the largest declines in black homeownership rates both experienced rapid growth of black households – but in the former case this growth was concentrated in owner households and in the later it is concentrated in renter households. However, while growth among black households was concentrated in rental households in the first quintile, there was fairly strong growth of other owner occupied households in these areas. As a result, areas of declining black homeownership were areas with generally high overall homeownership rates compared to the other black homeownership change quintiles. Thus, while it is the case that the growth in black homeownership is associated with movement to areas of generally less minority concentration and higher socioeconomic status in terms of incomes, house values, and homeownership rates, it is also true that black renter households were also increasingly gaining access to these types of neighborhoods.

5. Neighborhood Distribution of Hispanic Gains in Homeownership

As was done with our analysis of black homeownership, we begin our analysis of the geographic distribution of Hispanic homeownership by excluding tracts that did not have any Hispanic households at the beginning or end of the decade. After applying this exclusion, a total of 49,863 tracts are included in our analysis.[6] In these neighborhoods the aggregate Hispanic homeownership rate increased by 3.4 percentage points over the 1990s. As shown in Exhibit 26, a majority of tracts experienced significant swings in Hispanic homeownership rates over the decade, with 31 percent experiencing declines of 7 percentage points or more and 34 percent experiencing increases of 7 percentage points or more. A small majority of neighborhoods experienced increases in Hispanic homeownership (58.4 percent), with the rest experiencing declines.

[6] This restriction resulted in 14,814 tracts being dropped from the analysis out of the 64,677 tracts included in the analysis of overall homeownership rates. Some of the dropped tracts included small numbers of Hispanic households in either 1990 or 2000, but collectively they accounted for only 1.7 percent of all Hispanic households in 2000.

Exhibit 26
Distribution of Neighborhoods by Change in Hispanic Homeownership Rate 1990 to 2000



5.1. Hispanic Homeownership Change Quintiles

Tracts were ordered from lowest to highest in terms of the change in the Hispanic homeownership rate in the tract over the decade, with five quintiles defined so that each contained an approximately equal number of Hispanic households in 2000. Exhibit 27 shows summary statistics on these quintiles. The first and last quintile each experienced very sharp swings in homeownership rates over the decade, with the bottom quintile having an average decline of 15.5 percentage points and the top quintile having an average increase of 20.2 percentage points.[7] The second quintile experienced small declines in Hispanic homeownership (-0.6 percentage points), the third quintile experienced small increases (3.2 percentage points), and the fourth quintile experienced moderate increases (7.0 percentage points). Areas with the greatest declines in homeownership rates started the decade with the highest Hispanic homeownership levels, while those with the greatest increases started the decade with the second lowest levels. But by the end of the decade the ordering had been reversed.

[7] The very large swings in homeownership rates in the first and fifth quintiles are due to the fact that these areas tend to have fewer Hispanic households and experienced significant household growth over the decade. For example, tracts in the first quintile had an average of 109 Hispanic households in 2000 and had an average gain of 49 Hispanic households from 1990, including 38 renter households and 11 owner households. Meanwhile, tracts in the fifth quintile averaged 121 Hispanic households in 2000, representing an average gain of 50 households from 1990 including 7 renter households and 43 owner households. But all quintile averages for 1990 and 2000 are calculated using the number of Hispanic households in 1990 and 2000 as weights to ensure that very small tracks do not have disproportionate importance.

Exhibit 27
Selected Characteristics of Hispanic Homeownership Change Neighborhood Quintiles

Characteristic	Homeownership Change Quintiles					All Neighborhoods
	First (Significant Declines)	Second (Small Declines)	Third (Small Increases)	Fourth (Moderate Increases)	Fifth (Significant Increases)	
Average Hispanic Homeownership Rates						
1990	57.0%	42.9%	36.4%	39.5%	37.4%	42.1%
2000	41.5%	42.3%	39.6%	46.6%	57.5%	45.5%
Change	-15.5%	-0.6%	3.2%	7.0%	20.2%	3.4%
Number of Tracts	16,509	4,231	9,270	4,933	14,920	49,863
Average Hispanic Share of Households						
1990	21.7%	44.9%	44.9%	37.6%	21.8%	35.2%
2000	24.9%	48.5%	48.4%	43.4%	26.4%	38.3%
Hispanic Household Growth 1990 to 2000						
All Households	82.4%	44.0%	38.8%	49.4%	71.8%	55.5%
Owners	32.8%	41.9%	51.0%	76.0%	164.5%	67.9%
Renters	148.3%	45.5%	31.9%	32.0%	16.5%	46.5%

Note: Quintile averages are weighted averages of each census tract in the quintile using the number of Hispanic households in 1990 and 2000 as weights for 1990 and 2000 figures, respectively.

The bottom portion of Exhibit 27 shows household growth rates among Hispanic households by tenure. Overall, Hispanic household growth was very rapid, with total Hispanic households increasing by more than 50 percent over the decade. While the pattern of household growth across quintiles is very similar to that for overall and black homeownership quintiles, a notable feature of Hispanic household growth is that it is very high for both tenure groups in all quintiles. Nonetheless, areas with significant declines in homeownership saw much stronger growth in renter households, while areas with increases in homeownership had much stronger growth in owner households.

The relative importance of each quintile to the overall change in Hispanic homeownership rates is shown in Exhibit 28 based on the decomposition approach described in Appendix A. The rate effect indicates the degree to which changes in homeownership rates in each quintile contributed to the overall change in homeownership rates, while the composition effect indicates the degree to which shifts in households across tracts affects the overall rate. The rising rate effect across quintiles reflects the methodology used to define these quintiles – that is, they are ordered from the largest declines in homeownership to the largest increases. The positive composition effect associated with the first and fifth quintiles reflects the above average household growth in these areas. When both the rate and composition effects are considered, tracts in the fifth quintile are found to have accounted for a large share of the overall growth in Hispanic homeownership. Only the fourth quintile is also found to have had a positive contribution, while the first three quintiles all made negative contributions to overall Hispanic homeownership rates, either due to declining homeownership rates and/or slower than average household growth.

Exhibit 28
Decomposition of the Change in Hispanic Homeownership Rate by Hispanic Homeownership Change Quintile
(Percentage Point Contribution to Overall Change in Hispanic Homeownership Rate 1990 to 2000)

Homeownership Change Quintile	Rate Effect	Composition Effect	Total Contribution
First (Significant Declines)	-2.94	1.52	-1.42
Second (Small Declines)	-0.48	-0.34	-0.81
Third (Small Increases)	0.33	-0.56	-0.24
Fourth (Moderate Increases)	1.25	-0.17	1.08
Fifth (Significant Increases)	3.84	0.90	4.74
All Neighborhoods	2.01	1.35	3.35

Note: See Appendix A for a discussion of the decomposition methodology.

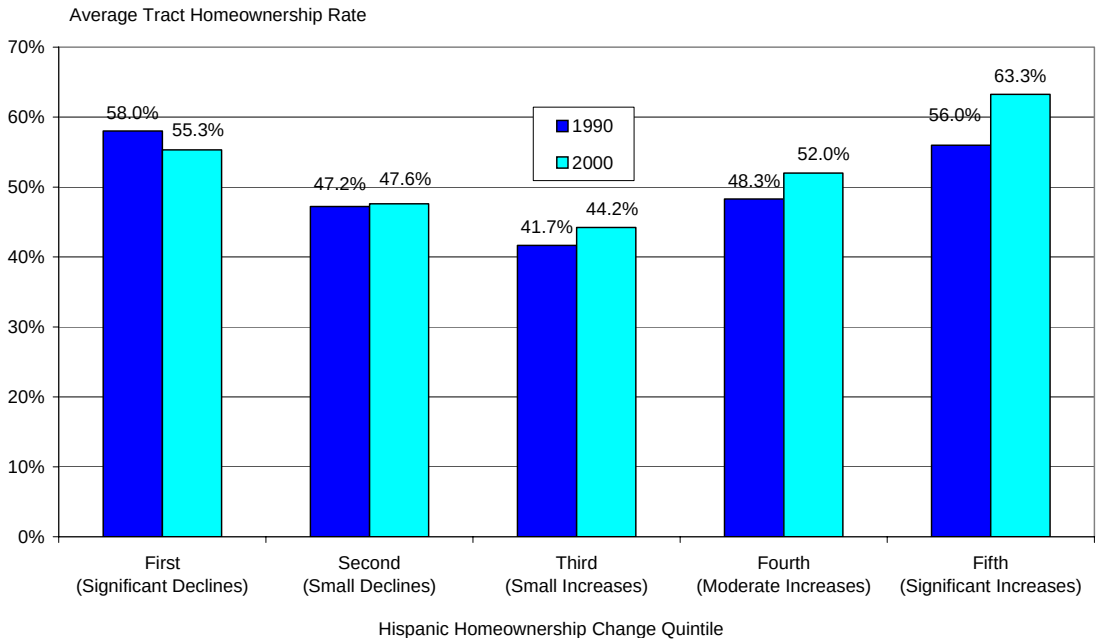
5.2. Characteristics of Neighborhoods by Hispanic Homeownership Change Quintile

Trends in Homeownership and Household Growth Among All Households

Exhibit 29 shows trends in homeownership rates among all households across the Hispanic homeownership quintiles. As was true of blacks, Hispanics live in areas with generally lower than average homeownership rates. Changes in overall homeownership rates followed the same trends across quintiles as Hispanic homeownership rates – the first quintile suffered the largest declines on average while the fifth quintile experienced the largest declines. But despite this pattern, the first and fifth quintiles started and ended the decade with the highest homeownership rates of the five quintiles. Thus, areas of strong Hispanic household growth, both renter and owner, were concentrated in areas with relatively high homeownership rates compared to the other Hispanic quintiles.

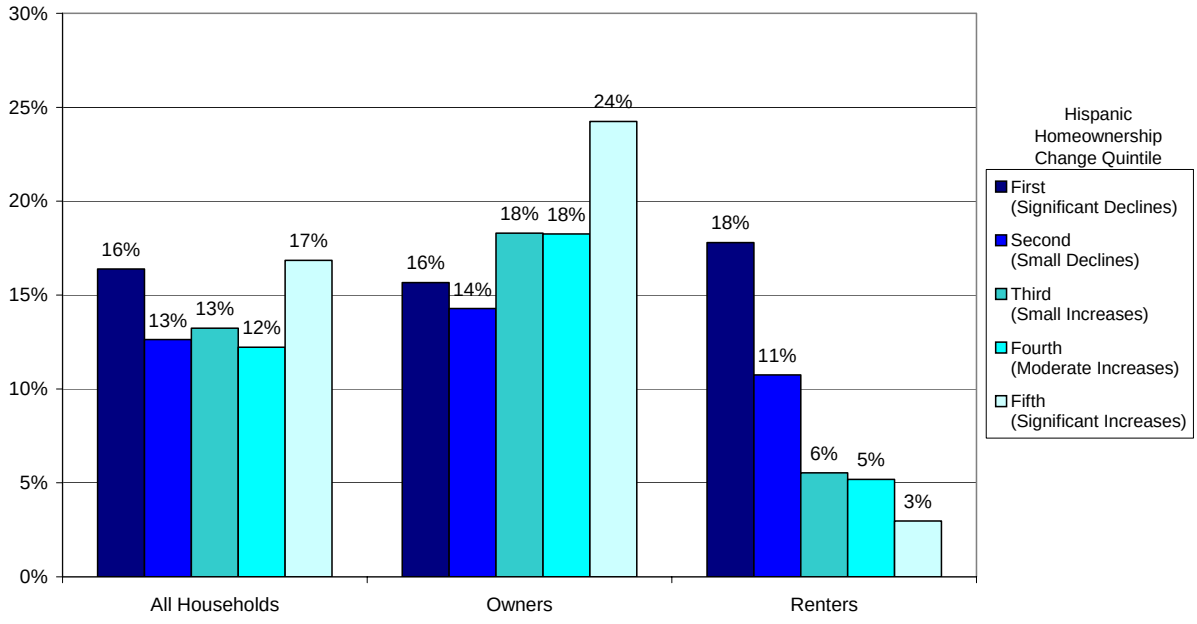
Exhibit 30 illustrates the patterns in total household growth across the five Hispanic homeownership change quintiles. In general, there were moderate levels of total household growth across these quintiles, ranging from 12 percent in the fourth quintile to 17 percent in the fifth quintile. But areas with significant increases and declines in Hispanic homeownership experienced the highest levels of overall household growth during the decade, with renter household growth strongest in the first quintile and owner household growth strongest in the fifth quintile. Thus, areas with both large declines and large gains in Hispanic homeownership were areas that were generally experiencing growth over the decade.

Exhibit 29
Overall Homeownership Rates 1990 and 2000 by Hispanic Homeownership Change Quintiles



Note: The number of Hispanic households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Exhibit 30
Overall Household Growth 1990 to 2000 by Tenure and Hispanic Homeownership Change Quintiles

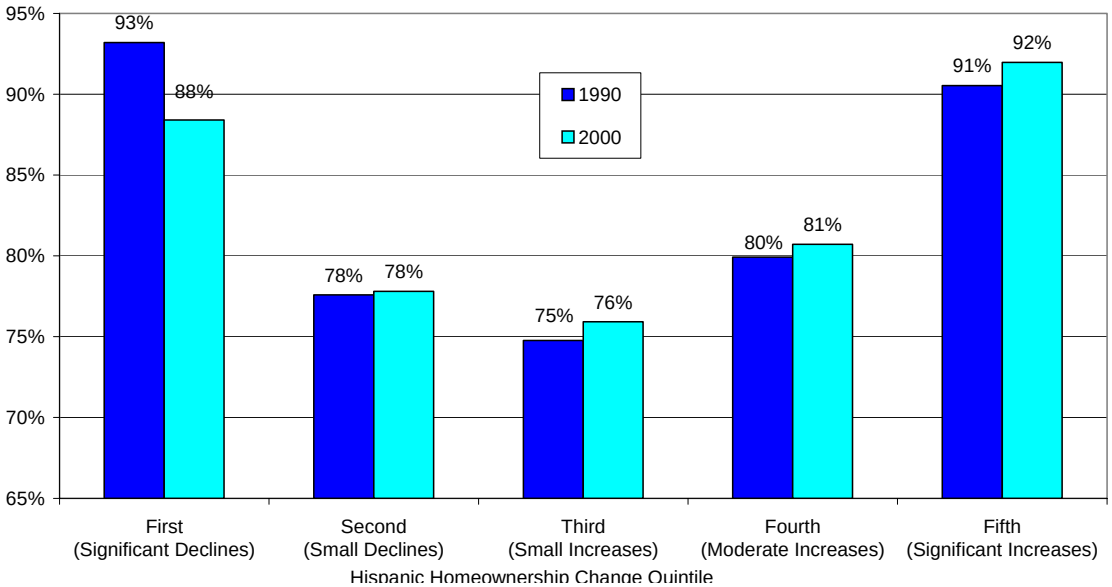


Income and House Values

Exhibits 31 and 32 show the average tract average income and house value as a percent of area averages across the five Hispanic homeownership change quintiles. The tracts where Hispanics reside have generally low incomes and house values, with the highest average income in 1990 being 93 percent of the area average and the highest house value being 88 percent of the area average. The first and fifth quintiles had similar profiles at the start of the decade, with both groups of tracts having higher average incomes and house values than the other quintiles. Thus, as with blacks, areas of greatest declines and gains in Hispanic homeownership were relatively better off than the other quintiles.

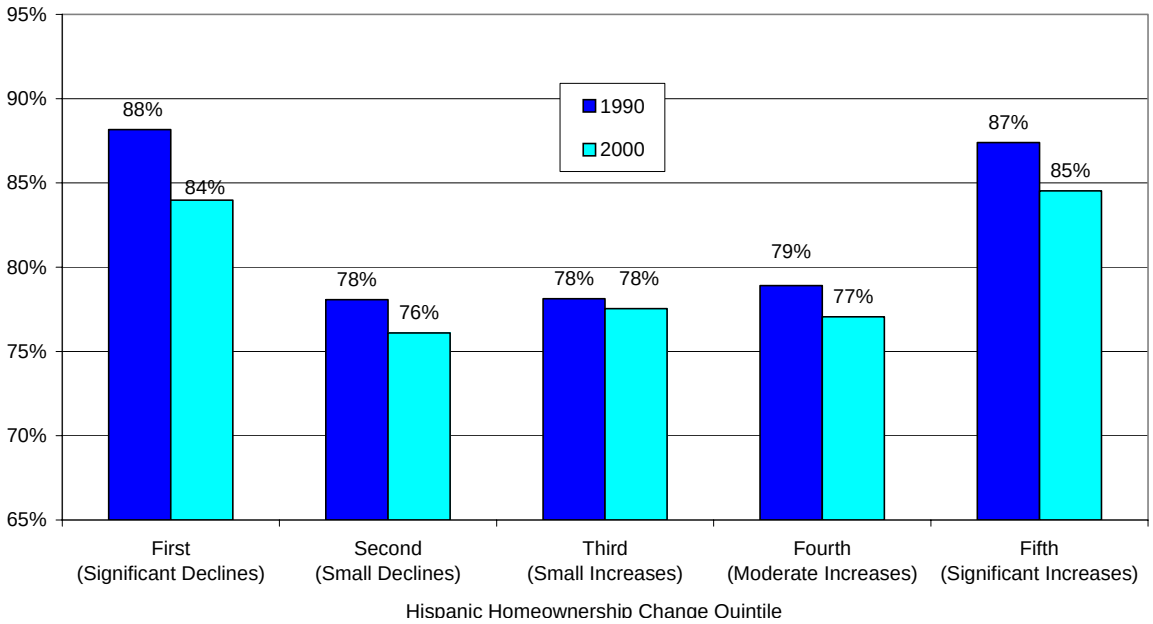
In general, there was little variation in trends in neighborhood fortunes over the decade by the Hispanic homeownership change quintile. In terms of trends in incomes over the decade, the first quintile did experience a 5 percentage-point decline in relative incomes but all other quintiles experienced gains of about 1 percentage point. But even with this decline in relative incomes, the first quintile had much higher average incomes than the second through fourth quintiles. Virtually all of the quintiles experienced declines in relative house values over the decade, ranging from 4 percent in the first quintile to 1 percent in the third quintile.

Exhibit 31
Trends in Tract Average Household Income as a Percent of Area Average Income by Hispanic Homeownership Change Quintile



Note: The number of Hispanic households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Exhibit 32
Trends in Tract Average House Value as a Percent of Area Average House Value by Hispanic Homeownership Change Quintile

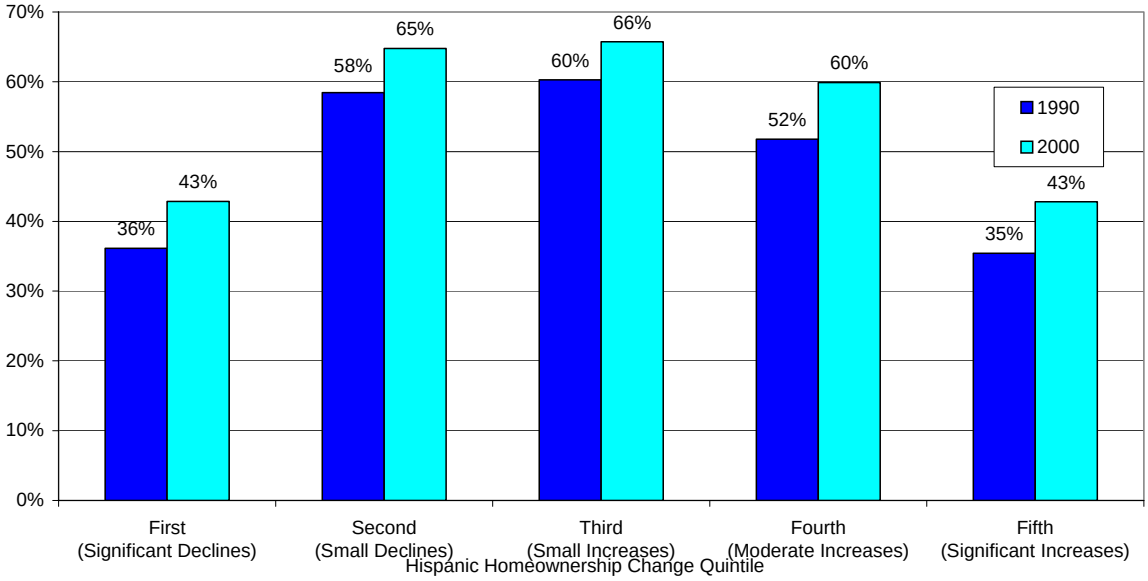


Note: The number of Hispanic households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Racial Composition

Exhibit 33 shows the share of households headed by minorities across the five Hispanic homeownership change quintiles. At the start of the decade both the first and fifth quintiles had much lower minority shares than the other quintiles at 35 and 36 percent, respectively, compared to 52 to 58 percent for the middle three quintiles. Thus, the areas with the most rapid Hispanic household growth – whether renter or owner households—were the areas with lowest concentration of minorities. Over the course of the decade all of the quintiles experienced increases in minority shares of a similar magnitude so that the first and fifth quintiles remained the areas with the lowest share minority.

Exhibit 33
Average Share Minority by Hispanic Homeownership Change Quintiles

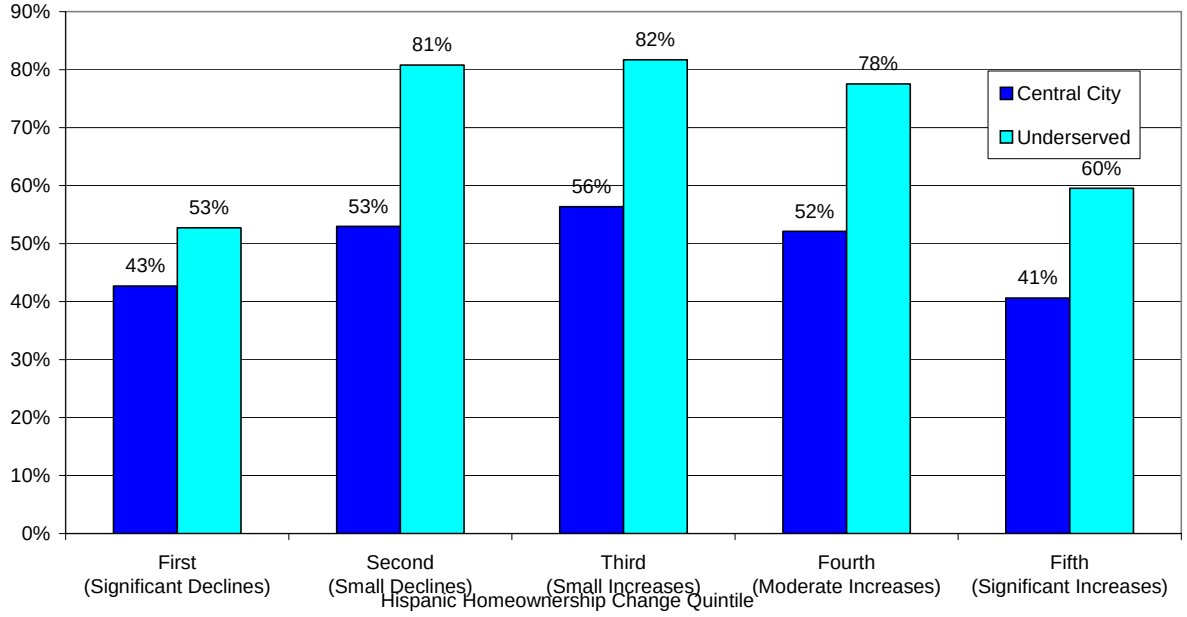


Note: The number of Hispanic households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Intra-Metropolitan Distribution of Homeownership Gains

Exhibit 34 illustrates the share of households in each quintile that live in central cities or underserved tracts. Again, the first and fifth quintiles have the lowest shares of tracts in these areas, while the middle three quintiles have much higher shares. Thus, areas with rapid Hispanic household growth, and associated sharp swings in homeownership rates either up or down, are less likely to be in central cities and less likely to be underserved than areas with less rapid growth in Hispanics.

Exhibit 34
Average Share Central City and Underserved by Hispanic Homeownership Change Quintiles



Note: The number of Hispanic households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

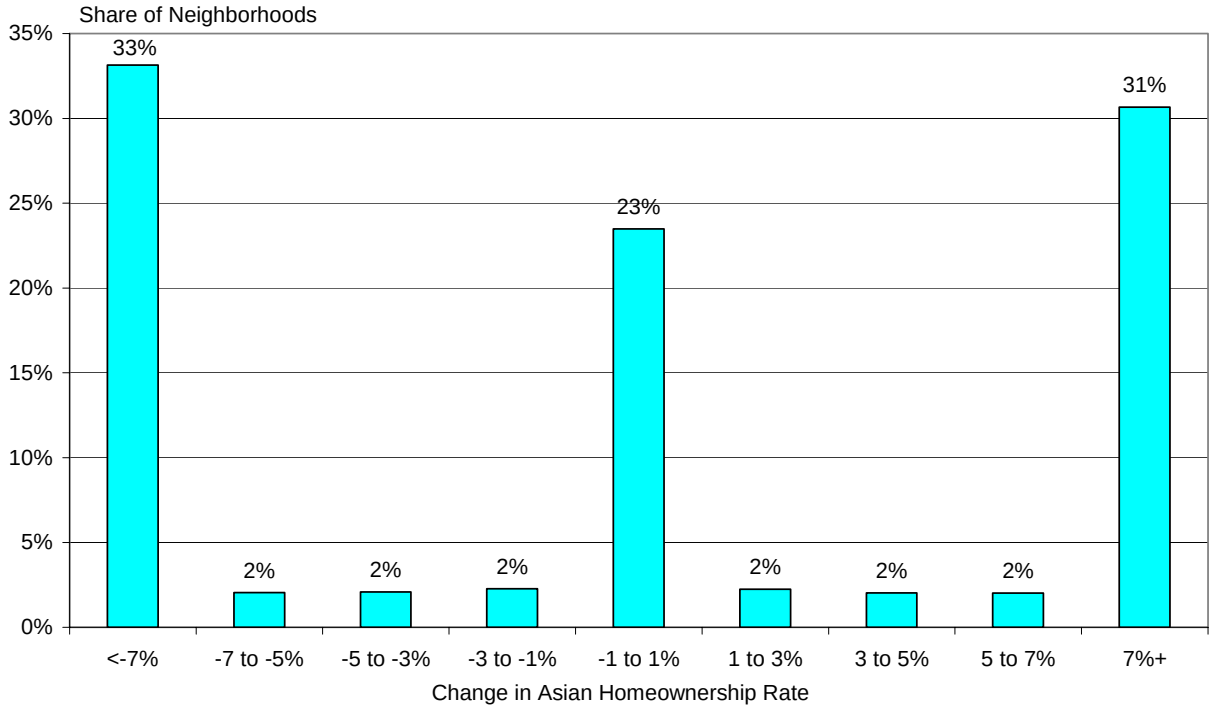
5.3. Summary

The patterns evident in the distribution of Hispanic homeownership gains across neighborhoods are very similar to the pattern observed for blacks. To begin with, areas with significant gains in Hispanic homeownership had much in common with areas that had significant declines. Both categories of neighborhoods were marked by very rapid growth in Hispanic households – but those with declines in Hispanic homeownership had much more rapid growth in renters while those that had gains in homeownership had much more rapid growth in owners. These quintiles of neighborhoods were quite similar in other dimensions as well. Both had higher levels of household incomes and house values than other neighborhoods where Hispanics reside and were less likely to be in central cities or underserved areas. They also had higher levels of overall homeownership rates and overall household growth. Areas of rapid Hispanic growth – and thus large swings in Hispanic homeownership rates – also had lower shares of minorities than other areas, suggesting that the Hispanic population is becoming less segregated over time. But this integration is occurring among both renters and owners. In short, while Hispanic homeownership growth is concentrated in neighborhoods with a variety of generally positive characteristics, areas with declines in homeownership were strikingly similar.

6. Neighborhood Distribution of Asian Gains in Homeownership

The analysis of the geographic distribution of Asian[8] homeownership changes over the 1990s begins by excluding tracts that did not have any Asian households at the beginning or end of the decade. After applying this exclusion, a total of 34,601 tracts are included in our analysis.[9] In aggregate among these neighborhoods the Asian homeownership rate increased by only 0.3 percentage points. Thus, in general, Asians experienced much more moderate increases in homeownership than other minority groups. As shown in Exhibit 35, a majority of tracts experienced significant swings in Asian homeownership rates over the decade, with 33 percent experiencing declines of 7 percentage points or more and 31 percent experiencing increases of 7 percentage points or more. A small majority of neighborhoods experienced increases in Asian homeownership (59.4 percent), with the rest experiencing declines.

Exhibit 35
Distribution of Neighborhoods by Change in Asian Homeownership Rate 1990 to 2000



[8] Asians include Native Hawaiians and Pacific Islanders, but for brevity the term Asian is used.

[9] This restriction resulted in 30,076 tracts being dropped from the analysis. Collectively these tracts accounted for 4.8 percent of all Asian households in 2000.

6.1. Asian Homeownership Change Quintiles

Tracts were ordered from lowest to highest in terms of the change in the Asian homeownership rate in the tract over the decade, with five quintiles defined so that each contained an approximately equal number of Asian households in 2000. Exhibit 36 shows summary statistics on these quintiles. The first and last quintile each experienced very sharp swings in homeownership rates over the decade, with the bottom quintile having an average decline of 27.6 percentage points and the top quintile having an average increase of 23.8 percentage points.[10] The second quintile experienced moderate declines in Asian homeownership (-5.9 percentage points), the third quintile experienced small increases (2.1 percentage points), and the fourth quintile experienced moderate increases (4.2 percentage points). Areas with the greatest declines in homeownership rates started the decade with the highest Asian homeownership levels, while those with the greatest increases started the decade with the lowest levels. But by the end of the decade the ordering had been reversed.

Exhibit 36
Selected Characteristics of Asian Homeownership Change Neighborhood Quintiles

Characteristic	Homeownership Change Quintiles					All Neighborhoods
	First (Significant Declines)	Second (Moderate Declines)	Third (Small Declines)	Fourth (Moderate Increases)	Fifth (Significant Increases)	
Average Asian Homeownership Rates						
1990	69.5%	58.5%	51.9%	47.2%	38.5%	52.2%
2000	41.9%	52.6%	54.0%	51.5%	62.3%	52.4%
Change	-27.6%	-5.9%	2.1%	4.2%	23.8%	0.3%
Number of Tracts	9,520	3,300	8,885	2,919	9,977	34,601
Average Asian Share of Households						
1990	6.6%	17.5%	23.2%	27.4%	10.2%	17.8%
2000	10.4%	21.3%	22.9%	25.8%	11.5%	18.4%
Asian Household Growth 1990 to 2000						
All Households	99.1%	64.7%	45.1%	36.7%	55.8%	57.6%
Owners	20.0%	48.0%	50.9%	48.9%	152.2%	58.5%
Renters	279.4%	88.2%	38.9%	25.7%	-4.5%	56.7%

Note: Quintile averages are weighted averages of each census tract in the quintile using the number of Asian households in 1990 and 2000 as weights for 1990 and 2000, respectively.

[10] As with other minority groups, tracts in the first and fifth quintiles tend to have smaller Asian populations – which is part of the reason why they experienced such large swings in homeownership rates. But all quintile averages are calculated using the number of Asian households in 2000 as weights to ensure that small tracks do not have disproportionate importance.

The bottom panel of Exhibit 36 shows household growth rates among Asian households by tenure. Overall, Asian household growth was very rapid, with total Asian households growing by more than 50 percent over the decade. As with Hispanics, a notable feature of Asian household growth is that it is very high for both tenure groups in almost all quintiles, with the exception of the fifth quintile where there was a decline in Asian renter households. The pattern of household growth by tenure across the homeownership change quintiles is similar to that found for both all households and other minority groups, as areas with significant declines in homeownership saw much stronger growth in renter households, while areas with increases in homeownership had much stronger growth in owner households. However, overall household growth was much stronger in areas with significant declines in Asian homeownership than in other quintiles, a pattern not found among either all households or the other minority groups. Also, household growth was slowest in the fourth quintile.

The relative importance of each quintile to the overall change in Asian homeownership rates is shown in Exhibit 37 based on the decomposition approach described in Appendix A. The rate effect indicates the degree to which changes in homeownership rates in each quintile contributed to the overall change in homeownership rates, while the composition effect indicates the degree to which shifts in households across tracts affects the overall rate. The rising rate effect across quintiles reflects the methodology used to define these quintiles – that is, they are ordered from the largest declines in homeownership to the largest increases. The positive composition effect associated with the first and second quintiles reflects the above average household growth in these areas, while the contribution effect is negative for the other three quintiles. When both the rate and composition effects are considered, tracts in the fifth quintile are found to be the only quintile to have made a positive contribution to Asian homeownership. Despite significant gain in homeownership rates, the fourth quintile is found to have made a negative contribution to Asian homeownership generally because of the very low rate of household growth in these areas.

Exhibit 37
Decomposition of the Change in Asian Homeownership Rate by Hispanic Homeownership Change Quintile
(Percentage Point Contribution to Overall Change in Asian Homeownership Rate 1990 to 2000)

Homeownership Change Quintile	Rate Effect	Contribution Effect	Total Contribution
First (Significant Declines)	-4.91	2.28	-2.63
Second (Moderate Declines)	-1.41	0.73	-0.68
Third (Small Declines)	-0.18	-0.30	-0.48
Fourth (Moderate Increases)	0.95	-1.56	-0.60
Fifth (Significant Increases)	5.34	-0.67	4.67
All Neighborhoods	-0.20	0.48	0.28

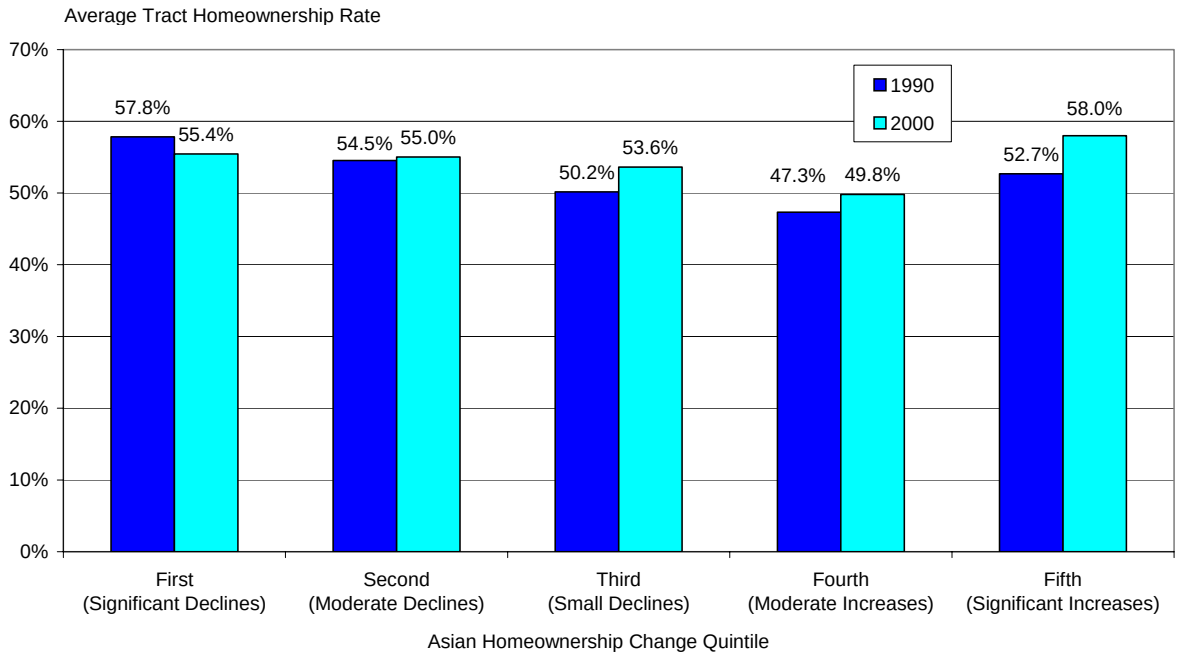
Note: See Appendix A for a discussion of the decomposition methodology.

6.2. Characteristics of Neighborhoods by Asian Homeownership Change Quintile

Trends in Homeownership and Household Growth Among All Households

Exhibit 38 shows trends in overall homeownership rates across the Asian homeownership quintiles. Overall homeownership rates followed the same trends across quintiles as Asian homeownership rates – the first quintile suffered the largest declines on average while the fifth quintile experienced the largest declines. However, the changes in overall homeownership rates are much smaller than the changes experienced by Asians in these quintiles. In general, quintiles with greater declines in Asian homeownership started the decade with higher overall homeownership rates. The one exception is the fifth quintile, which started the decade with the third highest homeownership rate. By the end of the decade, the first quintile had the highest overall homeownership rates, followed by the first and second quintiles. While the fourth quintile had the second largest gains in Asian homeownership rates, these areas had the lowest overall homeownership rates of the five quintiles. In general, however, there was relatively little variation in overall homeownership rates across the five quintiles, with fairly low homeownership levels in each area.

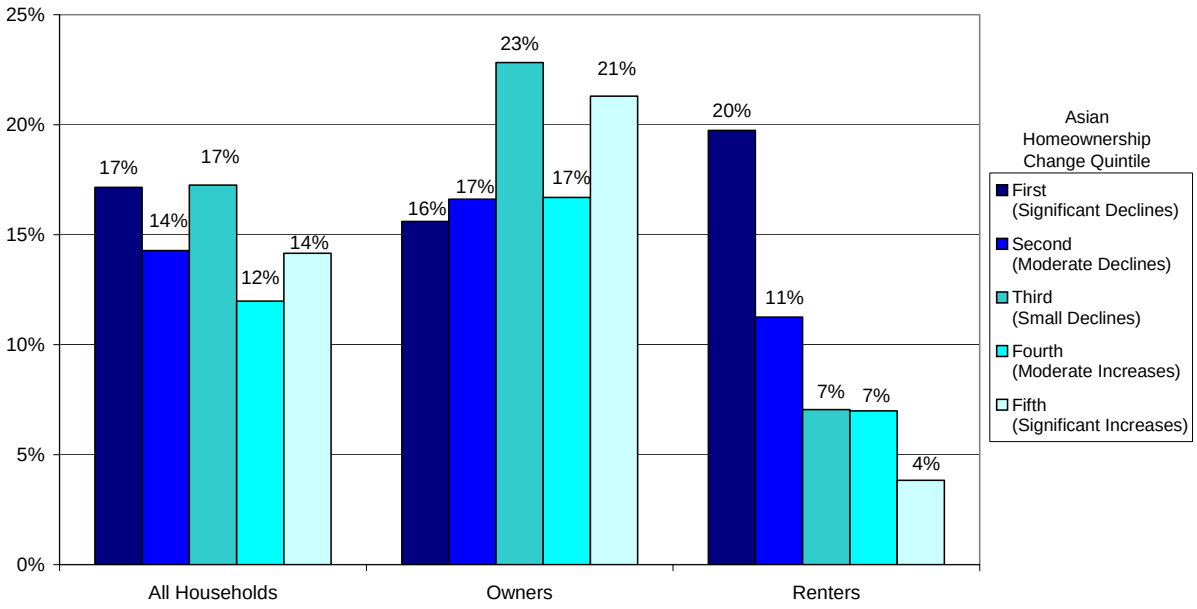
Exhibit 38
Overall Homeownership Rates 1990 and 2000 by Asian Homeownership Change Quintiles



Note: The number of Asian households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Exhibit 39 illustrates the patterns in total household growth across the five Asian homeownership change quintiles. As shown, areas with the most rapid growth in total households were the first and third quintiles. Unlike the quintiles for other groups of households, areas with the most rapid Asian homeownership growth were not areas of faster overall household growth. Thus, Asian homeownership increased most in areas that were not as fast growing as was true of blacks and Hispanics. However, for the most part, the same pattern of more rapid renter growth in areas with declines in Asian homeownership and more rapid increases in owner households in areas with increases in Asian homeownership is evident.

Exhibit 39
Overall Household Growth 1990 to 2000 by Tenure and Asian Homeownership Change Quintiles



Income and House Values

Exhibits 40 and 41 show tract average incomes and house values as a percent of area averages across the five Asian homeownership change quintiles. The tracts where Asians reside have relatively high household incomes and house values, particularly in contrast to blacks and Hispanics. By 2000, all five quintiles had tract incomes and house values that were above 90 percent of the relevant area averages. The pattern across the five quintiles is also unusual in that the quintiles with the highest incomes and house values are the first through the third, although the levels in the fourth and fifth quintiles are only slightly lower. Also, the third quintile experienced the largest gains in incomes and values and ended the decade with the highest levels of all quintiles. Unlike the other groups, areas where Asian homeownership increased the most had lower incomes and house values than areas where Asian homeownership declined.

Exhibit 40
Average Tract Average Income as a Percent of Area Average Income by Asian Homeownership Change Quintile

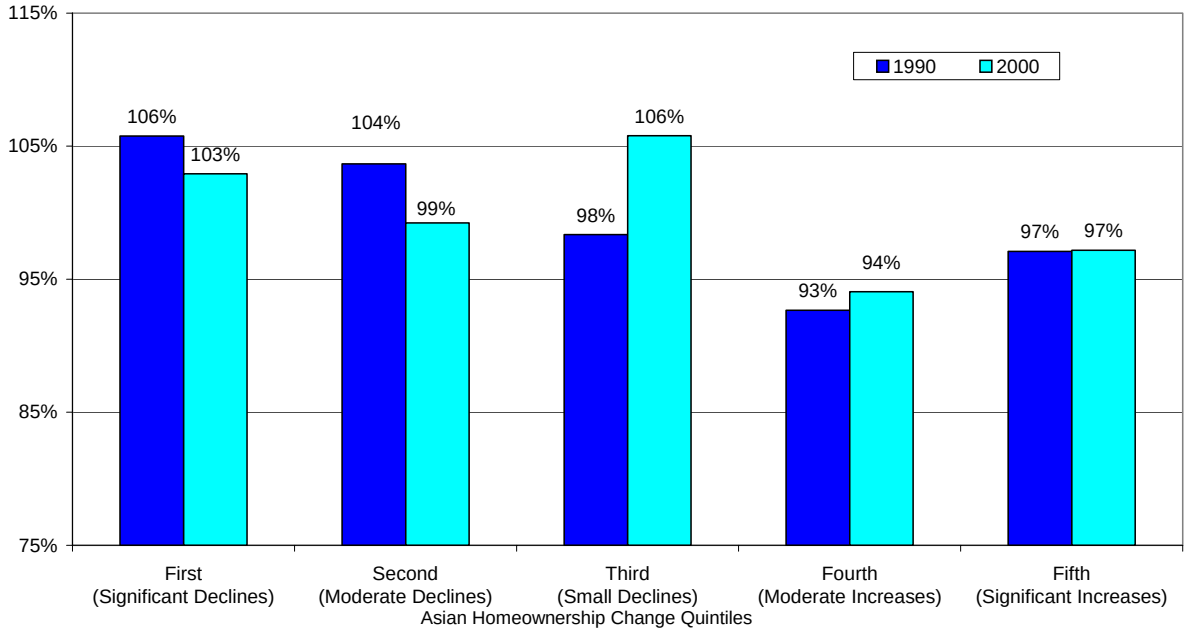
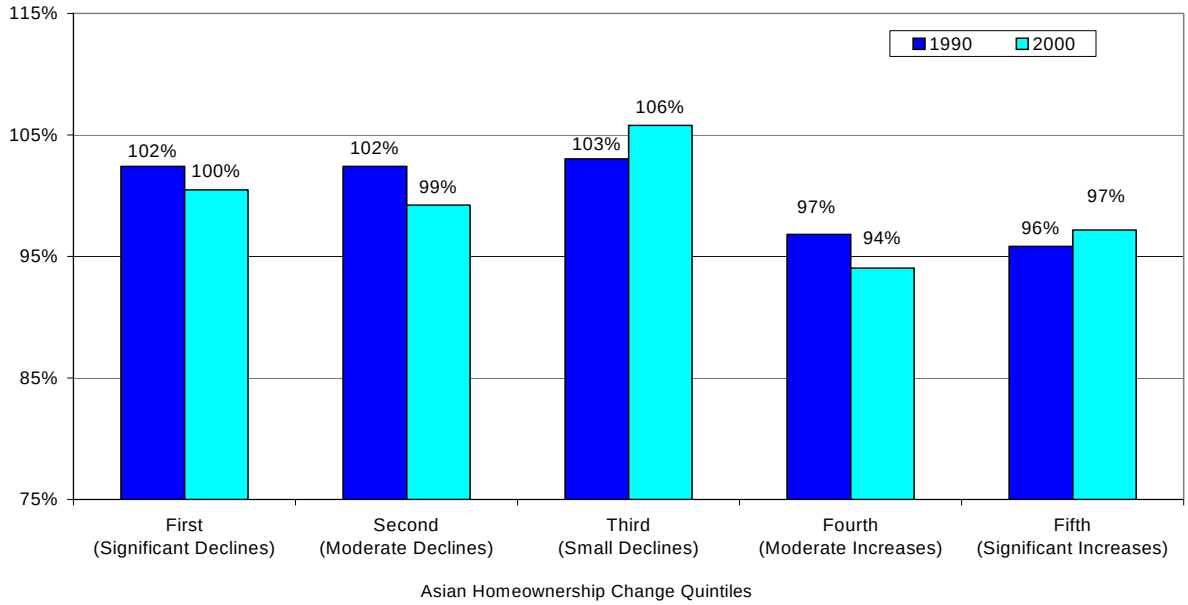


Exhibit 41
Average Tract Average House Value as a Percent of Area Average Value by Asian Homeownership Change Quintile

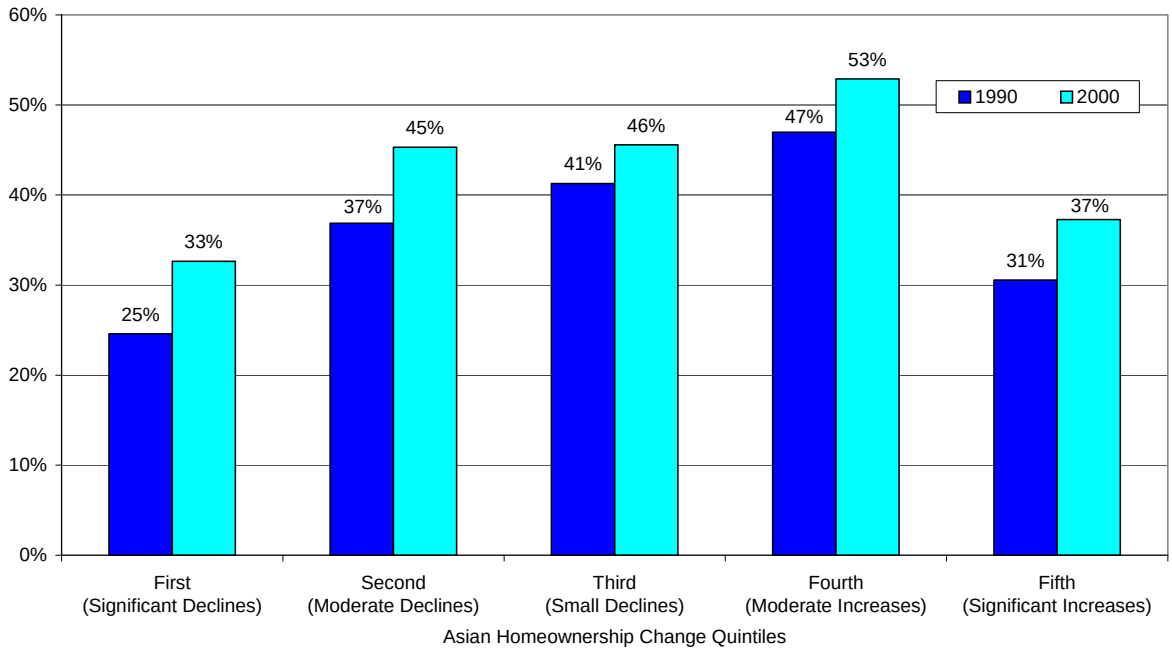


Note: The number of Asian households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Racial Composition

Exhibit 42 shows the share of households headed by minorities across the five Asian homeownership change quintiles. The minority shares are lower than for blacks and Hispanics, which is consistent with the fact that Asians experience less racial segregation than these other groups. As with other minority groups examined, the share minority in 1990 is lowest in the first and fifth quintiles, with 25 and 31 percent respectively, compared to shares that ranged from 37 to 47 percent in the middle three quintiles. All quintiles experienced increases in minority shares over the decade, but the magnitude of the changes were similar so that the ordering by minority share did not change. Thus, both significant declines and increases in Asian homeownership are occurring in areas with a lower concentration of minorities. However, the highest share minority is in the fourth quintile, so areas with the second largest gains in homeownership are areas with the highest minority shares.

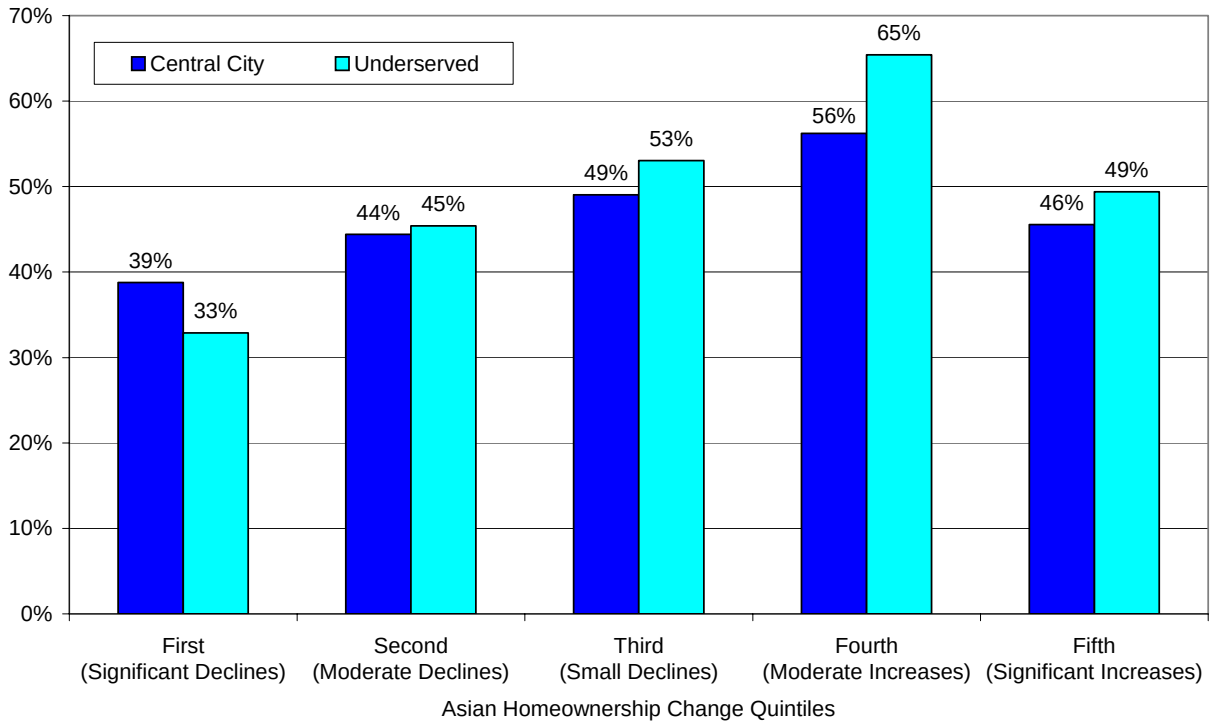
Exhibit 42
Average Tract Share Minority by Asian Homeownership Change Quintile



Intra-Metropolitan Distribution of Homeownership Gains

Exhibit 43 illustrates the share of households in each quintile that live in central cities or underserved tracts. The first quintile has much lower central city and underserved tract shares than the other four quintiles. The second quintile has the second lowest levels on both of these measures, while the first quintile ranks third. Once again, the fourth quintile stands out as being at the other extreme, with the highest share in both center cities and underserved tracts.

Exhibit 43
Share Central City and Underserved by Asian Homeownership Change Quintile



6.3. Summary

One notable feature of homeownership growth among Asians during the 1990s is that it was not nearly as rapid as among blacks of Hispanics. While the aggregate black homeownership rate rose by 2.9 percentage points and the Hispanic rate rose by 3.4 points, the Asian homeownership only rose by 0.3 percentage points. Asians experienced the most rapid household group of these three minorities over the decade, but renter growth was nearly as strong as homeowner growth, which dampened the rise in homeownership.

The characteristics of areas experiencing different rates of change in Asian homeownership were similar to that observed for blacks and Hispanics in that areas with significant declines in homeownership rates had a fair amount in common with areas experiencing significant gains. However, there were several ways in which the characteristics of Asian homeownership change quintiles differed from other minority groups. First, there tended to be less variation across the quintiles in average neighborhood characteristics. This was most notable in comparing overall homeownership rates, household incomes, and house values across the quintiles, with fairly small differences across the quintiles in these characteristics. Second, unlike for other minority groups, the areas experiencing significant declines in Asian homeownership generally tended to have more favorable characteristics than those experiencing significant gains. For example, in areas with the largest declines in Asian homeownership overall household growth was stronger, household income and house values were higher, and the shares of households in central cities and underserved areas

were lower than the other quintiles. Even areas with small or moderate declines in homeownership ranked higher in terms of household income levels and house values than areas with significant increases in homeownership. Finally, neighborhoods in the fourth quintile (that is areas with moderate gains in homeownership) tended to have the lowest measures of economic well-being. These areas had the slowest rate of household growth, the lowest income and house values, and the highest shares central city and underserved. In sum, in contrast to other minority groups, areas with the highest rates of Asian homeownership were not necessarily the areas with the most positive characteristics. But like other minority groups, areas with rapid growth in renter households, were marked by fairly positive characteristics.

7. Characteristics of Underserved Areas by Homeownership Change Quintile

As part of the housing goals established for Fannie Mae and Freddie Mac, HUD has identified areas that have been underserved by mortgage markets. Underserved areas are defined as census tracts in metropolitan areas or counties in non-metropolitan areas with average household incomes that are below 90 percent of the area average income or have a population that is 30 percent minority and have average household incomes that are no higher than 120 percent of the area average income. Specifically, the housing goals require that during the 2001 through 2004 period, 31 percent of the GSEs' annual mortgage purchases must be for housing units in these underserved areas. Given the importance of the GSEs in the U.S. mortgage market, it might be expected that the incentive to increase lending in these areas might lead to increases in homeownership opportunities in these areas. While an evaluation of the impact of the underserved housing goal on homeownership rates is beyond the scope of this report, it is still of interest to examine the characteristics of underserved areas that experienced the greatest gains in homeownership over the decade.

7.1. Characteristics of Underserved Neighborhoods by Homeownership Change Quintile

Exhibit 44 shows the share of all underserved areas in each of the five homeownership change quintiles introduced in Section 3. As shown, underserved areas are fairly evenly distributed across the five quintiles, although they are slightly more likely to be in the quintile that experienced moderate declines in homeownership rates. Thus, there is no indication from this distribution that underserved areas are more likely to have experienced gains in homeownership, although given that they were historically underserved it may be that *not* having a disproportionately small share of tracts in the quintiles with larger gains in homeownership is a positive outcome from the housing goals.

Exhibit 44
Share of Underserved Tracts by Homeownership Change Quintile

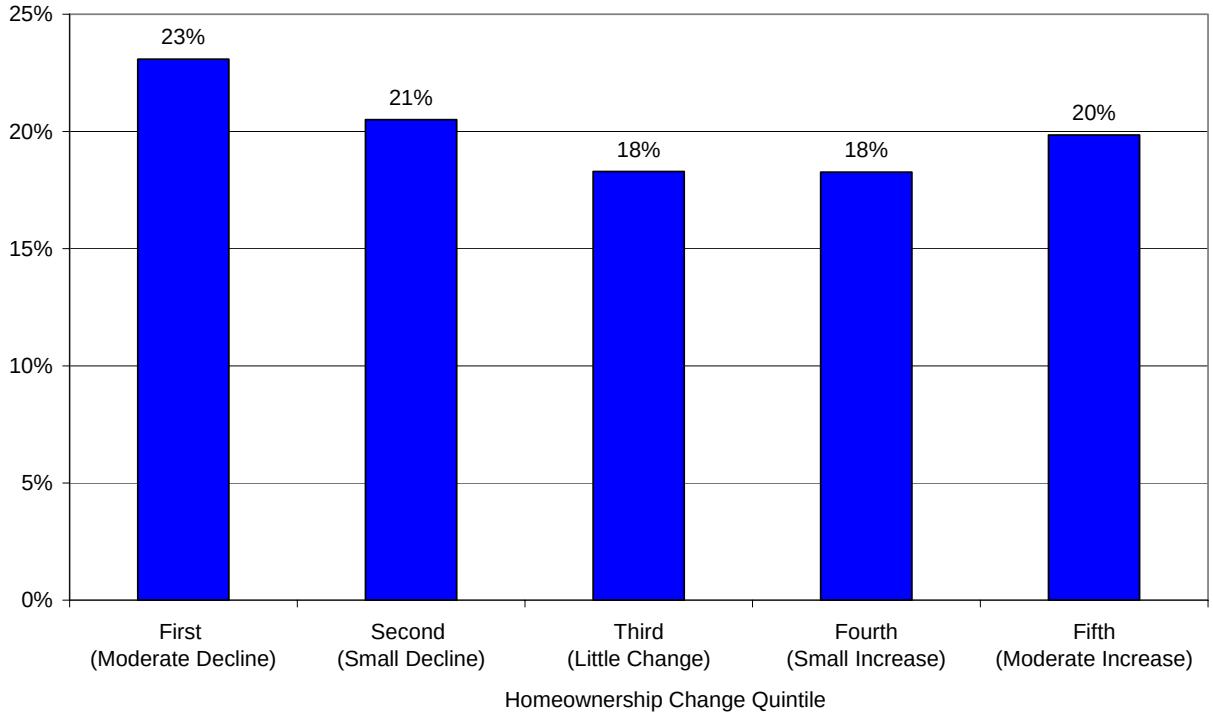


Exhibit 45 shows the average homeownership rates among underserved tracts by homeownership quintile. At the start of the decade there was relatively little difference in ownership rates, ranging only from a low of 53 percent in the fifth quintile to 57 percent in the fourth quintile. By the end of the decade, the range had widened to a low of 50 percent in the first quintile to a high of 63 percent in the fifth quintile.

Exhibit 46 illustrates differences in household growth rates among underserved tracts across these five quintiles. The pattern is similar to that found for all tracts, with strong owner growth in areas with homeownership gains and strong renter growth in areas with declines. But in general household growth was slower in underserved areas than in all tracts. Also, in contrast to all tracts, underserved tracts in the first quintile experienced absolute declines in owner households.

Exhibit 45
Homeownership Rates in Underserved Tracts by Homeownership Change Quintile

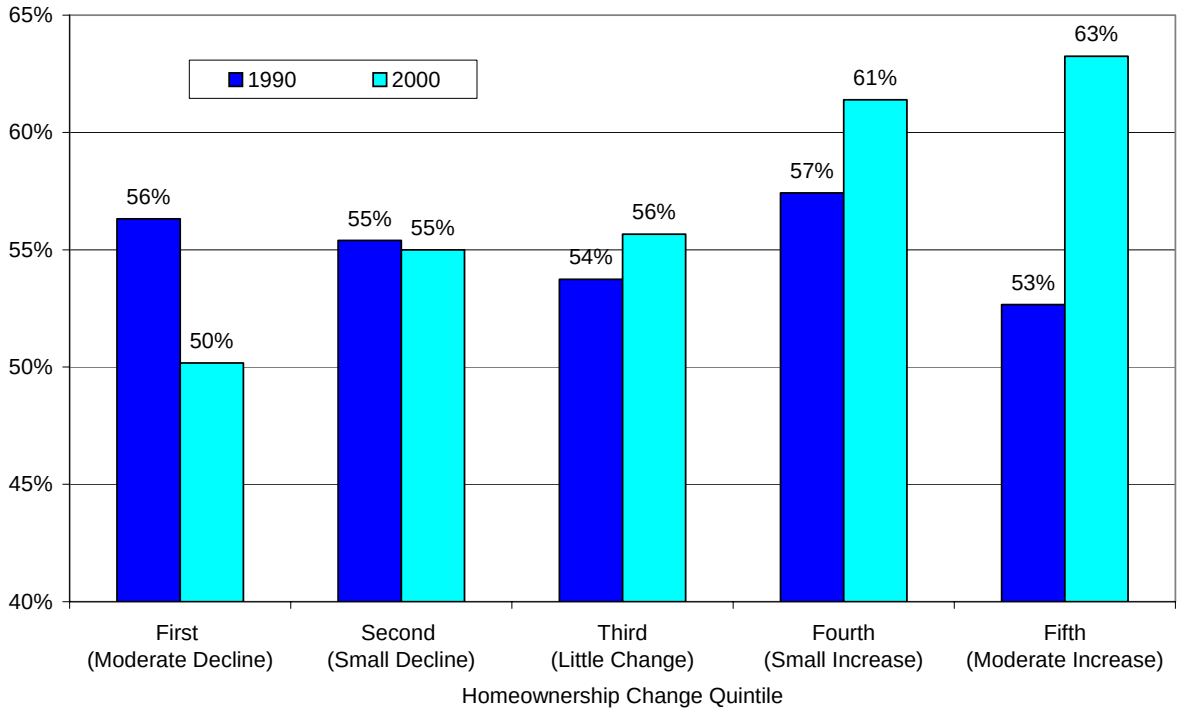
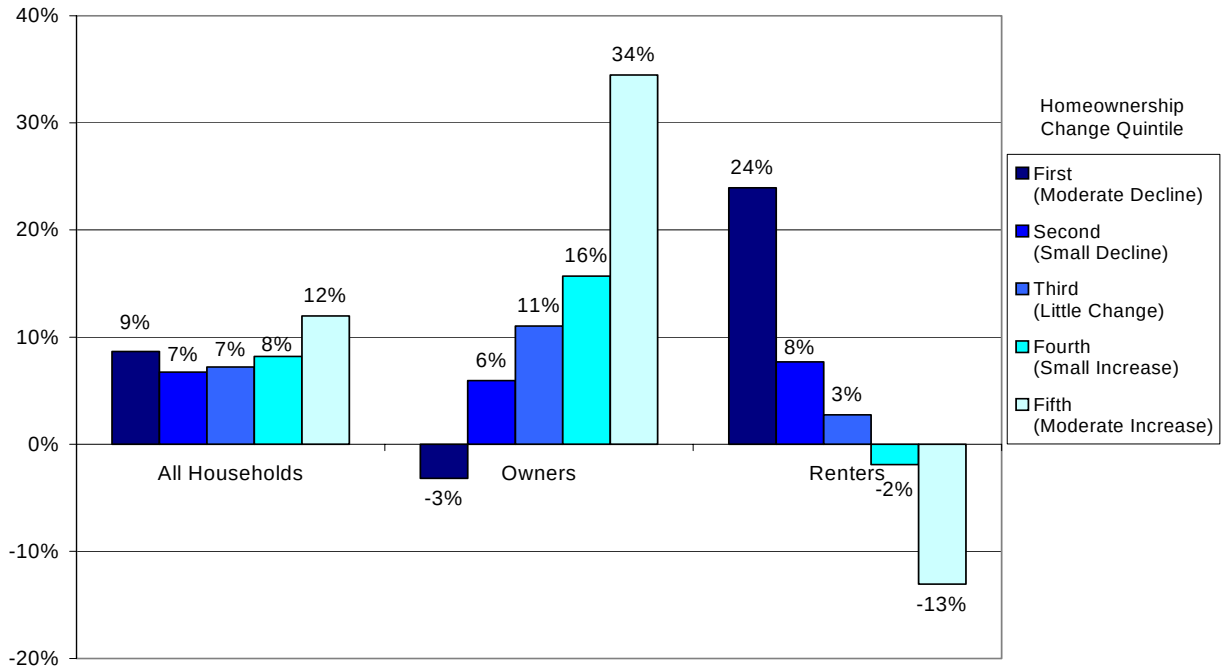


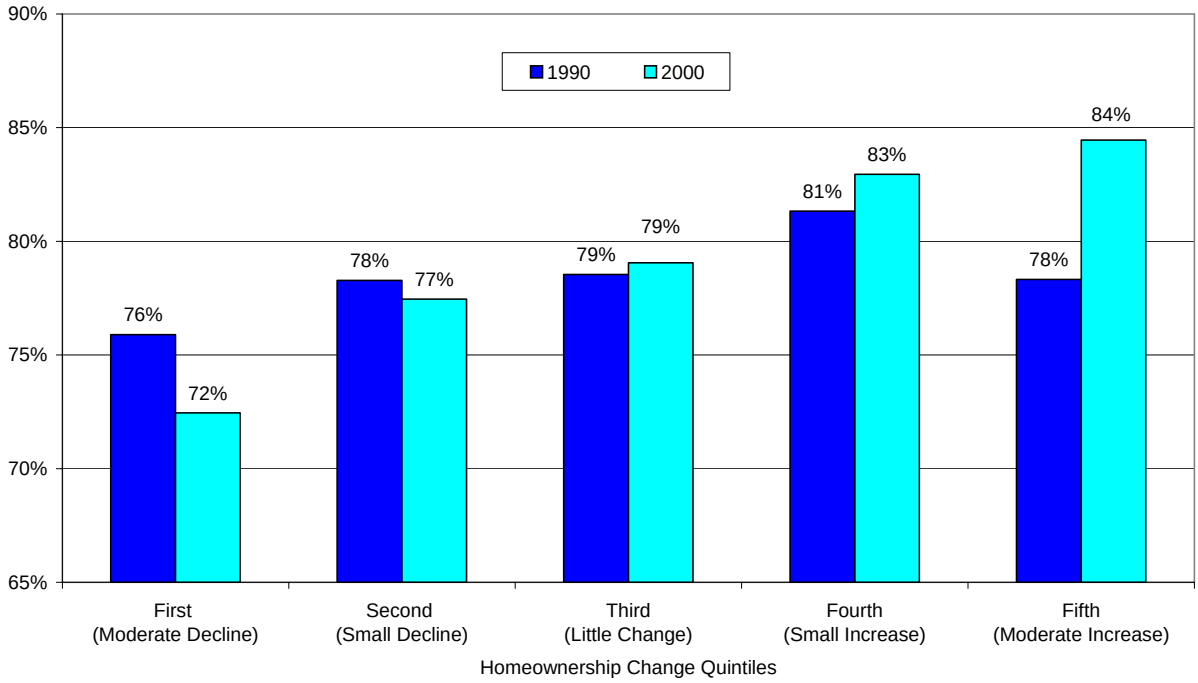
Exhibit 46
Household Growth Rates 1990 to 2000 in Underserved Tracts by Tenure and Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

As shown in Exhibits 47, the average income in underserved tracts was fairly similar across the five quintiles, ranging from a low of 76 percent in the first quintile to 81 percent in the fourth. Given that underserved tracts are defined in part on the basis of tract income as a percentage of area median incomes, it is not surprising that income levels are generally low among all quintiles. Over the course of the decade, larger gains in homeownership were associated with greater gains in income. As a result, by the end of the decade there was much more diversity across the quintiles in average income levels, ranging from 72 percent of area average income in the first quintile to 84 percent of area average income in the fifth.

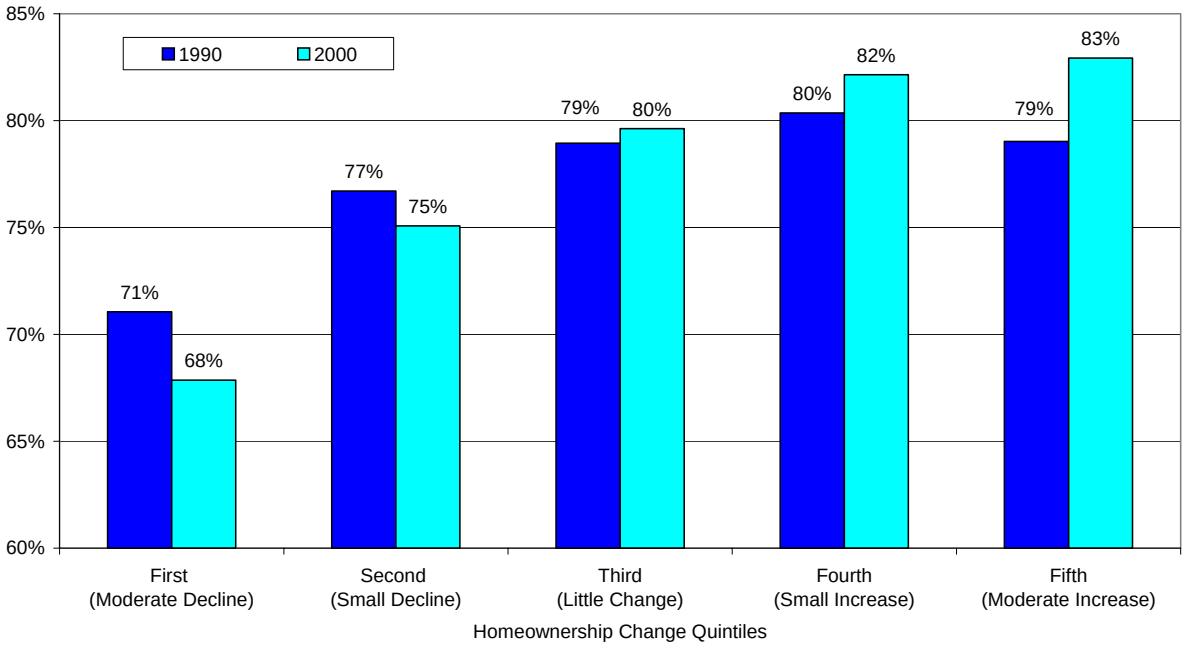
Exhibit 47
Average Tract Average Income as a Percent of Area Average Income by Homeownership Change Quintile for Underserved Tracts



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

House values were also generally low in underserved areas, with the fourth quintile having the highest average values in 1990 at 80 percent of area average. The first quintile stood out in 1990 for having much lower average values than the other four quintiles, at just 71 percent of area average, while there was little difference across the three quintiles with the greatest gains in homeownership. However, as with incomes, gains in homeownership over the decade were associated with increases in house values as well, so that by the end of the decade there was a clear tendency for areas that experienced larger gains in homeownership to have higher home values.

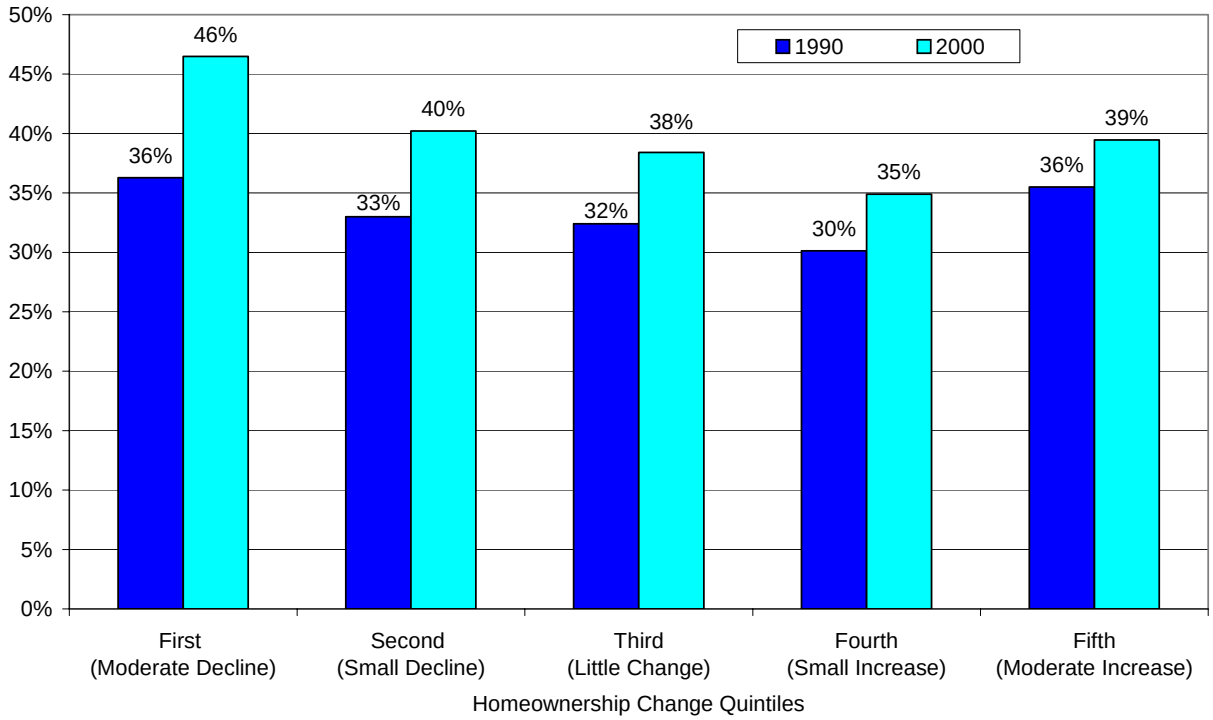
Exhibit 48
Average Tract Average House Value as a Percent of Area Average Value by Homeownership Change Quintile for Underserved Tracts



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

In terms of the minority share of households, as shown in Exhibit 49, at the start of the decade minority shares in underserved tracts were highest in the first and fifth quintile at 36 percent. Over the course of the decade the share minority grew faster in areas with larger declines in homeownership rates. By the end of the decade, tracts in the first quintile had much higher shares minority than other quintiles. The share minority was lowest in the fourth quintile at 35 percent, and was between 38 and 40 percent in second, third and fifth quintiles.

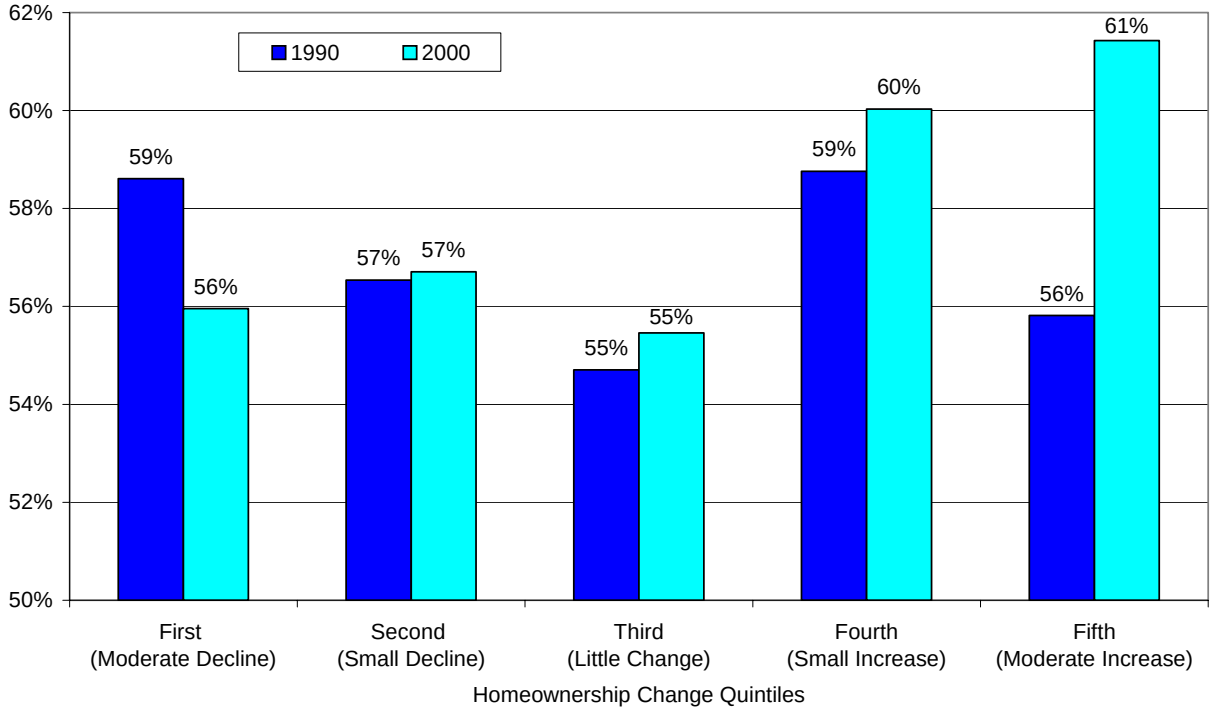
Exhibit 49
Average Tract Share Minority for Underserved Tracts
by Homeownership Change Quintile



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Another issue to consider is whether the nature of the housing stock as of 1990 was associated with subsequent gains in homeownership among underserved areas. Exhibit 50 shows the average share of the housing stock in single-family units in underserved tracts in both 1990 and 2000 for each of the five homeownership change quintiles. In general, there was little difference across the quintiles in 1990 in this measure, ranging only from 55 to 59 percent. There was also no clear association with the subsequent change in homeownership rates as the first and fourth quintiles had relatively high shares of single-family units while the third and fifth quintiles had relatively low shares. However, by the end of the decade there was a clear association, as areas with larger gains in homeownership saw increases in the share of single-family units, while areas with declines in homeownership rates saw these shares decline or remain unchanged. As these shifts suggest, the large gains in homeownership in the fifth quintile were aided by higher levels of new construction, as 18 percent of housing units in these areas were built during the 1990s, compared to only 11 to 13 percent in the other quintiles.

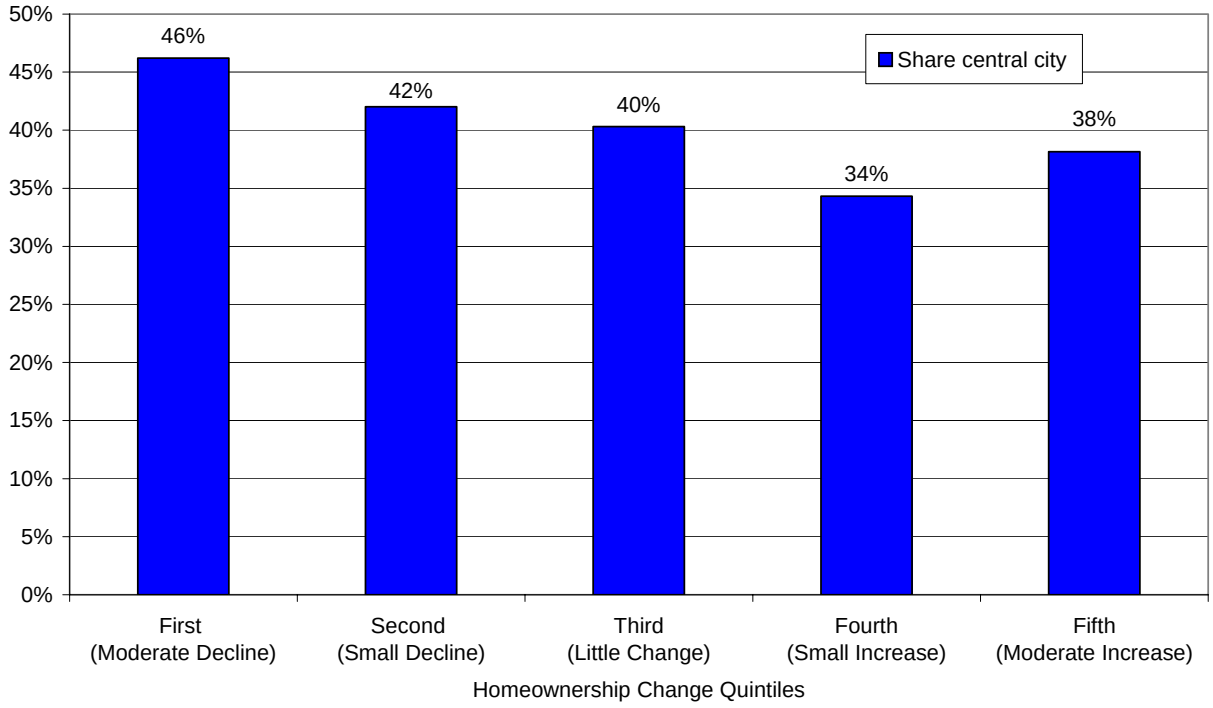
Exhibit 50
Share of Housing Units in Single Unit Structures by Homeownership Growth Quintile For Underserved Tracts



Note: The number of households in the tract in 1990 and 2000 are used as weights in estimating quintile averages for 1990 and 2000, respectively.

Finally, Exhibit 51 illustrates the share of underserved tracts in central cities for each of the homeownership change quintiles. As shown, underserved areas in central cities were more likely to experience declines in homeownership. Across the quintiles, the central city share ranges from 46 percent in the first quintile to 34 percent in the fourth quintile. The share central city is somewhat higher in the fifth quintile (38 percent), but this is still lower than in any of the first three quintiles.

Exhibit 51
Share Central City by Homeownership Change Quintile For Underserved Tracts



Note: The number of households in the tract in 2000 is used as a weight in estimating quintile averages for 2000.

7.2. Summary

While underserved tracts were somewhat more likely to experience significant declines in homeownership over the decade, for the most part these areas were fairly evenly distributed across the five homeownership change quintiles. Given that these areas had historically been underserved by the mortgage market, it might have been expected tracts would have been underrepresented in the quintile with larger gains in homeownership.

As was true of all tracts, there were a fair number of similarities in 1990 between underserved tracts that experienced significant declines in homeownership and those that experienced significant gains. As of 1990, tracts in both of these quintiles had similar homeownership rates, household incomes, share minorities, and shares of the housing stock in single-family housing. However, tracts with gains in homeownership had higher average home values and were less likely to be in central cities than tracts that experienced significant declines in homeownership. By the end of the decade, tracts with significant gains in homeownership had higher incomes and house values and higher shares single family housing than other quintiles. Thus, as with all tracts, the sharp rise in homeownership in these underserved areas was associated with strong gains in a number of socioeconomic characteristics.

8. Regression Analysis of Homeownership Rate Changes

In this section we present results of ordinary least squares regression models used to evaluate the association between census tract characteristics in 1990 and the percentage point change in homeownership rates over the course of the decade. Separate models are estimated for overall homeownership rates in all tracts and in underserved tracts and for homeownership rates of blacks, Hispanics, and Asians. In order to control for market-level factors such as trends in economic conditions and housing supply and affordability that would be expected to influence trends in homeownership rates, we include dummy variables for each metropolitan area and for each state if the tract is not located in a metropolitan area. In addition, robust standard errors are estimated to allow for the fact that the estimated residuals are likely to be correlated within market areas. In order to account for the fact that the variation in the dependent variable will be larger for tracts that begin the decade with few households, the regression uses the number of households in 1990 on which the starting homeownership rate is based as analytic weights.[11]

8.1. Variables Used in the Regression Analysis

Exhibit 52 provides means and standard deviations for the variables used in the regression models. The dependent variable in each model is the percentage point change in the tract homeownership rate either for all households or specifically for blacks, Hispanics, or Asians.[12] Note that the number of tracts used varies across the models as we restrict the models for blacks, Hispanics, and Asians to include only tracts that had some households of the type examined in both 1990 and 2000 (see Exhibit 53 for sample sizes in each model).

The following sections give a brief description of the variables included in the regression and the rationale for including them in the estimated models.

Overall Tract Homeownership Rates

Each of the models includes the tract homeownership rate as of 1990 as an explanatory variable. This variable will indicate whether areas with higher homeownership rates were more likely to benefit from the overall rise in homeownership during the 1990s than areas that started with lower homeownership rates. For minority groups, this variable will also indicate whether minority gains in

[11] With analytic weights, the variance of the each observation is assumed to be inversely proportional to the weight. Specifically, the variance of the n^{th} observation is assumed to be σ^2/w_n, where w_n is the number of households in the n^{th} tract. Thus, tracts with a large number of households of the type used to estimate the homeownership rate are assumed to have less variance in the change in homeownership rate than those with few households in 1990.

[12] Note that unlike the data presented in earlier sections, the averages shown in Exhibit 52 are unweighted. This has a noticeable impact on the tract averages for the black, Hispanic, and Asian regression models as there are a large number of tracts that have relatively few households of these types. As a result, unweighted averages differ greatly from weighted averages.

Exhibit 52
Summary Statistics
(Mean Values with Standard Deviations in Parenthesis)

	For Regression Models Estimating Homeownership Rates for:				
	All Households	Underserved Tracts	Blacks	Hispanics	Asians
Change in Tract Ownership Rate	0.007	0.005	0.019	-0.003	-0.009
	(0.070)	(0.067)	(0.299)	(0.347)	(0.385)
Own Racial-Ethnic Group Ownership Rate			0.468	0.525	0.593
			(0.341)	(0.347)	(0.374)
Overall Tract Ownership Rate	0.657	0.567	0.619	0.640	0.624
	(0.213)	(0.228)	(0.223)	(0.217)	(0.226)
Share Minority	0.207	0.348	0.258	0.214	0.199
	(0.270)	(0.325)	(0.283)	(0.258)	(0.227)
Tract Average Income (% of Area Average)	1.000	0.782	0.969	1.001	1.059
	(0.391)	(0.214)	(0.385)	(0.389)	(0.435)
Tract Average House Value (% of Area Average)	0.960	0.756	0.930	0.962	1.026
	(0.423)	(0.285)	(0.422)	(0.421)	(0.454)
Underserved Tract	0.467		0.507	0.457	0.394
	(0.499)		(0.500)	(0.498)	(0.489)
Poverty Rate	0.136	0.210	0.146	0.129	0.108
	(0.120)	(0.130)	(0.127)	(0.114)	(0.102)
Central City Tract	0.326	0.428	0.397	0.351	0.379
	(0.461)	(0.489)	(0.480)	(0.469)	(0.476)
Low Moderate Housing Density	0.252	0.163	0.250	0.247	0.264
	(0.434)	(0.369)	(0.433)	(0.431)	(0.441)
High Moderate Housing Density	0.254	0.216	0.285	0.272	0.311
	(0.435)	(0.411)	(0.451)	(0.445)	(0.463)
High Housing Density	0.246	0.355	0.295	0.278	0.318
	(0.431)	(0.478)	(0.456)	(0.448)	(0.466)
Share Housing Built in 1980s	0.204	0.161	0.213	0.215	0.228
	(0.190)	(0.148)	(0.204)	(0.203)	(0.219)
Share Housing in Single Unit Structures	0.666	0.591	0.636	0.648	0.636
	(0.234)	(0.249)	(0.244)	(0.244)	(0.257)
Share Single Unit Structures Rented	0.167	0.225	0.181	0.172	0.168
	(0.122)	(0.140)	(0.130)	(0.125)	(0.130)
Own Rate of Units in Structures with 5+ Units	0.183	0.171	0.184	0.189	0.191
	(0.234)	(0.217)	(0.220)	(0.230)	(0.219)

homeownership occurred in areas with higher homeownership rates or whether minority gains were in areas that were less conducive to generally to homeownership.

Own Racial-Ethnic Group Ownership Rates

In the models predicting homeownership rates for individual minority groups, we also include the 1990 homeownership rate for that group. That is, the 1990 black homeownership rate is included in the model of changes in black homeownership rates, the Hispanic rate is included in the Hispanic model, and the Asian rate is included in the Asian model. These variables are intended to indicate whether minority homeownership gains were more likely in areas where the minority group had already achieved relatively high homeownership rates.

Share Minority

The share of households head by minorities in 1990 is intended to identify whether homeownership gains were more or less likely in areas where minorities have a larger presence. In the analysis of changes in overall homeownership rates, this variable will indicate whether minority neighborhoods

have benefited from the rise in homeownership, while in the analysis of minority homeownership rates it will indicate whether minorities are more likely to purchase in areas that already have relatively high shares of minorities.

Tract Average Income as a Percent of Area Average Income

The 1990 tract average household income is measures as the percent of the relevant area average income, where the area is defined as either the metropolitan area where the tract is located or the non-metropolitan portion of the state if the tract is not in a metropolitan area. This variable is included to examine the relationship between neighborhood income levels at the start of the decade and changes in homeownership rates. In terms of overall homeownership rates, this variable will indicate whether homeownership rate gains tended to benefit areas that were already fairly well off. This variable will be of particular interest in examining areas where minority homeownership rates have increased as one goal of encouraging homeownership among low-income and minority households is to enhance access to neighborhoods with higher quality public services. To the extent that higher household incomes serve as a proxy for higher quality public services, this variable will indicate whether minority homeownership gains are, in fact, associated with movement to higher income areas.

Tract Average House Value as a Percent of Area Average House Values

The 1990 tract average house value is measured as a percent of the area average house value, where the area is defined as either the metropolitan area where the tract is located or the non-metropolitan portion of the state if the tract is not in a metropolitan area. As with incomes, this variable is included to examine whether areas that were already relatively well off were more likely to benefit from homeownership gains. For minorities, it will indicate whether the increase in homeownership was associated with gaining access to areas of higher home values.

Underserved Tracts

The models also include a dummy variable to indicate whether a tract was designated by HUD as underserved during the 1990s. Since the model already includes measures of income levels and minority composition, which are the factors used to define underserved status, this variable is intended to assess whether there is any indication that the targeting of lending activity by the GSEs had an impact on homeownership rates in these areas. Of course, since we do not have any tracts with a similar income and minority profile that did not benefit from having underserved status, there is no way to separate the impact of the housing goals from the fact that these are neighborhoods with the lowest incomes and highest minority concentrations in the country. It may well be that these characteristics made homeownership gains particularly unlikely. Thus, even if we find a negative correlation between homeownership gains and underserved status, we do not know whether in the absence of the housing goals this negative association would have been even stronger. Nonetheless, it is of interest to examine this relationship.

Poverty Rate

We also include the share of the population in the tract in households with income below the poverty line. While this concept is related to average household income, since average incomes can mask broad income diversity, it provides a better indication of the degree to which very low income families live in a neighborhood. It would be expected that homeownership gains would be less likely in higher poverty neighborhoods, but it will be interesting to see if there is any difference between all households and minorities in the relationship between poverty levels and homeownership gains.

Central City Tracts

The central city variable is a dummy variable indicating whether a tract has at least 50 percent of its inhabitants in a central city. Since the model includes variables related to income levels, house values, minority composition, and housing stock characteristics, this variable will indicate whether all else equal homeownership gains were less likely in central cities or not. If so, one explanation might be that lower quality public services acted as a disincentive for households to seek homeownership in cities.

Housing Density

Housing density is measured as the number of total housing per square mile of land area in the tract. There is a great deal of variation in this measure as some tracts have large areas and few households while urban tracts can have a large number of housing units in a small area. In the end, it was determined that housing density was best captured in the model by a series of categorical variables corresponding to the quartiles of housing density across tracts. Specifically, low density tracts are defined as those with less than 76 housing units per square mile in 1990, low-moderate density areas had between 76 and 739 housing units per square mile, high-moderate density areas had between 739 and 2,130 units per square mile, and high density tracts had more than 2,130 units per square mile. In estimating the equation low-density tracts are the left out category so the other variables are measured relative to this category. Since most homeowners live in single family housing, it would be expected that low density areas would be more likely to have gains in homeownership as they have the land area needed to support development of new single family homes.

Share Housing Built in 1980s

This variable is the share of total housing units that were built during the 1980s. Homeownership might be expected to increase most sharply in areas with high levels of new housing construction as the housing stock could be built to accommodate the demand for owner-occupied housing units. Having high levels of new construction in the 1980s provides an indication of both a supply of land and a regulatory regime that enables high levels of new construction. As a result, we would expect that areas with high levels of development in the 1980s would continue to be areas of high growth in the 1990s and that this growth would foster increases in homeownership.

Share of Housing in Single Unit Structures

This variable measures the share of total housing units in either single family attached or detached units. Again, since homeownership is most commonly associated with single unit structures, areas with already high shares of single family housing may be most likely to experience increases in homeownership both because the existing stock is conducive to ownership and because the high share of single family units may indicate that zoning restrictions make new development of multifamily housing more difficult.

Share Single Unit Structures Rented

This variable measures the share of occupied single-family units that were rented in 1990. Areas with high shares of these units being rented would provide an easy avenue for homeownership gains through tenure switching of the existing units. Greater homeownership gains would be expected in areas that had higher rental rates of single unit buildings in 1990.

Ownership Rate of Units in Structures with 5 or more Units

In most areas, ownership of housing units in multiunit buildings is somewhat rare. Nationally, the average ownership rate of units in buildings with 5 or more units in 1990 was about 10 percent. Yet a quarter of tracts have homeownership rates that exceed 25 percent. In these areas, there may be both greater acceptance of multifamily units as appropriate for ownership and more familiarity in the process needed to convert multiunit structures into condominium or cooperatives. Thus, areas with higher levels of ownership of units in multiunit structures in 1990 would be presumed to have greater propensity for homeownership gains in the 1990s.

8.2. Regression Results

Exhibit 53 presents the weighted OLS regression results for the five groups studied. Coefficients that are significant at the 95-percent confidence level are shaded. In terms of the overall goodness of fit, the R-squared measure (which indicates the share of the variation in the dependent variable that is explained by the model) is much lower for the models predicting changes in overall homeownership rates either across all tract (0.077) or in underserved tracts (0.097) compared to the models predicting changes in minority homeownership rates (ranging from 0.267 for blacks to 0.367 for Hispanics. However, the greater explanatory power of the minority models may largely be due to the fact that there is much greater variation in the changes in minority homeownership rates to be explained. As shown in Exhibit 52, the standard deviation of homeownership rate changes is about 0.07 for overall homeownership rates compared to about 0.30 to 0.39 for minorities. In general, the models do not fit the data particularly well, but that is not uncommon for models predicting change in a measure. In short, there is a fair amount of variation in homeownership rate changes that are not well captured by the available variables.

The overall tract homeownership rate in 1990 was found to be a highly significant predictor of subsequent change in homeownership rates in all estimated models. In estimates of overall homeownership rates in either all tracts or underserved tracts, the coefficient on this variable was negative, indicating that areas that began the decade with higher homeownership rates were more likely to experience declines over the decade. Thus, it was not the case that areas with already high homeownership were more likely to benefit from the gains in homeownership over the decade.

For minorities, however, the coefficient on the overall homeownership rate in 1990 was positive and quite large. This indicates that minority homeownership was most likely to increase in areas that had high overall homeownership levels. Thus, it is not the case that minority homeownership gains were occurring in areas that were of limited attraction to other homeowners. However, the large positive coefficients on the tract homeownership rate were offset to some degree by larger negative coefficients on the 1990 homeownership rate for the racial-ethnic group being modeled. This is consistent with the graphs shown early indicating that tracts that began the decade with high minority homeownership rates ended the decade with lower rates and vice versa. It may be that areas with high minority homeownership in 1990 were more likely to be established racial or ethnic communities. The fact that homeownership gains were lower in these areas may suggest that minorities were more likely to pursue homeownership outside of these established communities.

Interestingly, the share minority variable was not significant in predicting homeownership rate changes in either all tracts or underserved tracts. Thus, whether a neighborhood experienced

increases or declines in homeownership rates was not related to the presence of minorities. However, the share minority is positive and significant in all of the models predicting changes in minority homeownership rates. Perhaps not surprisingly, minority homeownership was most likely to increase in areas where minorities already had a presence. This result is somewhat at odds with the finding that minority homeownership gains were smaller in areas where minority homeownership was higher. But it may also be that the first minorities to enter a mostly white neighborhood will prefer to rent to see whether they are accepted in the community. Areas where minorities have established a presence as renters may then be the areas most likely to experience rapid gains in homeownership in the subsequent decade.

Exhibit 53
Regression Results for Change in Tract Homeownership Rate 1990-2000
(T-statistics in Parenthesis)

	Regression Models Estimating Homeownership Rates for:				
	All Households	**Underserved Tracts**	**Blacks**	**Hispanics**	**Asians**
Overall Tract Ownership Rate	-0.085	-0.081	0.443	0.627	0.648
	(16.29)	(11.06)	(25.60)	(19.14)	(20.22)
Own Racial-Ethnic Group Ownership Rate			-0.510	-0.728	-0.735
			(65.49)	(36.05)	(39.84)
Share Minority	0.002	0.004	0.084	0.045	0.063
	(0.66)	(1.46)	(12.99)	(5.68)	(4.53)
Tract Average Income (% of Area Average)	-0.002	0.023	0.025	0.020	0.002
	(0.64)	(4.46)	(3.44)	(3.56)	(0.40)
Tract Average House Value (% of Area Average)	0.012	0.010	-0.005	-0.024	-0.007
	(4.61)	(2.12)	(0.86)	(5.16)	(1.63)
Underserved Tract	-0.004		0.006	0.005	0.017
	(5.38)		(2.58)	(1.85)	(3.22)
Poverty Rate	-0.033	0.005	0.001	0.026	-0.036
	(5.02)	(0.75)	(0.15)	(1.74)	(1.10)
Central City Tract	-0.004	-0.003	-0.003	-0.001	0.011
	(3.74)	(1.88)	(1.53)	(0.23)	(2.35)
Low Moderate Housing Density	-0.023	-0.026	-0.047	-0.005	-0.029
	(22.27)	(16.22)	(14.53)	(0.97)	(2.88)
High Moderate Housing Density	-0.034	-0.037	-0.055	-0.019	-0.057
	(25.04)	(16.24)	(14.01)	(3.26)	(5.60)
High Housing Density	-0.040	-0.042	-0.057	-0.026	-0.065
	(19.49)	(14.30)	(13.10)	(4.18)	(6.07)
Share Housing Built in 1980s	0.015	0.020	0.053	0.068	0.040
	(3.87)	(3.38)	(5.46)	(6.05)	(3.13)
Share Housing in Single Unit Structures	0.032	0.031	0.014	0.059	0.073
	(7.62)	(5.38)	(1.43)	(3.25)	(7.24)
Share Single Unit Structures Rented	0.016	0.007	0.027	0.027	0.001
	(2.52)	(0.97)	(2.76)	(1.21)	(0.03)
Own Rate of Units in Structures with 5+ Units	-0.001	-0.003	-0.004	-0.003	-0.012
	(0.41)	(1.67)	(1.06)	(0.48)	(1.97)
Number of Observations	63,357	29,566	45,589	49,182	34,121
R-Squared	0.077	0.097	0.267	0.367	0.360

Note: Shaded cells indicate statistical significance at the 95-percent confidence level.

There is not a statistically significant relationship between tract average income levels and the change in overall homeownership rates, although there is a positive association with tract house values. For underserved tracts, both income and house values are positively associated with homeownership rates, indicating that among underserved tracts those that started the decade with higher socioeconomic profile were more likely to experience gains in homeownership. For both blacks and Hispanics, larger gains in homeownership were associated with higher tract income levels, while for Asians tract income was not a statistically significant factor. Thus, for blacks and Hispanics it does appear that homeownership gains were not limited to lower income neighborhoods, while for Asians homeownership gains were income neutral. Tract house values were not statistically significant for either blacks or Asians, again indicating that gains for these groups were not limited to areas with low house values. For Hispanics, however, the coefficient on house values was negative and significant. Hispanics homeownership gains appear to have been more common in areas with lower house values, although there was a positive association with income levels.

For overall homeownership rates, underserved status was found to be statistically significant and negative indicating that in these areas homeownership rates were more likely to decline even after taking into account their other characteristics. However, the coefficient is actually positive and significant for both blacks and Asians, while not significant for Hispanics. Thus, while overall homeownership rates tended to decline in these areas, black and Asian rates tended to increase. In short, the results are mixed regarding the association between underserved status and homeownership gains.

The tract poverty rate was found to be statistically significant and negative for overall homeownership rate changes, but insignificant in all other models. This suggests that areas with high poverty levels were less likely to experience gains in overall homeownership, but high poverty levels had no relationship with changes in minority homeownership rates or ownership rates in underserved areas. The results were similar with regard to central city status in that this was more important for overall homeownership rates than for minority groups or underserved areas. All else equal, central city status was associated with declines in overall homeownership rates, but was not a statistically significant factor in the changes in black, Hispanic, or underserved tracts homeownership rates. Asian homeownership, on the other hand, was more likely to increase in central city areas.

Housing density in 1990 was found to be one of the most important explanatory variables. The higher the housing density of a neighborhood the more likely it would experience declines in homeownership rates. Compared to low-density areas, low-moderate density areas on average experienced declines of 2.3 percentage points in homeownership rates, while rates in high-moderate density areas declined by 3.4 percentage points, and rates in high density areas declined by 4.0 percentage points.

In terms of characteristics of the housing stock, the share of housing units built in the 1980s was found to be positive and statistically significant for all groups, while the share of the housing stock in single-family units was positive and significant for all groups except blacks. The share of single-family units that were rented in 1990 was positive and significant for overall homeownership rates and blacks, but not for other groups. Finally, the ownership rate of units in structures with 5 or more units was only significant in the Asian homeownership rate change model, and in that case was unexpectedly negative.

Given the sample sizes of from 30,000 to more than 60,000 observations it is not entirely surprising that many of the coefficients are statistically significant. Thus, it is also important to consider the magnitude of the estimated association between the independent variables and changes in homeownership rates. Exhibit 54 presents estimates of the percentage point change in homeownership rates that is predicted to result from a one standard deviation increase in the explanatory variables (or a one unit increase for dummy variables).

Exhibit 54
Estimated Magnitude of Change in Tract Homeownership Rates 1990-2000 From One Standard Deviation or One Unit Change in Independent Variables

	Regression Models Estimating Homeownership Rates for:				
	All Households	Underserved Tracts	Blacks	Hispanics	Asians
Overall Tract Ownership Rate	-1.8	-1.9	9.9	13.6	14.7
Own Racial-Ethnic Group Ownership Rate	NA	NA	-17.4	-25.2	-27.5
Share Minority	0.0	0.1	2.4	1.2	1.4
Tract Average Income (% of Area Average)	-0.1	0.5	1.0	0.8	0.1
Tract Average House Value (% of Area Average)	0.5	0.3	-0.2	-1.0	-0.3
Underserved Tract	-0.4	NA	0.6	0.5	1.7
Poverty Rate	-0.4	0.1	0.0	0.3	-0.4
Central City Tract	-0.4	-0.3	-0.3	-0.1	1.1
Low Moderate Housing Density	-2.3	-2.6	-4.7	-0.5	-2.9
High Moderate Housing Density	-3.4	-3.7	-5.5	-1.9	-5.7
High Housing Density	-4.0	-4.2	-5.7	-2.6	-6.5
Share Housing Built in 1980s	0.3	0.3	1.1	1.4	0.9
Share Housing in Single Unit Structures	0.8	0.8	0.3	1.4	1.9
Share Single Unit Structures Rented	0.2	0.1	0.4	0.3	0.0
Own Rate of Units in Structures with 5+ Units	0.0	-0.1	-0.1	-0.1	-0.3

For minorities, the starting homeownership rates, both overall and for the specific racial-ethnic group being analyzed, were by far the most important variables in the model. The magnitude of changes in homeownership rates associated with one standard deviation movements in these variables wa between 9.9 and 27.5 percentage points, while no other variable had an impact larger than 6.5 percentage points. Starting homeownership rates also had a relatively important impact on the estimated change in overall homeownership rates in both all tracts and underserved tracts, although the magnitude was much smaller at between 1.8 and 1.9 percentage points.

The housing density variables were also quite important for all groups, with estimated impacts of between 2.3 and 6.5 percentage points for most groups. Housing density, however, was less important for Hispanic homeownership changes, with the magnitude of changes associated with the different housing density categories ranging only from 0.5 to 2.6 percentage points.

After housing density, the next most important characteristic was generally the share of housing units in single-family structures, which was associated with changes in homeownership rates of between 0.8 percentage points for overall homeownership rates to more than 1.4 percentage points for Hispanics and Asians. While this factor was not associated with black homeownership rate changes, the share of units built in the 1980s accounted for a 1.1 percentage point rise in black rates and 1.4 percentage point rise in Hispanic rates.

For minorities, the minority share was also an important factor, particularly for blacks. A one standard deviation change in the minority share was associated with a 2.4 percentage point increase in black homeownership rates compared to 1.2 for Hispanics and 1.4 for Asians. There was no association between minority share and changes in overall homeownership rates.

As noted previously, the association between tract incomes and house values varied across the groups. While tract incomes had little association with overall homeownership rates, they were fairly important for blacks (a 1.0 percentage point increase in rates for each standard deviation increase in tract incomes) and in underserved areas (a 0.5 percentage point increase). House values were more important for overall homeownership changes, with rates rising by 0.5 percentage points for a one standard deviation increase. While Hispanic homeownership rates were estimated to fall by 1.0 percentage points for every standard deviation increase in values.

Finally, underserved status was associated with fairly large changes in minority homeownership rates, ranging from 0.5 percentage points for Hispanics and 0.6 percentage points for blacks to 1.7 percentage points for Asians.

8.3. Discussion of Results

The multivariate analysis presented in this section helps to shed light on the questions posed in the introduction to this study. Since homeownership is thought to benefit neighborhoods as well as individuals, one question this study was intended to address is what were the characteristics of neighborhoods where homeownership increased the most in the 1990s. The regression analysis found that the most important factors associated with increases in overall homeownership rates were low housing density, high shares of housing in single-unit structures, and higher average house values. While these measures suggest that homeownership gains were most likely to be experienced in areas that were already fairly well off, importantly we also found that homeownership gains were not statistically significantly associated with either starting income levels or minority shares. Thus, homeownership gains were not concentrated in higher income, white areas. In addition, areas with higher starting homeownership rates were less likely to experience increases in homeownership, so areas with previously low homeownership rates did benefit from the increasing rates.

Another question posed by this study is whether minority homeownership gains occurred in areas of higher socioeconomic status so that these increases were associated with minorities gaining access to areas with higher quality public services and amenities. The regression analysis finds that blacks and Hispanic homeownership gains were more likely in neighborhoods with higher relative income levels and higher overall homeownership rates. But while Hispanic homeownership gains were more likely in areas with higher income levels, they were also more likely in areas with lower house values. Asian gains were neutral with respect to both neighborhood incomes and house values. In terms of other factors associated with minority homeownership gains, many of the factors associated with increases in overall homeownership rates were also important for minorities, including lower housing density, more single family units, and higher levels of new construction in the previous decade. Thus, it appears that minority homeownership gains were for the most part occurring in areas with positive indicators of economic health.

With regard to the question of how changes in homeownership relate to levels of racial and ethnic segregation the results are mixed. On the one hand, changes in overall homeownership rates were not associated with the share of minorities in the neighborhood. On the other hand, homeownership rates for all minority groups were more likely to rise in areas that started with higher shares of minorities, although gains in minority homeownership were also less likely in areas where minorities started the decade with higher homeownership rates. Together these results are consistent with a pattern where minorities seek to purchase in areas outside of established minority communities with high homeownership rates, but nonetheless seek to buy in areas with an established minority presence.

Finally, the regressions also attempt to examine the association between homeownership rate changes and whether neighborhoods were designated as underserved areas by HUD and so received special emphasis from the GSEs in supporting mortgage lending. The results find that overall underserved status was associated with declines in overall homeownership rates, all else equal. However, homeownership rates for blacks and Asians were found to have increased in these areas, while there was no impact on changes in Hispanic homeownership rates. These results are consistent with a pattern where white homebuyers avoided these areas due to their very low income levels and high minority shares, but that the increased attention from lenders nonetheless benefited minorities.

9. Conclusions and Areas for Further Research

More work is needed to understand what differentiates neighborhoods that experienced strong growth in homeownership over the decade, from those that experienced strong growth in renter households (and thus declines in homeownership rates) and those that experienced relatively little change in homeownership rates. The analysis presented in this study suggests that in many respects areas that had strong growth in homeownership had much in common with areas that experienced large declines in homeownership. In general, both types of neighborhoods started the decade with lower household incomes and house values than other neighborhoods and had similar housing stock characteristics. Both types of neighborhoods also experienced rapid growth in households over the decade supported by significant levels of new housing construction, but some areas tended to specialize in serving renter households while others catered primarily to owner households.

As a hypothesis, it seems likely that there are important differences in these areas related to factors such as their location within the metro area relative to transportation corridors and job growth. It also seems likely that local zoning regulations and the quality of public services may also play a role in supporting different types of development and in attracting different types of households. Case studies of specific market areas might help to better understand the market dynamics associated with these trends. A better understanding of the factors that determine where homeownership gains occur would help inform policy makers concerned about how homeownership gains are distributed across neighborhoods.

Bibliography

Herbert, Christopher E., Donald R. Haurin, Stuart S. Rosenthal, and Mark Duda. 2004. *Homeownership Gaps Among Low-Income and Minority Borrowers and Neighborhoods.* Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Simmons, Patrick A. 2001. "Changes in Minority Homeownership During the 1990s," Washington, DC: Fannie Mae Foundation, Census Note 07. September.

Tatian, Peter A. 2002. Neighborhood Change Data Base (NCDB) 1970-2000 Tract Data. Washington, DC: The Urban Institute.

Appendix A: Decomposing Homeownership Changes

As summarized by Simmons (2001), the following method can be used to decompose aggregate changes in homeownership rates for a group into a portion attributable to changes in the homeownership rates of individual census tracts and a portion due to changes in the distribution of households across tracts, respectively referred to as the rate and composition effects. The decomposition is based on the following mathematical relationships:

$$\Delta R = \sum_i p_{i00} * r_{i00} - \sum_i p_{i90} * r_{i90} \quad (1)$$

Algebraically, this expression can be rearranged in the following way:

$$\Delta R = \sum_i p_{i00} * r_{i00} + (\sum_i p_{i90} * r_{i00} - \sum_i p_{i90} * r_{i00}) - \sum_i p_{i90} * r_{i90} \quad (2)$$

$$\Delta R = (\sum_i p_{i00} * r_{i00} - \sum_i p_{i90} * r_{i00}) + (\sum_i p_{i90} * r_{i00} - \sum_i p_{i90} * r_{i90}) \quad (3)$$

$$\Delta R = \sum_i r_{i00} * (p_{i00} - p_{i90}) + \sum_i p_{i90} *(r_{i00} - r_{i90}) \quad (4)$$

$$\Delta R = \sum_i r_{i00} * \Delta p_i + \sum_i p_{i90} * \Delta r_i \quad (5)$$

Where the variables are defined as follows:

- ΔR is the aggregate homeownership rate change between 1990and 2000 for the country as a whole;
- $\sum_i$ indicates summation across i census tracts;
- p_{i00} and p_{i90} are the proportions of households in census tract i in 2000 and 1990, respectively;
- Δp_i is the change in the proportion of households in tract i between 1990 and 2000 and is defined as $p_{i00} - p_{i90}$;
- r_{i00} and r_{i90} are the homeownership rates for households in census tract i in 2000 and 1990, respectively; and
- Δr_i is the change in the homeownership rates of census tract i between 1990 and 2000 and is defined as $r_{i00} - r_{i90}$.

Equation 5 is used to decompose the aggregate change in homeownership rates into components related to changes in rates for specific tracts versus changes in the distribution of households across tracts. The first part of equation 5 ($\sum_i r_{i00} * \Delta p_i$) is the composition effect, which represents the portion of the aggregate change in the national homeownership rate that is attributable to changes in the distribution of households across tracts. That is, this expression indicates how much the aggregate homeownership rate would have changed if there had not been any change in homeownership rates at the tract level (that is, $\Delta r_i = 0$) but the distribution of households across tracts had changed. The

second part of equation 5 ($\sum_i p_{i90} * \Delta r_i$) is the rate effect, which represents the portion of the aggregate change in homeownership rates that is attributable to changes in homeownership rates at the tract level without any change in the distribution of households across tracts (that is, $\Delta p_i = 0$).